09.E: the ***Philosophyldeas*** overview of

Objects over Time

We may have a concept of the existence, the structure, and even the essence of an object, but some intriguing problems arise when we consider its persistence and identity over time. Even if the object remains quite unchanged in its qualities, the empirical sceptic can observe that no clear comparison of two observations is possible, because the first has gone when the second is made. If we had two indistinguishable balls, we would need to keep track of them to say which was which on a second viewing. If an object changes its qualities, a clear difficulty emerges – that in normal talk we say this is the same thing, even while admitting that it is different, which seems like a glaring contradiction. If we could just say the later object was 'similar' to the earlier one the problem would vanish, but we often need to say that the later object is 'identical' to the earlier (in science or in law, for example). Identity, though, is a transitive relation (it is retained from one identity to the next [a=b, b=c, so a=c]), whereas changing qualities seem to degrade identity (so that a greatly refurbished old car is no longer identical to the original). So how should we interpret the claim that this is 'the same' object, over a period of time?

Objects can change over time in a variety of ways, such as addition, swapping, loss or rearrangement of parts, and change of qualities, shape, matter, function or powers. They can also change their location or external relations. It is often noted that we accept an object as the same if its transitions are smooth, but would probably reject the idenity if they were abrupt (imagine a baby becoming an old person in an instant). As long as the changes are slow and perceptible, we can accept an entity as the same despite enormous changes, such as the growth of a major city. The oldest view is that the 'form' must remain the same; thus a restored old building after a collapse is the same, but a redesigned replacement building is not.

If we take the standard view, that objects are entities which possess properties (or singular subjects with predicates), then change can be presented as an object's acquisition or loss of a property. This has three ingredients, the object, the property, and the 'instantiation' relation between them. Since change needs the passing of time, we must then decide how to express these property changes over time. If we say the object-at-t1 instantiates the property F, that implies that the object itself changes from time t1 to time t2, which abandons the idea that it is the same object. If we say that the object instantiates F-at-t1, that implies that we may not be talking about the same property on different occasions (so that red-today differs from red-tomorrow), which is not how we usually understand properties. So it seems best to say that it instantiates-at-t1 F, but that still seems to say that being red today is not the same as becoming red again tomorrow. Our standard talk of subjects and predicates won't quite fit our normal ideas about an object's change of properties, so a more drastic theory may be needed.

The approach to changing objects is affected by the variety of metaphysical views about time. Eternalism says that past, present and future exist as a 'block', and the present moment is just a perspective or an illusion, whereas Presentism says that the past has ceased to exist, and the future hasn't happened, so only what is present exists. The commonest view is that objects exist in the present, and 'travel' from moment to moment, existing fully at each moment. This view is Three-Dimensionalism (3D), which says there is nothing more to an object than what exists at some moment. This, however, implies that neither the history, nor the future, nor the possibilities of the object are part of the object. The rival 4D view notes that the theory of relativity endorses an eternalist view of time, and claims that when we talk of an object we include its future and its past, as well as its present state. Thus an object is spread out over time, just as it is extended in space.

Defence of the 3D view says that past states of an object explain its present states, so they can't be a single thing, and that the concept of motion is baffling if the whole object is not involved. If time travel were possible an object could exist at two times, which would contradict 3D (but that could be a reason to doubt time travel). Critics say that if you say an object *was* red, then you are referring to an object which you believe does not exist. We happily accept the existence of 'events' which are necessarily spread over time, so why not say that an object is just a very slow event?

If you accept this 4D view, you then need to explain what we see right now, if it is not the whole object, and the usual thought is that we are seeing a 'stage' or a 'time slice' of the object. The 3D object is said to wholly 'endure', but the 4D view says an object 'perdures', in some temporarily extended way. At this point the 4D camp divides, over whether the time slices of an object are discrete 'temporal parts', or whether they should be thought of as a single entity (a 'worm') with its unified parts extended across both space and time. Both views face the difficulty of explaining what unites the parts, either as an integrated worm, or as separate components which are seen as parts of one thing (and in the case of persons they remember their earlier slices). A big attraction of the 4D view is that it seems to dissolve the problem of change, which is now a succession of discrete parts, rather than a puzzling thing which is the same but different. Apart from the problem of unifying the slices, the other big worry for the 4D view is the enormous number of slices that seem to exist, and the temporal width of each slice. They must have some width, but a duration of minimal quantum time barely gives them any existence at all (let alone desires or beliefs).

A famous ancient remark is that you can never step into the same river twice, implying that there is no continuous object when any change occurs. A more complex ancient case is the Ship of Theseus, which is preserved by continual replacement of its ageing planks. Tiny replacements seem to preserve the ship, and total replacements will not, but repeated tiny replacements can slowly add up to total replacement. Even worse, the ageing planks that are removed can comprise a second ship, giving two candidates for identity with the original. Museums prefer original planks, but sailors prefer renovated ships, so deciding which ship is the original may be relative to context.

An object's origin can give an anchor for its identity through change, if we can trace its continuity back to the start, though it is not clear what aspects of origin are important (comparing parentage with location of birth). Intermittent objects, like a reassembled bike, might even be suspected of having two origins.