Lewis, temporary intrinsics and momentary tropes

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A 'three-dimensionalist' takes object persistence to be a matter of an object being wholly present at more than one moment. One prima facie problem for three-dimensionalism concerns intrinsic properties. Intrinsic properties hold of an object independently of what is the case elsewhere and elsewhen, independently of facts about other regions that have no causal influence on the object. A *temporary* intrinsic is an intrinsic property that characterizes an object during only part of the object's history. The problem of temporary intrinsics for the three-dimensionalist is just this: if object *o* is wholly present at both *t* and *t′* (*o* at *t* is identical with *o* at *t′*), and *o* has *P* (an intrinsic property) at *t*, but *o* has property *Q* at *t′*, where *Q* is incompatible with *P*, then *o* is both *P* and *Q*, given the indiscernibility of identicals. One proposal for disabling this objection is to reinterpret 'at *t*, *o* has *P*, but *Q* at *t′*' in terms of relations to a time: *o* stands in the *P*-at relation to *t* and *Q*-at relation to *t′*, where standing in the *P*-at to one time is not incompatible with standing in *Q*-at to a different time. Thus, the 'relation to a time' reply takes it that if Lewis is bent at *t* and straight at *t′*, then Lewis stands in the bent-at relation to *t* and the straight-at relation to *t′*. One relation to a time is affirmed and another relation to a different time is denied of Lewis. The key is not just that the property of being bent has been replaced by a relation. There would still be a problem if Lewis bore one relation and an incompatible relation to the same object (time). But here there is no contradiction since these relations *differ* with respect to their time-relata.

David Lewis has objected that this 'relation to a time' proposal unacceptably turns intrinsic properties into relations: 'this is simply incredible … If we know what shape is, we know that it is a property, not a relation.' (Lewis 1986: 204). Lewis's objection is that 'bent' is metaphysically misread as a relation on the 'relation to a time' view. The issue I would like to address in this paper is whether we can avoid this relationalist reading of 'bent' given various metaphysical conceptions of properties, but still maintain something like the 'relation to a time' reply to the problem of temporary intrinsics. I will argue that even if Lewis's objection works if properties are universals, it does not work if properties are (momentary) tropes.

One metaphysical reading of properties is as universals. Taking properties to be universals, by itself, however, is certainly not enough to defuse Lewis's worry. This is so since if the 'relation to a time' view is taken at its

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word, then the explicit reading of 'bent' as the relation 'bent-at' – now read as universal relation – remains in full force. Nevertheless, perhaps we can recast the 'relation to a time' reply in the context of universals so as to avert this explicitly relationalist interpretation. To that end, consider first that the 'relation to a time' reply is sometimes made by reference to *time-indexed properties*, properties that can only be satisfied at a specific time. Emphasizing this alternate formulation will make a difference to Lewis's criticism *if* talk about 'time-indexed' universals can be interpreted as *not* just another way of talking about relations to a time. In particular, perhaps we can read '*P*-at-*t*' as picking out a *non-relational*, but time-indexed universal. Unfortunately, no such rendering is reasonable if properties are universals. No such interpretation is plausible simply because times cannot be somehow built into universals since times are particulars. Time-indexing of universals such as 'bent' *must* mean positing a universal relation 'bent-at' with *two* argument places for particulars, one for objects and the other for times. If properties are universals, the 'time-indexed-property' view is as much a relationalist view as an explicitly relational account.

But there are alternate metaphysical theories of properties, other than as universal, in which time-indexed properties may perhaps be distinguished from relations to a time or relational properties. In particular, one view that has gained recent attention is that properties are tropes. Tropes are properties *and* particulars. As a particular, a trope cannot be wholly present in wholly distinct spatial locations, unlike a universal. In addition, some philosophers also hold that tropes are momentary: tropes here are conceived as individuated by *time*, and, thus, not able to be wholly present at more than one wholly distinct time. On this view, the charge of this electron at t is non-identical to the charge of this electron at any distinct time t'. I will restrict my attention to this momentary conception (although in Ehring 1997 I reject this conception in its unrestricted form).

One consequence of the momentary trope view that is directly relevant to our goal of distinguishing 'time-indexed' properties from relations to a time is that this makes tropes analogous to the temporal parts of concrete objects, if there are such. Recall that the temporal parts proponent claims that objects have temporal parts, as well as spatial parts, and that persistence is a matter of an object having different parts present at different moments. Just as the temporal parts of objects are momentary particulars so will tropes be momentary particulars (although abstract particulars). The real significance of this analogy is found in the fact that just as a temporal part of an object *o* would be time-indexed without being a relation of object *o* to a time, a momentary trope would be time-indexed without being a relation to a time – at least in the case of momentary *intrinsic* tropes. Time-indexing does not by its very nature generate a relational

view even though that is the result when properties are taken to be universals. Times can, in a sense, be built into tropes because tropes are particulars, like the temporal parts of objects, not universals. As a consequence, we do not face the difficulty we did with universals – where time-indexing meant an additional argument place for times, turning the universal into a relation. 'Bent-at-*t*', when it applies to a particular object, will under the (momentary) trope view pick out a specific momentary, non-relational trope. In short, no more reason exists for treating momentary tropes as relations then for treating momentary objects (temporal parts) as relations. What this means is that Lewis's objection to the 'time-indexed-property' view will not go through if properties are momentary tropes since momentary intrinsic tropes are not relations to a time.

To better understand how the momentary trope view would solve the problem of temporary intrinsics consider an analogy between the trope/time-indexed property response to that problem and the temporal parts response to that same problem, favoured by Lewis. The temporal parts solution consists in taking the incompatible properties *P* and *Q* in our earlier example to hold of distinct objects: *o*'s *t*-temporal part has *P* but not *Q*, and *o*'s *t′*-temporal part has *Q* but not *P*. Here intrinsic properties are non-derivatively attributed to the (temporal) parts of larger wholes (the objects) and that which is attributed may be read without contradiction as wholly present to each thing (part) to which it is attributed. The momentary trope view, combined with a three-dimensionsalist view of objects, mimics this approach on the property side, so to speak. One member of the class of *P*-properties (a *t*-member) may characterize *o* even if no other members of that class characterize *o*, just as on the temporal parts view one temporal part of *o* may be characterized by *P* even if no other temporal part of *o* is.

Another way to see the virtues of a momentary trope response to Lewis's worry about the 'relation to a time' reply is by way of another objection that is closely connected to Lewis's worry. Lewis's objection is that the 'relation to a time' response to the problem of temporary intrinsics unacceptably turns intrinsics into relations. The weight of this objection is brought into better focus by highlighting one hard-to-accept consequence of the 'relation to a time' view: the exclusion of the possibility of non--simultaneous *duplicate* objects (temporal duplicates). Temporal duplicates are impossible, on this view, since if intrinsic properties are relations to a time, any would-be duplicate of *o* at a different time would necessarily exhibit different intrinsic properties from *o*. On this view, objects at different times must have different intrinsic properties.

This objection loses its bite on a momentary trope view. To see this, first consider that for the trope theorist, duplication of any sort does *not* get

cashed out in terms of the literal sharing of properties (universals). Literal sharing is the story that the proponent of universals gives. The trope theorist gives a different account of duplication in general, an account that also applies perfectly well to temporal duplicates. Duplication, for the trope theorist, is a matter of non-identical objects exactly resembling each other in all non-relational tropes. No tropes are shared since tropes *qua* particulars cannot be shared. The trope theorist appeals directly to resemblance among tropes when explaining duplication, where resemblance does not get further explained as the sharing of universals. Most importantly, temporal duplicates are possible since temporal duplicates will just consist in non-identical objects existing at wholly distinct times that resemble each other in all non-relational tropes.

Now it might be suggested that the proponent of universals can also make sense of the possibility of temporal duplicates on a 'relation to a time' view of intrinsics and that that objection to the 'relation to a time' view need not be taken seriously or to favour the momentary trope/time-indexed property line. There is perhaps the following sense to the notion of temporal duplicates on a 'universal-relations to a time' view of intrinsics: temporal duplicates are non-identical objects existing at wholly distinct times that share all the same determinable relations to times. So for every determinable relation R to some time or other that o has, o's duplicate, o', will also have that determinable relation R.

This suggested reading of temporal duplicates, however, is deeply flawed for two reasons. First, it is obvious that two objects sharing all their determinable properties may strikingly fail to be duplicates – one might be red and the other brown, for example. Second, this suggestion generates an unacceptable asymmetry between temporal duplicates and spatial duplicates, and between what makes for duplication in these two cases. Since spatial location plays no role in the specification of intrinsic properties, simultaneous but spatially distinct duplicates will be duplicates in the stronger sense that they are exactly alike with respect to all of their determinate intrinsic properties, even if intrinsic properties are read as relations to a time. Temporal duplicates will fail this stronger test of duplication. But it is clear that no such asymmetry should be allowed. As Mark Johnston puts this point 'if we have two exact duplicates, then no matter how different their respective environments, including their spatio-temporal environments, they will share all their intrinsic properties. Duplicates existing at wholly different times are as much duplicates as duplicates existing at the same time'. (Johnston 1987: 113). An account of intrinsic properties should respect this symmetry, and also conceptually explain spatial and temporal duplicates in fundamentally the same way.

It is a virtue of the momentary trope view that both symmetries (the dual

possibilities of spatial and temporal duplicates, and the uniformity of conceptual explanation of these possibilities) get preserved. If properties are tropes, then *spatial* duplicates will certainly remain possible and spatial duplication will be a matter of objects' exactly resembling each other with respect to all their non-relational tropes. In just that *same* sense, duplicates at wholly distinct times will be possible if properties are momentary tropes. Temporal duplicates will be just those non-identical objects at wholly distinct times that exactly resemble each other in all non-relational tropes. The possibility of exact resemblance is not altered when we move from spatial to temporal duplicates for the momentary trope proponent. To the degree that spatial duplicates are possible, temporal duplicates are possible. There is be no special problem of temporal duplication on the momentary trope view nor is there a different account (from that of spatial duplicates) of the possibility of temporal duplicates.[1]

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