Tensing the Copula

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A solution to the problem of intrinsic change for enduring things should meet three conditions. It should not replace monadic intrinsic properties by relations. It should not replace the having *simpliciter* of properties by standing in some relation to them (unless having them *simpliciter* always means standing in some relation to them, which is refuted by Bradley's regress). It should not rely on an unexplained notion of having an intrinsic property at a time. Johnston's solution satisfies the first condition at the expense of the second. Haslanger's solution satisfies the first and second at the expense of the third.

1. The problem about persistence

The problem about persistence is the problem of change, insofar as it pertains to intrinsic properties.[1] Things somehow persist through time. When they do, they have some of their intrinsic properties temporarily. For instance shape: sometimes you sit, and then you are bent; sometimes you stand or lie, and then you are straight. How can one and the same thing have two contrary intrinsic properties? How does it help that it has them at different times? Three solutions are on offer.

I favour the hypothesis of *perdurance*. It says that persisting things are sums of temporal parts; their temporary intrinsic properties belong in the first instance to their temporal parts; and it is no problem that two different temporal parts can differ in their intrinsic properties. A persisting thing is like a parade: first one part of it shows up, and then another. (Except that most persisting things are much more continuous than most parades.) The only trouble with this hypothesis is that very many philosophers reject it as counterintuitive, or revisionist, or downright crazy (except in the case of events or processes).[2] It is a mystery why. Unfortunately, those who try to explain why they reject the

[1] It is the problem elsewhere called the problem of temporary intrinsics (Lewis 1986, pp. 202ff). Extrinsic change poses no further problem. It is derivative: something undergoes extrinsic change when either it or some part of its surroundings undergoes intrinsic change, or when its intrinsic relations to parts of its surroundings change. (See Humberstone 1996, p. 208.)

[2] Others claim not to understand perdurance because they lack the concept of a temporal part. I reply to them in Lewis 1983b, pp. 76f.

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hypothesis merely restate it. They say, perhaps, that it likens a persisting thing to a parade (apart from the extent of the discontinuities). Or they say that 'its full craziness comes out' because it implies that 'if I have had exactly one bit of chalk in my hand for the last hour, then there is something in my hand … which is chalk, which was not in my hand three minutes ago'—namely, a temporal part of the chalk beginning less than three minutes ago (Thomson 1983, p. 213). All we learn is that they reject the hypothesis because it says what it does. We are none the wiser.

The hypothesis of *presentism* treats the modifiers 'in the past' and 'in the future' like the 'counterfeit' in 'counterfeit money'. These modifiers often attach to falsehoods to make truths. What exists (only) in the past or in the future is not something that exists and is located in the past or in the future; it is something that does not exist at all. Likewise, what has an intrinsic property (only) in the past or in the future does not have that property. These modifiers cannot be explained in terms of a domain including (wholly) past or future things, because there is no such domain. A so-called persisting thing, if it really exists, is located entirely in the present. When the presentist obligingly agrees that it exists in the past and in the future, he is not saying that it or any part of it is located elsewhere in time; he is attaching his modifiers to alleged falsehoods to make truths. Thus he denies what others mean when they say that things persist and undergo intrinsic change. Of course the presentist has no problem of intrinsic change, but he escapes it at far too high a cost.[3]

The hypothesis of *endurance* is far and away the most popular. It deserves a run for its money at least on that account. Things have no temporal parts. Rather, a persisting thing is multiply located in time: the whole of it is at one time and also at another. Yet the same identical thing may have different intrinsic properties at different times at which it is located. You are bent at time t_1, straight at time t_2, but it is the whole of you, not one or another of your alleged temporal parts, that is bent and that is straight. How can that be?[4]

[3] See Zimmerman 1998 for a defence of the presentist solution to the problem of temporary intrinsics.

[4] Johnston (1984, chs 3 and 5; 1987, pp. 121ff) has discussed a halfway house: *partial endurance*. It allows for at least some persistence by endurance. Consider the non-temporal parts of a persisting thing: spatial parts, and perhaps also abstract parts, tropes. Suppose the parts endure as long as they can endure without undergoing intrinsic change; but when threatened with intrinsic change, they instead go out of existence and are replaced. Thus the persisting thing consists of different parts at different times. Since the enduring parts never undergo intrinsic change, the problem of

Endurance calls to mind two things. One is the power of spatial bilocation traditionally ascribed to saints. If a bilocated saint is wholly in Rome and wholly in Byzantium, and if in Rome he is bent and in Byzantium he is straight, then we have a problem of local intrinsics that exactly parallels the problem of temporary intrinsics for an enduring thing—except that philosophers have been much less eager to solve it. The other is the multiple location in both space and time that is ascribed to immanent universals, if such there be. But unless we can come up with an example of an intrinsic property that a universal has at one of its locations and not at another—and I know of none—we have no problem of temporary or local intrinsics for universals.

2. Intrinsic 'properties' as relations to times

There is an obvious solution to the problem of temporary intrinsics for an enduring thing: its so-called temporary intrinsic properties are not really monadic properties, but rather dyadic relations to times. If you are bent at t_1 and straight at t_2, you bear the *bent-at* relation to t_1 and the *straight-at* relation to t_2. There is no problem about how the same thing can bear contrary relations to two different relata.

If we insist on genuine monadic properties of the enduring thing, we can have those as well. They will be relational properties: *bearing-bent-at-to-*t_1, *bearing-straight-at-to-*t_2.

'Relational' is a classification that applies to *structured* properties: properties taken to have a quasi-syntactic structure whereby they are constructed from their constituents. The relational property just considered has a dyadic relation as one of its constituents, and a suitable relatum as another. Note that structured properties are hyperintensionally individuated: two of them constructed from different constituents, or from the same constituents in a different way, are different even if they are necessarily coextensive. Note also that a relational property is not the same thing as an extrinsic property: 'extrinsic' is an intensional classification that applies to structured and unstructured properties alike. Suppose Platonism is true, and the forms are necessary beings which cannot be said to accompany things in the world. Then *bearing-imitation-to-the-form-of-Squareness* is a relational property, but it is also intrinsic. It cannot differ between duplicates; and whether some-

temporary intrinsics for enduring things is avoided. However, I note that if the persisting thing undergoes constant intrinsic change that affects every spatial or abstract part of it, be this change ever so imperceptible, there is no endurance left. Partial endurance then collapses into perdurance, and will doubtless be rejected no less forcefully.

thing has it or lacks it is independent of whether that thing is accompanied or unaccompanied, and it is neither a disjunctive property nor the negation of one. (See Humberstone 1996, pp. 224ff and 253ff; Langton and Lewis 1998.)

I cannot object to these relations and relational properties. (Not, at least, if they are not alleged to be fundamental properties of the sort that might figure in a minimal basis on which all else supervenes.) I accept similar relations and relational properties myself. You bear *bent-at* to times at which you have bent temporal parts; and if t_1 is one of those times, you have *bearing-bent-at-to-*t_1.

But I do object to leaving the monadic intrinsic properties out of the picture. Some intrinsic properties really are monadic: for instance the property of living three score years and ten. Even the properties *bent* and *straight* could at least sometimes be monadic: for instance when they are properties of momentary things. There is no reason in that case to take them as relations to times. So I want to know: where have the monadic properties *bent* and *straight* gone? What have they to do with our new-found *bent-at* and *straight-at* relations, and our new-found relational properties constructed from these relations? Under the endurance hypothesis, there is nothing left in a case of temporary bentness and straightness to have *bent* or *straight*. Or anyway nothing is left to have them *simpliciter*, without benefit of some sort of modifier that attaches to falsehoods to make truths. Not the temporal parts—they do not exist. Not the enduring thing: it does not have them, it only modifiedly-has them by having them *at* t_1 or *at* t_2.

Some will still insist that certain relations to times are just what we *call* 'intrinsic properties', so it is senseless to hanker after *really* intrinsic properties in addition. (See Jackson 1994; but note that he is not arguing for endurance but only for its tenability.) If they are willing to accept the consequence that the so-called intrinsic properties are a divided category, we have reached stalemate.

But there are others, among them Mark Johnston (1987, pp. 127ff), who agree that it will not do to leave the monadic intrinsic properties *bent* and *straight* out of the picture. We need a way to bring them back in without giving up the endurance hypothesis.

3. Bringing back the intrinsic properties

Johnston's solution is to tense the copula: 'Instantiating a property, it turns out, is instantiating at some time the property' (1987, p. 129). It is not the intrinsic property *bent* or *straight*, but rather the copula that

relates this property to a thing that has it, that turns into a relation to times. *Having* was originally thought to be a dyadic relation of things to properties; now it will instead be a triadic relation of things to properties and times. If you have at t_1 the property *bent*, the property *bent* is unscathed: it is still the same old monadic intrinsic property we always thought it was. It is not replaced either by a relation or by a relational property.

I protest that there is still nothing in the picture that has *bent* or *straight simpliciter*. Not you; not your nonexistent temporal parts. Instead of having *bent simpliciter*, you bear the *having-at* relation to it and t_1. But it is one thing to have a property, it is something else to bear some relation to it. If a relation stands between you and your properties, you are alienated from them.

All you have *simpliciter* is a relational property: *bearing-having-at-to-bent-and-*t_1. The property *bent* must enter into this relational property as a constituent, else there is no connection left between *bent* and the property you have *simpliciter*. In order to say so, we must again assume that we are dealing here with a structured property.

Tu quoque? (See Haslanger 1989, pp. 119f.) Don't I also deny that your perduring self has *simpliciter* the property *bent*? Don't I also say that it bears to this property the *having-at-*t_1 relation, where this is the relation that a perduring thing bears to a property just in case it contains a temporal part that is located at t_1 and has that property? If bearing a relation to a property rather than having it *simpliciter* alienates you from that property, isn't this equally a problem for perdurance? I think not. There is more to say. To be sure, your perduring self does not have *bent simpliciter*. But as much of you as exists at t_1 does. In talking about what is true at a certain time, we can, and we very often do, restrict our domain of discourse so as to ignore everything located elsewhere in time. Restricting the domain in this way, your temporal part at t_1 is deemed to be the whole of you. So there is a good sense in which you do, after all, have *bent simpliciter*. The protagonist of endurance cannot say the same.

An effective rejoinder to my protest, if it were true, would be to claim that *all* having of properties is relational. Whenever a thing has a property *P simpliciter*, that is to be explained by saying that the thing bears a relation of having to *P*; or, equivalently, that it has the relational property *bearing-having-to-P*. If that is enough to alienate us from our properties, we are *always* alienated from our properties. My protest proves too much to deserve belief. If all having is relational, but not on that account alienating, why is relational having-at-a-time any worse?

4. That way lies Bradley's regress

I would be willing enough to believe in a *having* relation that something bears to a property; or in a triadic *having* relation that an enduring thing (if such there be) bears to a property and a time; or in a relational property of, say, *bearing-having-to-bent-and-*t_1. (Assuming, once again, that these are not alleged to be fundamental relations and properties.)

But I do not think these relations can explain having *simpliciter*. Having *simpliciter* is not a relation, whatever grammar may suggest. What is it, then? I don't know what more can be said. It is all very well to say that the copula is a 'non-relational tie' or that properties are 'unsaturated' and await completion by their bearers. These remarks at least have the merit of pointing away from the idea that having is relational. But they don't point toward much of anything.

Bradley's regress shows that if we insist on trying to explain having *simpliciter* in terms of relational having, the explanation we seek will never be finished. (See Bradley 1897, ch. 3; Armstrong 1978, pp. 106f.) Run through it first in terms of relational properties. Keep it simple by ignoring time: let *P* be a permanent property of *X*.

X has *P* by having *bearing-having-to-P*

… by having *bearing-having-to-(bearing-having-to-P)*

… by having *bearing-having-to-(bearing-having-to-(bearing-having-to-P))*

… by … .

And so *ad infinitum*. No sooner have we explained one having relationally than another one appears, needing its own relational explanation in turn.

If we would rather bypass the relational properties, we can instead resort to a sequence of having relations of ever greater polyadicity. (Signify an *n*-adic relation by a superscript '*n*'.)

X has^1 *P* by having^2 (*having*^{1}, *P*)

… by having^3 (*having*^{2}, *having*^{1}, *P*)

… by having^4 (*having*^{3}, *having*^{2}, *having*^{1}, *P*)

… by ….

And so *ad infinitum*. Again, our explanation can never be finished.

No harm is done, so long as we say that these havings-by-havings are not meant to be explanations, only equivalences. In that case we can stop the regress anywhere we like, and claim that our most recently

mentioned having is not a relational having but rather a having *simpliciter*. But then we have given up on explaining having *simpliciter* in terms of relational having; so we have given up on showing that all having is relational; so we've given up on showing that relational having-at-t_1 is no more alienating than any other having.

At this point it is tempting to say that having a property at a time is a sort of hybrid. So far as the property goes, it is a non-relational tie; so far as the time goes, it is a relation. But this is whistling in the dark. We have no developed idea what sort of thing a 'non-relational tie' might be. Still less have we any idea what a hybrid of a non-relational tie and a relation might be.

I said earlier that calling having *simpliciter* a 'non-relational tie' pointed away from error but not toward much of anything; and I have just said that we have no developed idea what a non-relational tie might be. Should we remedy that? We might reify non-relational ties, and say something about them. As follows: a dyadic tie is an entity that ties a thing to a property, and for the most part it is contingent which things are tied to which properties. A triadic tie ties two relata to a dyadic relation, and again it is for the most part contingent what is tied to what. A tetradic tie … By now it is all too obvious that 'ties' are relations in all but name. Relations in all but name will serve us no better than relations openly so-called. We can repeat Bradley's regress (in both its versions) to show that we can never finish an attempted explanation of having *simpliciter* in terms of ties; and ties will alienate us from our properties no less than relations do. I conclude that reifying non-relational ties and giving an account of them is a thoroughly misguided thing to do.

5. An *ad hominem* rejoinder

Someone might say to me: '*You're* a fine fellow to tell us that having *simpliciter* is non-relational! You think that a property is the class of its instances—*all* the instances, those in this world, those in other worlds, even those, if any, that are in no world or that are not entirely in any one world. (You leave it open whether some few elite properties correspond to immanent universals; but even if they do, you still think there's a property-as-class as well as the universal.) You think that to have the property is to be a member of the class. So for you, the relation of having is the membership relation.'

Up to the final sentence, that is right (see Lewis 1983a). But the final sentence, which is crucial to the *ad hominem* point, goes wrong because

I do not believe in the membership relation.

A preliminary point, which does not get us very far. I do not believe in a relation which holds between member and class in *all* cases of membership. *Proof*. Case 1: there are no proper classes. Then the membership relation would have to be the set of all ordered pairs of member and set. But we can show, by the set-theoretic axioms of replacement, unions, and *Aussonderung*, that if there were any such set, there would be a set of all non-self-membered sets, which leads to contradiction. Case 2: there are proper classes. Then some of the ordered pairs of member and class must themselves be taken as proper classes. (The usual constructions of ordered pairs don't work when the second term of the pair is a proper class, but one that does work is to take the cartesian product of the singleton of the first term with the second term.) Then the membership relation would have to be a class with proper classes as members, which is impossible. QED.

Our objector is unappeased. 'You do believe in a restricted membership relation for the special case of set-membership. This relation is a proper class, but you don't object to those.' (Right, I don't. See Lewis 1991, pp. 18f.) 'Mundane properties will be sets, not proper classes. For instance the property *purple* will be the set of all purple possibilia. So for these mundane properties, at least, you explain having *simpliciter* in terms of the set-membership relation.'

But I am not so sure that mundane properties won't be proper classes. I thought so once; but now Nolan (1996) has made a fairly persuasive case that there are more possibilia than I used to think, in fact proper-class many. If so, there may well be proper-class many members of the property *purple*.

There is another reason why I do not believe in the membership relation, not even if it is the restricted set-membership relation. I am inclined to favour set-theoretical structuralism. (See Lewis 1991, pp. 45–54 and 121–49; 1993.) According to structuralism we can say, roughly, that there are many set-theoretical hierarchies. Each one has its own set-membership relation; there is no such thing as the one set-membership relation that is common to them all.

Compare arithmetical structuralism: there are no such things as *the* number sequence, *the* number seventeen, or *the* successor relation. There are many omega-sequences, each with its own seventeen, its own successor relation … When we say for instance that seventeen is prime, we are quantifying over omega-sequences: for each omega-sequence, its seventeen cannot be obtained by applying its multiplication operation to any two of its numbers unless they are its seventeen and its one.

An arithmetical structuralist who is not also a set-theoretical structuralist can assume that he is given a fixed set-theoretical hierarchy, within which he can construct his many omega-sequences. A half-hearted set-theoretical structuralist could likewise assume that he is given the one true and original set-theoretical hierarchy, within which he can construct his many (lesser) set-theoretical hierarchies. A whole-hearted set-theoretical structuralist, which is what I want to be, can assume no such thing. He needs a way to quantify over hierarchies without assuming that they are constructions within the one true and original hierarchy.

It helps to notice that a set-theoretical hierarchy is generated from its member-singleton relation in much the same way that an omega-sequence is generated from its successor relation (Lewis 1991, pp. 95ff). Our problem reduces to quantifying over relations that satisfy certain axioms. But how can we do that, if we are not given a true and original hierarchy? What we are given, in my view, is 'megethology', also known as monadic second-order mereology (Lewis 1991, pp. 61–87; 1993). The second order quantifiers are understood, following Boolos (1984), as plural quantifiers. Within this framework, we have no way to quantify over candidate member-singleton relations. But what we can do, using ingenious codings devised by John P. Burgess and Allen Hazen (Lewis 1991, pp. 121–33; 1993), is to simulate such quantification. Whole-hearted structuralism turns out to be feasible after all.

The upshot is that we can simulate quantification over hierarchies; and, just as every omega-sequence has its own seventeen, so likewise every hierarchy has its own class of purple things, in other words its own property *purple*, though these properties understood as classes are not the same from one hierarchy to another. Within any one hierarchy we can quantify over classes.[5] So we can simulate quantification over properties by embedding a genuine quantifier over classes within a simulated quantifier over hierarchies. Further, it turns out that something is a member of a given hierarchy's property *purple* just in case it is one of the purple things.

[5] Our properties understood as classes are so far unstructured. What of properties with quasi-syntactic structure? Given any hierarchy, be it the one true and original hierarchy or be it one of the many hierarchies simulatedly quantified over by structuralists, we can easily construct within it a system of structured properties. With one limitation: their constituents must always be individuals or sets, never proper classes. If we want to take some of the constituents as unstructured properties understood as classes (rather than, say, as universals), and if Nolan is right that there are proper-class many possibilia, then the limitation is crippling. In that case we would either have to give up on structured properties altogether or else tell some entirely different story about what they are.

Our objector feels his patience sorely tried. 'So the long and short of it—and I would have much preferred the short!—is that you explain the having *simpliciter* of properties not in terms of the relation of member to class but rather in terms of the relation of member to plurality. Well, call it what you like, it sounds like a class to me! Your having *simpliciter* is relational after all.'

Well, if there *were* pluralities, they would sound like classes to me too, and I would prefer to call them that. What is worse, since we took plural quantification to be part of the given framework, they would have to be classes in the sense of the one true and original hierarchy—which is just what a whole-hearted structuralist does not want.

But I do not agree that we have any such things as pluralities, so I do not agree that we have any such thing as a relation of member to plurality. What we do have is a singular-to-plural copula: 'is one of' as in 'this is one of those'. Given some entities of any kind whatever, we can say with every semblance of intelligibility and no known threat of paradox that something is one of them. We are not required to interpret the singular-to-plural copula relationally, and doing so leads to trouble (Boolos 1984; Lewis 1991, pp. 65–71).

Suppose the relational interpretation is right that we have a relation of membership in pluralities. Some things are not pluralities, so some things are non-self-members. For instance, Kevin Sheedy is one of the non-self-members. The relational interpretation says that this has to mean that we have a plurality of non-self-members, and Sheedy is a member of it. Now we can ask whether this alleged plurality itself is one of the non-self-members. The relational interpretation says that it is one of the non-self-members just in case it is a member of itself. In short, if the singular-to-plural copula has to mean that something is a member of a plurality, we fall into Russell's paradox for pluralities. So it had better not mean that. Instead we should take it as a 'non-relational tie' (understood as *un*reified). So the long and short of it is that, for me, having properties *simpliciter* is *not* relational.

6. Which copula do we tense?

Suppose we have given up on explaining having *simpliciter* as relational. And suppose we have resisted any temptation to explain it in terms of reified non-relational ties. Now we can take Bradley's regress as many steps as we like and then get off, saying that at last we have reached non-relational having *simpliciter*. But that means we have a choice about which of the relational havings is to be turned into a relation to times.

There are infinitely many alternatives, depending on how many steps we take before we get off, and depending on which of the nested copulas we tense. Let's again take the version of the regress formulated in terms of relational properties with *bent* as a constituent. If your enduring self is bent at t_1, which is the relational property that you have *simpliciter*? Is it

bearing-having-at-to-bent-and-t_1?

bearing-having-at-to-(bearing-having-to-bent)-and-t_1?

bearing-having-to-(bearing-having-at-to-bent-and-t_1)?

bearing-having-at-to-(bearing-having-to-(bearing-having-to-bent))-and-t_1?

bearing-having-to-(bearing-having-at-to-(bearing-having-to-bent)-and-t_1)?

bearing-having-to-(bearing-having-to-(bearing-having-at-to-bent-and-t_1))?

If, contrary to what I have argued, the first of these is a satisfactory solution to the problem of temporary intrinsics for enduring things, so are all the rest. There is no way to choose between them. The tenser of copulas confronts an embarrassment of riches. Probably the best response is to say that *all* the listed properties are had *simpliciter*; and since they are necessarily coextensive, there is no need to decide which one is the correct analysis of being bent at t_1.

7. Another way to bring back the intrinsic properties

Sally Haslanger (1989) wants to defend the endurance hypothesis against the problem of temporary intrinsics. She agrees that it will not do to replace the monadic intrinsic properties by relations to times. We need to put the monadic intrinsic properties themselves back into the picture. But she also agrees that it will not do to put them in just as relata of some relation. Rather, they need to be the objects of having *simpliciter*. To explain how you can be bent at t_1, not only do we need to mention the monadic intrinsic property *bent*; we also need to mention the proposition that you have this property *simpliciter*, and we need to say of this proposition that it obtains at t_1. By 'proposition' Haslanger here means something that can obtain at some times and not at others, rather than something that is true or false once and for all.[6]

What is a proposition that obtains at some times and not others? It seems to behave exactly like a property of times, so let us take it to be just that. It 'obtains' at just those times that have it. If so, the proposition Haslanger mentions is the relational property *being-a-time-t-such-that-you-have-bent-at-t*.

What is this property? It must be a structured property with *bent* as a constituent. If it were an unstructured property, or if it had the *bent-at* relation as a constituent in place of the monadic intrinsic property *bent*, we would not have succeeded in bringing *bent* back into the picture. Further, it must not have the *having-at* relation as a constituent, since it is supposed to be identical to the tensed proposition that you have *bent simpliciter*, not to the tensed proposition that you stand in some sort of relation to *bent*. But now something unfortunate has happened. Within the anatomy of the tensed proposition that obtains at just those times when you are bent, in other words the relational property just considered, we find that we have reintroduced without explanation the very thing we were trying to explain: the notion of an enduring thing having a monadic intrinsic property at a time. I conclude that the proposal fails.

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[6] Haslanger speaks of adverbial modification of the proposition that you have the property. She is to some extent noncommittal about how adverbial modification works; to that extent, we have no definite proposal on the table. But one good way to understand the working of an adverbial phrase 'at so-and-so time', and one that she conspicuously mentions, is as expressing a relation between the proposition and a time, and that is indeed a definite enough proposal to discuss. Haslanger notes that it appears also in Lowe (1988, p. 75).

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