

Four disputes about properties

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My intention in this paper is to spell out four great issues that divide philosophers who think about the metaphysics of properties. The issues are largely independent of each other. The way the cats jump on one does not seem greatly to prejudge the way they will jump on the other issues. I shall indicate my preferences, but I shall be as much concerned to survey the scene as to push my particular wheelbarrow. My primary concern will be with properties in the narrow sense, that is, properties as opposed to relations. But what I say should apply to relations as well, at least external ones. Again, my concern will be with what David Lewis called the *sparse* theory of properties, with total science as the most important arbiter of just what sparse properties we want to recognize.

1. *Universals vs. Tropes*. The first issue is one that has been exceedingly well canvassed in recent decades. Indeed, a certain fatigue and boredom may have set in. This is the question whether properties should be conceived of (“assayed” as Gustav Bergmann’s school of philosophers in Iowa used to put it) as universals or particulars, as universals or, as many now argue, as tropes. It is well known since the work of Donald Williams, the Harvard philosopher (Donald C. Williams, 1966) that tropes may be collected into equivalence classes closed under the relation of exact similarity, with similarity and its degrees taken as a metaphysical primitive. Such equivalence classes turn out to be in many ways a good substitute for universals, and the dispute has taken on a somewhat ritualistic air where neither party seems to gain any decisive advantage.

It is to be noted that in this dispute it is possible to have the sort of compromise where it is declared that both sides are right. You can accept both universals and tropes, and some philosophers have done so. An object can be said both to instantiate the universal *being one kilo in mass*, yet also have the trope of *being one kilo in mass*. For myself, I think that this compromise offends against Occam’s Razor. Redundant truthmakers are provided for true predications of properties.

I side with the upholders of universals against tropes. Universals, even the immanent or Aristotelian universals that I uphold, are stranger entities than tropes. But identities across particulars do make a beginning of

holding the world together, something that I think is needed, especially if the 'problem of induction' is to be addressed satisfactorily.

One argument I like against tropes I have learnt from Herb Hochberg, although I shall here present it in my own way. Consider a trope, and let it be one member of a class of simple tropes. Presumably properties can be simple, so there can be simple tropes. For the purpose of visualizing the situation consider one of these tropes as being of an absolutely determinate shade of colour. (I don't really believe that colour is simple, of course. But the picture helps.) The other simple tropes in the class selected are to have different relations in respect of similarity to our selected trope. Some will be exactly similar, others will have less than exact similarity, some will not be at all similar. Our selected simple trope, call it *a*, is numerically different from the others, but this numerical difference *varies independently* from its similarity or dissimilarity. But how does this simple trope support, how does it act as one side of the truthmaker for, all these different relationships? Remember, it is supposed to be simple.

To this argument a reply has been made to me by David Robb of Davidson College. He points out that truthmaking theory explicitly disavows the idea that there is any one-one correlation between truths and truthmakers. So, he suggests why may it not be that all these different truths about trope *a* – it is numerically different from all the other tropes in the class; it exactly resembles trope *c*; it less than exactly resembles trope *d*; it in no way resembles trope *e* – are made true by the one simple trope? To which I reply: it could be so (epistemic "could"), but it seems to me rather implausible that a simple trope could support all these truths.

2. *Substance/attribute vs. bundles.* How do properties stand to the particulars that have the properties? This is again an old issue. Do we attribute properties to particulars –making particularity and universality separate but equal fundamental ontological categories? Or do we take the properties as fundamental and try to "construct" particulars out of properties alone? Notice that, unlike universals vs. tropes, there is no prospect of accepting both positions as part of the truth.

Once we have these two pairs of opposing theories: universals/tropes and particularity/bundles, then we can go on to notice that they yield a 2 X 2

matrix and that important thinkers can be found in all four boxes. Substance/attribute + universals was, I hope, the view taken by Aristotle and, if not him, it has been taken various thinkers in the revival of the fortunes of universals in the late nineteenth century right up to the present time. Substance/attribute + tropes is definitely to be found in Aristotle and Ockham (“this whiteness”) and is found among our contemporaries C. B. Martin (Martin 1980) and John Heil (forthcoming). Bundles + tropes is more modern, I think, and is to be found in G.F. Stout and was later given a classic formulation by Donald Williams. One contemporary adherent is Peter Simons (Simons, 1994), who has a particularly sophisticated version of this sort of theory. Bundles + universals is not a very popular view, but does have its adherents, one very distinguished one in the later work of Russell.

My own sympathy is with substance/attribute + universals. I think that particularity is a fundamental category. My attachment to particularity is, indeed, stronger even than my attachment to universals. Suppose, *per impossibile* of course, that I were to abandon sparse universals in favour of sparse equivalence classes of tropes, then I would retreat to the sort of view held by Martin and Heil. It is to be noted that we do not have to make particularity a *hidden*, merely inferential, category as Locke in effect did in his treatment of substance. I’d say that particularity, thisness and thatness as it were, is given in experience just as much as properties are given in experience. Aristotle said that a substance or thing is a this-such. I’d add that it is *perceived as* a this-such. By contrast, I think that bundle theories have great difficulty with the metaphysics of the uniting principle or principles of bundling. You might say to this that the link between irreducible particulars and their properties is exposed to just the same sort of difficulties. Perhaps, but wait until later in this paper.

3. *Categorical properties vs. powers.* At this point some might think “This is pretty familiar stuff that we are getting from this fellow.” But in relatively recent years I have come to realize that there is a third great dimension of difference in the theory of properties along which metaphysicians divide in a manner that is largely independent of the two “dimensions” that we have already briefly looked at. This is the difference between a *categorical* or *quality* account of properties and one that sees them as *dispositions* and *powers*, powers to act and be acted upon. The first might be called the “British empiricist” or “British analytic” conception of properties. It is one in which many of us were brought up.

The original inspiration of other conception goes right back to Plato's Eleatic Stranger in the *Sophist* who suggests that the mark of being is power. Such thinkers as Boscovich and perhaps Leibniz lie in this tradition and in recent times Rom Harré and E.H. Madden (Harré & Madden, 1975) revived the idea of a metaphysics of powers. They have been followed by C.B. Martin (Martin, 1993), Sydney Shoemaker (Shoemaker, 1984), John Heil (forthcoming), Brian Ellis (Ellis, 2001), George Molnar (Molnar, forthcoming) and Stephen Mumford (Mumford, 1998), to name only some.

The special mark of powers is that it is of their essence that they have what the late George Molnar in a brilliant phrase called "physical intentionality". It is of the essence of property-powers that objects having them bring about, or probabilify, certain effects. They do this either by themselves or in conjunction with further property-powers, in the normal cases at least reacting with what Martin calls "reciprocal disposition partners" so that action is accompanied by reaction. These powers bring with it a necessary connection between total cause and effect, or if the cause is probabilifying only, a necessary connection between cause and a certain chance of the effect. On views of this sort, the true truthmakers for laws of nature are the powers

In the 'quality' or 'categorical' account of properties, however, the job of providing for dispositional truths is provided by the laws of nature, laws that are traditionally thought of as contingent. (I say "traditionally" because towards the end of this paper we shall see that *even without powers* there may be an option of taking the laws to be necessary.) These contingent laws may be assayed as no more than uniformities or statistical regularities, the Humean option. That is not very satisfactory, I think. But there is another view, which I have favoured in the past, that laws are contingent connections between universals. Such laws of that sort are supposed to be stronger than mere uniformities in the sense that their existence necessitates the uniformities, but the uniformities do not necessitate the laws. Put in a contemporary way, Humean supervenience is denied for the laws.

But let us go back to the conception of properties as powers – powers to act and be acted upon. A big question arises: are all properties powers? And even if they are, does being a power exhaust their nature? Power theorists divide here. Some, George Molnar and Brian Ellis are two cases,

allow that there are some properties that are not powers. Spatiotemporal properties and relations are quite attractive candidates. At the other extreme, Sydney Shoemaker maintained that every property was a power and nothing but a power. In the course of controversy with Richard Swinburne, Shoemaker explicitly included properties in the wide sense, that is to say: relations (Armstrong, 1999, p.32). There is a middle way here, but before exploring it let me say why I think that (a) the “property–dualism” of Molnar and Ellis, and (b) the “nothing but powers” position of Shoemaker, are rather unsatisfactory.

If not all properties are powers, then the “mode of operation” of the non-powers requires to be spelt out. The non-powers can hardly be epiphenomenal, they must make some causal contribution to the operation of powers. Newtonian gravitation, for instance, is a matter of the gravitating bodies acting on each other in virtue of their masses. Given a power theory, the masses of bodies must surely be powers. But now suppose that the *distances* of the bodies are non-powers. The gravitational forces exerted are inversely proportional to distance. So the distances must surely get into the act. But how does it do this? It would seem that the gravitating bodies involved must somehow be sensitive to their distances. Sensitivity is a causal notion. And since the distances are not powers, given the theory we are looking at, it would seem there is no argument for the contribution of distance being necessary. But if there is a contingent factor involved in gravitational causation, then gravitation is a contingent matter. (The contribution of distance might have been such that an inverse cube law held.)

The non-powers that Molnar and Ellis allow are pretty ubiquitous, and seem to play havoc with the bold plan of explaining causality in terms of powers. I do not say that their theories are completely untenable, but I do say that their property dualism (some properties are powers, others are categorical) leads to an unattractive theory.

What then about a quite opposite theory that takes all the (sparse) properties to be nothing but powers? This view, the view of Shoemaker for many years, runs into a quite different problem. All serious distinction between powers and the manifestation of powers gets lost. Powers may or may not be manifested. What is involved when they are manifested? A manifestation is an *effect*, and an effect will be a matter of some particular or particulars either gaining or losing or (if the effect is the

effect of a mere sustaining cause) the sustaining of certain properties, including relational properties. But on the hypothesis being considered these effects themselves reduce to pure powers. As Charlie Martin has put it “It is hard to model a real *happening* on such an account” (Martin, 1993, p.68). “Hard” is a bit of an understatement here. Causality becomes the mere passing around of powers from particulars to further particulars. To put it scholastically, the world never passes from potency to act. As Martin suggests, *nothing ever happens*. There may not be a contradiction here, but it is position that I find unbelievable. (It would be still worse if particulars were identified with bundles of properties. The world would be nothing but bundles of dispositions. And I wonder further what would bundle the dispositions?)

For this reason, I believe that the best version of a power theory is one that was held for many years by C.B. Martin. It can be called the two-sided theory. Every property has two sides: a qualitative and a power side. It will be seen that this is compromise theory, taking something from the categorical account of properties and something from the dispositional account. It avoids Molnar’s and Ellis’ dualistic theory of properties, and it also meets the difficulty for the “pure power” view that when a power is manifested nothing really happens. In the two-sided view act is provided as well as potency.

The problem for this theory is to spell out the link between the two sides that properties are credited with by this theory. Is the link contingent only? Let Q be the categorical or qualitative element of a certain property P, and let D (for disposition) be the power element. If the Q-D complex is a contingent one only, then it would be possible that Q might have been associated with a different power, D*. This just the sort of “possibility” (these are sneer quotes) that power theorists pride themselves on rejecting as not really possibilities. It would certainly be a very unattractive way to spell out a power theory.

Perhaps, then, the Q-D involves some necessary connection between Q and D? C.B. Martin held this view for some time. The difficulty is that this necessary connection is so opaque, so untransparent, a form of necessity. Why is it not possible for the qualitative-categorical side or aspect of the property to exist without power D? I don’t think it is at all easy to explain. The necessity that links a power in the cause to the bringing about of an effect is nice, transparent, necessity that one can at

once understand. This necessity here alleged to hold between quality and power is the very reverse of this. Not all necessities may be justified *a priori* – there do seem to be *a posteriori* necessities – but some justification for postulating should be given. Nothing but the needs of the theory seems to be involved here.

In recent years Martin has proposed (Martin, 1997) and John Heil has followed him, (forthcoming, Ch.11), in the suggestion that what we have is in this situation is not a necessary connection between two ‘sides’, but rather an *identity*. There are not two ‘things’ here but just one: quality and power are the very same thing somewhat differently identified. A scholastic philosopher might put it by saying that there is only a ‘distinction of reason’ involved. Models suggested have been the duck-rabbit and Necker’s cube.

This identity, Martin has told me in conversation, is not to be thought of as an identity with a *direction*, as in a reductive identity such as ‘lightning is an electrical discharge’. Rather, I suppose, it may be compared to ‘the morning star is the evening star’ where no direction is evident. There are not two planets, just one. There is not a quality and an associated power, there is just the one entity. I confess that I find this totally incredible. If anything is a category mistake, it is a category mistake to identify a quality – a categorical property – and a power, essentially something that points to a certain effect. They are just different, that’s all.

I do like the idea that, in some sense, every property should bestow power, and I would include under ‘property’ here relations, or at least the so-called *external* relations. I do like the Eleatic Stranger’s dictum. But I think we have to recognize categorical properties. So what is to be done? How can we bestow power on categorical properties?

My idea is that this is best done via direct relations between the universals involved. These will give us the laws of nature and the powers will be subsequent to, and nothing more than, these laws. Or as we may put it, the truthmakers for attributions of powers are these laws. This is best done, I think, though I have to be brief here, by analyzing these relations as relations of determination – causing is the fundamental notion here – holding between states-of-affairs-types. These objects are abstractions from states of affairs, and the state-of-affairs-type linked with the universal F is *something being F*. If it is a law that Fs are Gs (the

absurdly schematic example is just for simplicity), then *something being F causes the same something to be G*. If you like: *x being F causes x to be G*, though this is not to be read as a universally quantified proposition. It is a higher-order singular, though I think it entails the corresponding universally quantified proposition. Getting a little more complexity in, we might have a different law: *something being F causes a further something that bears R to the F to be G*. In symbols *x being F causes a y that has R to the F to be G*.

This business of states-of-affairs-types is not brought in lightly. It is brought in to deal with cases where *like causes like*, an F giving rise to an F, something that seems to happen. You don't want a law of nature being a matter of universal F being related to F. But you want the possibility of *something being F causing a further something that bears R to the F being F* – in symbols, *x being F causing a y that has R to the F to be F*. Relations between states-of-affairs-types are, of course, a particular sort of relation between universals. A formula of the sort $N(F, G)$, which I used to use, is misleading, but only because of the complexity of the relation which it covers up. I think we have direct experience of causality, cases of forces acting on our body being the best case, and this enables us to at least *understand* what a relation between universals – a relation between state-of-affairs types – would be like. And I claim further that causal relations between state-of-affairs-types will ensure (and explain) the corresponding regularities that Humeans think is all there is to laws.

But is there a fly in this ointment? In the past, Michael Tooley (Tooley, 1997, Fred Dretske (Dretske, 1997) and I (Armstrong, 1983) have claimed that these relations between universals are contingent only. And this has been made a ground for criticizing us, particularly by Brian Ellis (Ellis, 2001). If there is only contingent connection between universals, he argues, then the nature of the categorical properties involved still fails to explain their nomic connection. But let me leave this point aside until we have looked at the fourth of the dimensions along which upholders of properties may and do differ.

4. *Contingent vs necessary predication*. The orthodox contemporary view of predication is, I suppose, that with the exception of essential properties, if you believe in them, for a particular to have a property is a contingent matter. In some recent work on properties, however, another account of the matter has been put. In particular, a necessitarian

approach is to be found in a good many of those who uphold a particularist view of properties, that is those who lean towards tropes. It goes like this.

Suppose you wish to refer to a particular trope. You will very naturally mention the particular that has it. You will say, perhaps, that it is the whiteness of this billiard ball. That is how you identify it. But some go further. They would say, in C.B. Martin's phrase that the trope is *non-transferable*. It is of its essence that it is the whiteness of just this particular. If God has made the particulars and the tropes (using a substance-attribute view for convenience) then the property tropes and the relation tropes automatically find their proper place among the particulars. What particular a monadic trope qualifies is a necessary matter. This view is seldom argued for, but you will find it assumed in the work of Martin, John Heil, and Peter Simons. (In my early work on properties, I was so far from assuming it that I assumed, without argument on my part also, that the link in a trope theory would have to be contingent.)

One point that is very important to note is that such a view removes the need to postulate states of affairs as an extra ontological ingredient over and above their constituents, here particulars and tropes. You do not have to, and I think one should not, deny that there are states of affairs, such as *a's having a certain mass*. But given a particular and its trope, and given the non-transferability of the mass trope, one is given the state of affairs.

Notice also that there remains a place for contingency. The particular is a contingent being. The trope is a contingent being. But once they are both there the trope attaches to the particular of necessity. A necessary connection between contingent entities.

Trope theory and the theory of universals have a strange way of running parallel to each other. For many years I have taken it for granted that the instantiation of a universal by a particular is a contingent matter. Now I am not so sure. The story starts with a remarkable paper that I first heard read by Don Baxter at the University of Connecticut, but which has now been published (Baxter 2001). Baxter had wrestled with the problem of the "fundamental tie" that is supposed to hold together particular and universal. It is the great difficulty that is regularly raised against

universals. It apparently relates particular and universal, but it seems to be more fundamental than a relation. Philosophers sympathetic to universals have said apparently desperate things such as “non-relational tie”. Baxter came up with the idea that the particular and its universal actually overlapped, were partially identical. A thing’s properties, the universals it instantiates, go to make up the thing, and the things that a universal is instantiated by go to make up that universal.

I was powerfully attracted to this theory as soon as I heard Baxter spell it out. I thought that a particular, what I have in the past called a “thin” particular, could be seen as a principle of unity, a one that runs through and collects its many properties, while the universal could also be seen as a principle of unity, a one that runs through and collects its many particulars. A state of affairs becomes an intersection of the two principles, and so the state of affairs is a partial identity.

But then there came my falling out with Baxter. Baxter continues to hold that the link between a particular and its universal is a contingent one. It seems to me, however, that once one has identity, even if only partial identity, there will be found necessity. Consider first the particular and its properties. Could the particular have lacked any property that it in fact has? Strictly, no. Necessarily, the particular would have been at least a little different from what it actually is, and therefore would not be the same particular. David Lewis paid tribute to this when he argued that in these circumstances “the same particular in another world” would be no better than a *counterpart* of the actual particular. But now consider the missing property of the particular, with that property taken as a universal. All its instances are partially identical with it according to Baxter’s theory. So if the particular is supposed to lack that property, will not the universal be a different entity? I think it must be. Having just the instances it has is essential to the universal being what it is. So the particular *must* have that property. For more detail of the theory see Armstrong (forthcoming).

This is not to say that universals exist by necessity. Despite Plato’s authority, I don’t think they do. But if this universal were not there, then only a *counterpart* particular could be there. And all over the world, wherever that universal was instantiated, things would be somewhat different. If you start fiddling with the universe just a little bit, you may do a great deal more damage than you might realize! Everybody, I

suppose, concedes that particulars are contingent beings. But to remove them would be to remove every universal that they instantiate. For each of these removed universals the best that you could do would be to have close counterparts. The damage might ripple on further. So beware!

Baxter's theory, if good, should and could be applied to relations, external relations at least, which have a good claim to be the real relations. I worried about this for a while, but Baxter cleared the matter up for me. And there seems to be no reason why the theory should not apply to those relations between universals which I together with Dretske and Tooley see as the true account of laws of nature. Suppose that you have $L(F,G)$ where F and G are universals, and L is the relation between them – a particular causal linking of the relevant states-of-affairs-types, I have argued above. Then, given the partial identity view, universal L will intersect with the pair of universals, perhaps the ordered pair $\langle F, G \rangle$. And, of course, because identity is involved, the relationship will be a necessary one, even though the universals related are, as I think, contingent beings. These laws will explain what it is to speak of properties bestowing powers on the particulars that instantiate the properties, without any necessity to postulate powers as entities.

So here are my (current!) answers to four great questions that we may fruitfully pose concerning properties (and relations). Are they universals or particulars? *Properties are universals*. Do we bundle properties to make particulars, or is the particularity of particulars irreducible? *Particularity is irreducible*. Are properties categorical or dispositional? *Properties are categorical, they are not powers*. (But because they can be linked together to give laws, they do “bestow power”.) Is the predication of properties contingent or necessary? *The predication of properties is necessary*.

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