

Tropes: For and Against

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Introduction

Trope theory is the view that the world consists (wholly or partly) of particular qualities, or tropes. This admittedly thin core assumption leaves plenty of room for variation. Still, most trope theorists agree that their theory is best developed as a one-category theory according to which *there is nothing but tropes*. Most hold that ‘sameness of property’ should be explained in terms of resembling tropes. And most hold that concrete particulars are made up from tropes in compresence (for an overview, including an introduction to some alternative versions of the view, cf. Maurin, 2014). D. M. Armstrong disagrees. He thinks the world is a world of immanent universals, the thin particulars in which those universals are instantiated, and the states of affairs that—thereby—exist.¹ He holds that ‘sameness of property’ should be explained in terms of numerically identical universals or—if the resembling things are the universals themselves—in terms of partially identical universals. And he believes that concrete particulars are made up from ‘thin particulars’ in which a (sufficient) number of universals are instantiated. In spite of their disagreements, proponents of tropes owe Armstrong a debt of gratitude. First, for being one of the theory’s earliest, most serious, and—not least—most prominent, critics (Armstrong for the first time considers, and rejects, what he then labels ‘particularism’, in his 1978a). But also for being one of the theory’s most ardent champions. Already in his 1989a, Armstrong regrets his 1978-rejection of the view. Equivalence classes of exactly resembling tropes, he now admits, for most purposes “serve as an excellent substitute for universals” (Armstrong 1989a, 122). But then why isn’t Armstrong a trope theorist?

In this paper, Armstrong’s main reasons for rejecting the trope view are critically scrutinized. All of them, it is maintained, fail to convince. If this argument is accepted, Armstrong seems to have no—or, at least, no *good*—reason for not accepting the existence of tropes. But, then, ought Armstrong to have been a trope theorist? If the ‘best’ version of the trope view turns out to be ontologically more parsimonious than Armstrong’s own theory of universals, then, yes. That there is a version of the trope view, a version that is *not* (or, at least not seriously) considered by Armstrong, that *is* ontologically more parsimonious than the universals view, is argued in the next section. Why none of Armstrong’s reasons for preferring universals to tropes manage to convince, is explained in the section after that. First, however, and in order to avoid a common misunderstanding of the trope view and, as a consequence, of why one ought to reject it, a few more words about the *core*-difference between tropes and universals, and about how this difference matters (as well as does not matter) to what—and how well—these theories explain.

Tropes and the One over Many

The core-difference between tropes and universals, first, is rather easily stated: tropes are particular, universals are universal. Among other things, this means that, if *a* and *b* are both *F*, and *F* is a universal, then *a* and *b* *literally* have something in common: they both exemplify (numerically the same) *F*. Not so if properties are tropes. For then, if *a* and *b* are both *F*, this is because *a* exemplifies trope f_1 and *b* exemplifies trope f_2 , where $f_1 \neq f_2$. What, then, makes *a*

¹ That states of affairs exist, so-to-speak *on top of* the thin particular and universal that make them up is something Armstrong *must* (and does) accept (but cf. his 1978a, 80). For a critical discussion cf. Maurin 2015.

and *b* the same? If properties are tropes, *a* and *b* are the same if *a* exemplifies *f*₁, *b* exemplifies *f*₂, and *f*₁ (exactly) resembles *f*₂.²

According to Armstrong, the most important job for any theory of properties is precisely the one described above: that of explaining (or ‘grounding’) the fact that things which are distinct, nevertheless appear to be the same (‘in some respect’). This is the ‘problem of the One over Many’, and solving it, Armstrong tells us, is a ‘Moorean’ task.³ This problem is also a reason *not* to be a ‘classic’ nominalist. For, if you are, then because you refuse to accept the existence of a separate category of properties you have no option but to explain the sameness of *a* and *b* with reference to something *external* to them (like their being members of a certain class or falling under a certain predicate).⁴ But this is problematic. First, because it turns explanation on its head: intuitively, *a* and *b* are both *F* *not* because they belong to the same class or fall under the same predicate. They belong to the same class or fall under the same predicate because they are both *F*.⁵ More importantly, it is problematic because what the nominalist is in effect doing, is accounting for the sharing of one type—‘being *F*’—in terms of the sharing of another—‘belonging to the same class’, ‘falling under the same predicate’, etc. But the nominalist, being a nominalist, cannot accept the existence of *any* types. Therefore, these new types must in turn be explained (away). And if this (new) explanation is couched in nominalist terms (which it certainly ought to be), one type is, once again, explained with reference to another. Which means that we have yet another type that must be explained (away). And so on, *ad infinitum*. At no point is the problem of the One over Many substantially solved. And this, Armstrong concludes, is unacceptable (for Armstrong’s classic attack on nominalism cf. his 1978a, pt. 2).

Properties help. For if there are properties, Armstrong argues, then that *a* and *b* are both *F* can be explained with reference to the properties they have, which means that explanation is turned right back on its feet. How about the threat of vicious infinite regress? If properties are universals that threat is averted. For if properties are *identical* in their distinct instances their being exemplified is enough to ensure that those instances are ‘the same’. Matters are not quite as straightforward if properties are tropes. For then, as we have seen, to explain the sameness of *a* and *b*, it is *not* enough to point to the property-tropes they exemplify. We also need an account of what makes those tropes the same. Just like the classic nominalist, the trope theorist must provide the requisite account in terms that respect the basic tenets of her theory. To avoid positing universals, therefore, she must take whatever it is that makes two tropes ‘the same’—their resemblance, on the standard view—as yet another trope. But then, for each pair of resembling tropes, there will be one resemblance-trope. Provided that there is more than one pair of resembling tropes (which seems likely), there will be more than one resemblance-trope. But those resemblance-tropes are *also* the same (they are all resemblances). The trope theorist must now explain *their* sameness, and she must do so in trope-theoretical terms. That is, she must explain their sameness in terms of their resemblance. But this saddles her with yet another set of resemblance-tropes. Which resemble. And so on, *ad infinitum* (Armstrong 1978a, 85, cf. also Maurin 2013).

Is this a vicious regress? According to a number of trope theory’s critics, it certainly is. However, after briefly toying with the idea that it is in his 1978, Armstrong post-1978 does not agree. Why not? The short answer is: because of the nature of resemblance. Resemblance,

² Not all trope theorists are resemblance theorists, even though most are (cf. e.g., Stout (1921, 1923)).

³ A problem is ‘Moorean’, according to Armstrong, if a theory, to be acceptable, must be able to substantially solve it (Armstrong 1980, cf. also Devitt 1980). Armstrong does not think that a solution which takes the contested phenomenon as primitive should count as substantial. This is why he considers the Quinean nominalist an ‘ostrich’ hiding his head in the sand, refusing to answer a compulsory question. This view is criticized in e.g., Lewis 1983.

⁴ A possible exception is resemblance nominalism. Cf. fn 6 below.

⁵ A so-called ‘Euthypro dilemma’ (from Plato’s *Euthypro*, 10a). Cf. Armstrong 2004, 40.

it is generally agreed, is an *internal relation*. As such, it is grounded in the nature of that which it relates. If properties are universals, the nature which grounds resemblance is numerically the same in its different instances. If properties are tropes, it is not. Post-1978, Armstrong does not think that this is a difference of any relevance to the workings of resemblance, however. Just like if properties are universal, if properties are tropes, resemblance “flows from the nature of the resembling things” (Armstrong 1989a, 44).⁶ But if resemblance “flows from the natures of the resembling things”, the threat of *vicious* infinite regress disappears. For now “[t]he truth-maker, the ontological ground, that in the world which makes it true that the tie [i.e., resemblance] holds, is simply the resembling things” (Armstrong 1989a, 56). The resemblances in which the resembling things stand will still resemble each other; and those resemblances will resemble each other, and so on *ad infinitum*. But as the existence of these resemblances is entailed *given* the tropes posited in the regress’ first step, their existence cannot prevent those tropes from solving the problem of the One over Many. Contrary to what sometimes appears to be the popular opinion, therefore, Armstrong *doesn’t* think that the resemblance regress is a reason to prefer universals to tropes (although, as we shall see, he *does* think that resemblance may provide the universal realist with another kind of reason to that effect).

Armstrong on what is the ‘best’ version of the trope view

Apart from their shared acceptance of the existence of (fundamental) tropes, trope theorists differ—sometimes widely—among themselves: about what *else* there is besides tropes (if anything), about how tropes can make true propositions ostensibly about universals, and about how tropes can make true propositions ostensibly about concrete particulars. And so on.⁷ The following is however a popular—probably *the* most popular—version of the theory, and so deserves to be called ‘the standard version’: (i) there are only tropes; (ii) propositions ostensibly about universals are made true by tropes *in resemblance*; (iii) propositions ostensibly about concrete particulars are made true by tropes *in compresence*.⁸ But Armstrong’s preferred version of the theory, the one with which he compares his own immanent realism, is *not* this one. Although, as we have seen, he accepts (ii), Armstrong rejects (iii). Propositions ostensibly about concrete particulars, he holds, are on the best version of the theory made true not by bundles of compresent tropes, but by tropes exemplified by (what he calls) thin particulars.⁹ This means that, on Armstrong’s preferred version of the theory, not just tropes but also thin particulars are taken as fundamental, which means that (i) is abandoned. Worse, because Armstrong rejects an assumption common among the minority of trope theorists who, like him, prefer a substance-attribute account of concrete particulars, namely *that tropes are non-transferable*, he also thinks that the trope theorist must accept the existence of a *third* kind of thing: states of affairs. All in all this makes Armstrong’s preferred version of the theory ontologically speaking much more expensive than the standard version.

⁶ Armstrong even suggests that this ‘saves’ classic resemblance nominalism (RN) from the usual nominalist critique. However, if the trope view has resemblance ‘flow’ from the tropes had by the resembling objects, RN must “congeal the particular properties into a single grand (but still particular) property within which no differentiation can be made” (Armstrong 1989a, 45). Somewhat surprisingly, Armstrong doesn’t think accepting particularized natures had by the resembling things contradicts the basic tenets of RN. They are ‘a somewhat blunt instrument’, however. Which is taken as a point in favor of the trope-view (ibid. 49).

⁷ Some have even argued that trope theorists differ in exactly what *kind* of thing they take the trope to be. For recent statements of this view, cf. Loux 2015, and Garcia 2015.

⁸ Classic proponents of the ‘standard’ view are Williams 1953, and Campbell 1990.

⁹ This does not stop Armstrong from acknowledging the many virtues that a bundle-of-tropes account has in comparison to a bundle-of-universals account (cf. e.g., Armstrong 1989a, 114).

Armstrong lists three reasons for why one ought to prefer a version of the trope view that rejects (iii) (and, hence, (i)): (1) tropes are *ways things are* (cf. Armstrong, 1989a, 115f and 1997, 25); (2) tropes are *not* substances (cf. Armstrong 1989a, 114f.), and; (3) objects do *not* have their properties of necessity (cf. Armstrong 2004, 46). Take (1) first. This is a reason for rejecting (iii) because, if tropes are *ways*, then they are essentially *of* some object, they are ‘characterizers’, and so stand in need of something to characterize. This can straightforwardly be made sense of if concrete particulars are understood along substance-attribute lines: tropes are *of*, and so characterize, the thin particulars that exemplify them. Not so if concrete particulars are bundles of tropes. For then what is there for those tropes to be *of*? (1), moreover, relates rather intimately to (2). For, if tropes are essentially *of* some object, then whatever else this means, it certainly seems to entail that they are essentially dependent entities. But, Armstrong believes, on the bundle view, tropes *must* be taken as some kind of ‘junior substance’: if tropes are all there is to the concrete particular, then there is literally nothing (no other *kind* of thing) for those tropes to depend upon (cf. e.g., Armstrong 1989a, 115). And (4), finally, is a reason to be a substance-attribute theorist because, to a bundle theorist “[p]redication of the member [of a bundle] is a mere matter of extracting the trope or the universal from the bundle” (Armstrong 2004, 46).¹⁰ If the concrete particular *is* the bundle of its tropes, therefore, those tropes could not be replaced, yet that object continue to exist. This is highly unintuitive.

None of these are good reasons for rejecting (iii), however. That tropes are *ways things are*, first, is only a reason for adopting the substance-attribute view instead of the bundle view if the ‘things’ of which tropes are supposed to be ‘ways’ can be reasonably understood as *thin* particulars. But it seems highly unlikely that they can be. To describe properties as essentially *of* some object, could just as well (better, even) be understood as saying something about how properties stand to the *concrete* particular that ‘has’ them. And concrete particulars are *thick* not thin particulars. How about dependence? If tropes are ways, they are essentially dependent entities. But, as Armstrong points out, if there is nothing but tropes, then there is nothing—no other kind of thing—for those tropes to be dependent upon. How, then, can they be ways in the first place? This is how: by being such that they must belong to some bundle. Or, in other words, by being such that they, in order to exist, must be compresent with some other trope(s).¹¹ For this would mean that, even if they do not depend for their existence on the existence of an entity belonging to another *kind*, tropes nevertheless essentially depend for their existence on something. Which should be enough to accommodate the intuition that tropes—in being ways—are essentially dependent entities.¹² How about Armstrong’s final point about essential predication? Although Armstrong is quite right in pointing out that if the concrete particular is identified with the bundle of its properties, then *it* could not be differently constituted, he does not seem to realize that this is a problem—if it is a problem—for *any* theory according to which the concrete particular is (at least in part) identical with its own properties. Which means that this is a problem for *both* the bundle- and the substance attribute view (provided, that is, that constitution is understood as (sufficiently like) identity).

Armstrong also thinks that, on the ‘best’ version of the trope view, tropes are *transferable*. Again, this is not the standard view, at least not among the minority of trope

¹⁰ Given Armstrong’s overall methodological framework, talk of ‘predication’ here is best understood in non-linguistic terms. This is also how I’ve taken it above.

¹¹ This is in fact the ‘standard’ view among most trope-bundle theorists.

¹² Note, also, that Armstrong could hardly object that, if tropes are essentially dependent entities, then whatever bundle they make up must itself be a dependent entity—which would leave the one-category trope theorist with a universe devoid of substance. He could not, because, on his own view, states of affairs are made up from (mutually dependent) thin particulars and universals, yet states of affairs are essentially *independent*.

theorists who, like Armstrong, accept a substance-attribute view of concrete particulars.¹³ On the standard view (in this sense of ‘standard’, that is), tropes are *non-transferable*, i.e., they are such that, if they exist and (partly) constitute a concrete particular, there is no possible world in which they exist and fail to do so. From the existence of the constituents of a concrete particular, in other words, the existence of that concrete particular is entailed. Armstrong presents two reasons against the standard view. If tropes are non-transferable, first, what he believes is the best available theory of modality (which requires free recombination of all items in the actual world, cf. his 1989b) would arguably have to be given up. But even if this account of modality is rejected, Armstrong points out, a world with non-transferable tropes would be a world that is ‘ineluctably fixed’. A ‘rather mysterious necessity’ that Armstrong thinks ought to be avoided if at all possible (Armstrong, 1989a, 118; cf. also Maurin 2010). However, if tropes are transferable, and this is explicitly admitted by Armstrong, then the trope theorist must posit, not just tropes and thin particulars, but states of affairs as well. This is why (Armstrong 1989a, 117; cf. also Armstrong 1991, 193):

suppose that *a* has property trope F. This is either a matter of F’s standing in the bundling relation to the other tropes that make up *a* (bundle version) or else is a matter of F’s being an attribute of *a* (substance-attribute version). In either case, states of affairs are required. For instance, *a*’s being F entails the existence of *a* and trope F. But *a* and trope F could exist without *a*’s being F. So, [*a*+F] (the object that is the mere sum of *a* and F) is an insufficient truth-maker for *a*’s being F. States of affairs are required as part of the ontology of any trope theory.

If tropes are *non-transferable*, on the other hand, then *a* and trope F *could not* exist without *a*’s being F, thereby removing any need for states of affairs (Armstrong 1989a, 118). Non-transferable tropes have their cost. Primarily, a weirdly fixed universe. But transferable tropes, we can now see, have *theirs*. “Which poison should the boys in the backroom choose?” Armstrong asks, knowing full well which one he prefers (Armstrong, 1989a, 118). But why should the trope theorist agree? As we have seen, with non-transferability hers is the more parsimonious view. With concrete particulars understood along bundle- instead of substance-attribute lines, it is more parsimonious yet. But then, supposing that no *other* reason for preferring universals to tropes can be supplied, parsimony might be what tips the balance in trope theory’s favor.

Armstrong on why there are no tropes

To see if some reason (of sufficient strength) for preferring universals to tropes *can* be supplied, or, at least, to see if Armstrong succeeds in supplying one, we need to investigate more carefully the reasons Armstrong does provide in support of his contention. Here they are in very brief summary:¹⁴

¹³ There are also bundle theorists who think that tropes are non-transferable. One example is Simons 1994, who attributes non-transferability to the tropes in what he calls the “kernel” of the bundle.

¹⁴ One reason that I won’t discuss here is what we may call Armstrong’s ‘argument from robustness’, which claims that universals ought to be preferred to tropes because with their help, the problem of the One over Many can be solved in an unusually ‘robust’ manner (cf. esp. Armstrong 1997, 22; cf. also his 1978a, xiii). Armstrong throughout his writings seems to waver about just how seriously this argument should be taken. That it does not really fit in with other views he holds is argued in Maurin 2008.

Piling: on the trope view, you must either accept ‘piling’ or you must accept an *ad hoc* principle forbidding piling. The former is unintuitive, the latter is theoretically costly.

Swapping: on the trope view, you must either accept ‘swapping’ or you must accept that tropes are non-transferable. The former contradicts a fundamental Eleatic principle that Armstrong thinks we ought to accept, the latter (as we have just seen) forces us to accept that the universe is (mysteriously) fixed.

‘Hochberg’s Argument’: on the trope view, if f_1 and f_2 are distinct yet exactly similar tropes, then the propositions *that f_1 and f_2 are exactly similar* and *that f_1 and f_2 are distinct*, although formally distinct, must be given the same truthmakers (namely f_1 and f_2). This is unintuitive.

Laws of Nature: on the trope view, Armstrong’s ‘relational’ theory of laws of nature must be rejected in favour of a regularity account. But this means that the trope theorist must accept an inferior theory of laws.

Resemblance: on the trope view, the axioms of resemblance as well as the axioms of identity must be taken as primitive. This is theoretically uneconomical.

Armstrong doesn’t think of any one of these reasons as conclusive. What he does believe, however, is that they, especially if considered ‘in bulk’, strongly suggest that a theory that admits universals—an *immanent realism*—is preferable to one that admits tropes (cf. e.g., Armstrong 1997, 24). I think Armstrong is mistaken. First because, as I will try to convince you next, piling, swapping, and ‘Hochberg’s argument’ (at least as that argument is presented by Armstrong) most likely do not provide the universal realist with *any* reason for preferring universals to tropes. Second, because laws of nature and resemblance at best provide her with very weak such reasons. Reasons, moreover, that in order to *be* reasons, require us to make what many would consider to be highly contentious and/or theoretically costly assumptions.

Piling, swapping, and ‘Hochberg’s argument’

Why don’t I think that piling, swapping, and ‘Hochberg’s argument’ provide the universal realist with reasons to prefer her posits over those of the trope theorist? Take ‘piling’ first. Piling is what would be the case if one and the same particular (at one and the same time) instantiated a property more than once. Piling, Armstrong believes, is impossible (or at least ‘highly improbable’), for “[t]o say that a is F and that a is F is simply to say that a is F ” (Armstrong 1978a, 86). If properties are universals, that this is impossible follows automatically: if a is F and a is F , then, since $F=F$, what this boils down to is simply that a is F .¹⁵ Not so if properties are tropes. To make sure that the possibility of piling is ruled out, therefore, Armstrong thinks that the trope theorist must introduce an *ad hoc* principle that forbids it. *Ad hoc* principles are bad, and we ought to prefer a theory on which they are not needed. Therefore, Armstrong concludes, we ought to prefer universals to tropes. But note that piling only forces the trope theorist to accept an *ad hoc* principle, if avoiding piling is as important as Armstrong suggests. It is however unclear that it is. It is, in other words, unclear if piling *is* an empty possibility. Suppose that piling is possible. Then, if the apple is red, this is either because it exemplifies one, or two (or three, or...) red-tropes of some determinate shade of red. Although piling tropes on top of tropes in this way certainly seems unnecessary, it does not lead to any real trouble. None of the tropes, however many, prevent us from

¹⁵ What doesn’t follow ‘automatically’, however, is that a universal realism of the substance-attribute kind can avoid the possibility of ‘piles’ of thin particulars (at least not without accepting some *ad hoc* principle that forbids them). Thank you Daniel Giberan for pointing this out.

completing any important explanatory task, or from making any necessary perceptual discriminations. *That a is F* is made true by the tropes had by *a*, whether those include one, two, or infinitely many red-tropes. But then, if nothing prevents the possibility of piling, and if this possibility makes no difference to anything we might care about, why must we accept an *ad hoc* principle that forbids it? The short answer is that we must not. But then piling is not a reason to prefer universals to tropes.

Swapping, next, is (as far as I have been able to establish) first discussed by Armstrong in his 1989a. To test our intuitions, Armstrong first invites us to consider a case in which *a* has property P but lacks Q, while *b* has property Q but lacks P. In this case, he claims, it makes perfect sense to say that *a* might have had Q and not P, while *b* might have had P but not Q. But if properties are tropes, this means that the following situation (where P' and P'' are exactly similar tropes) ought to make sense as well: *a* has property P', *b* has property P'', but *a* might have had P'' and *b* might have had P'. But, Armstrong thinks, it does not. For, he points out, as “[t]he swap lies under suspicion of changing nothing” (1989, 131-2), it contradicts a fundamental Eleatic principle according to which only what makes a causal difference to the world ought to be admitted in ontology (Armstrong 1978b, 45-6). Fundamental principles ought not to be contradicted. Therefore, swapping is a reason to prefer universals to tropes. One way around this is of course to hold that tropes are non-transferable. But, Armstrong points out (again), “this restricting of the way that possibilities are preserved under recombination is equally an ontological cost for a trope theorist” (Armstrong 1989a, 132). Against this argument a number of things can be said. First, one may object to its use of the Eleatic principle. For, even if this is a reason not to introduce anything in ontology that *cannot* or even that *does not* make a causal difference to the world, it is unclear (to say the least) if this means that one is thereby forbidden from postulating anything that, although not causally inert, *could* be involved in causally inert transactions. Also, is it really true that the swap makes for absolutely no difference? Some have argued that this is not true. So, for instance, does Labossiere (1993, 262) claim that, at most, swapping makes for absolutely no *detectable* (or verifiable) difference. If he is right, swapping is only a reason to prefer universals to tropes, if undetectable differences turn out to be especially unpalatable. Claiming that they are, however, requires separate argument. Moreover, in order to avoid swapping, it is unclear if the trope theorist must accept non-transferability of the, to Armstrong at least, objectionable kind. After all, in order to avoid the situation sketched above, it is arguably enough if we introduce the following restriction: if (in, say, the actual world @) *a* has P' at time *t*, then there is no time *t'* (also in @), where $t \neq t'$, at which *b* has P' (cf. Cameron 2006, 99-100). But this is non-transferability of an utterly weak kind. One that doesn't leave us with a strangely fixed universe, and so arguably one that Armstrong ought to have no special reason to reject (cf. Maurin 2010, 317-21). Swapping, therefore, either doesn't contradict the Eleatic principle, or avoiding contradicting that principle doesn't require accepting a strangely fixed universe. Either way, swapping is no reason to prefer universals to tropes.

What Armstrong refers to as ‘Hochberg’s argument’, finally, is first discussed in his 2004.¹⁶ Here is the argument in Hochberg’s words (Hochberg 2004, 39, cf. also his 2001):

Let a basic proposition be one that is either atomic or the negation of an atomic proposition. Then consider tropes *t* and *t** where “*t* is different from *t**” and “*t* is exactly similar to *t**” are both true. Assume you take either “diversity” or “identity” as primitive. Then both propositions are basic propositions. But they are logically independent. Hence they cannot have the

¹⁶ Cf. also Maurin 2005 in which I discuss another version of the same argument published by Hochberg in 2004.

same truth makers. Yet, for a trope theory [...] they do and must have the same truth makers. Thus the theory fails.

That t and t^* make true both “ t is different from t^* ” and “ t is exactly similar to t^* ” is problematic, says Hochberg, because it means that a fundamental principle, central to the way we think about truth and meaning, must be rejected. Let’s call this principle ‘Hochberg’s principle’ (HP):

(HP): Logically independent atomic propositions must have distinct truth makers.

If HP is accepted, Hochberg’s argument does *more* than merely provide us with an inconclusive reason against the trope view; it conclusively refutes it. The trope theorist, when faced with this argument, is therefore forced to take action. One option is to simply refuse to accept HP (cf. e.g., Mulligan, Simons and Smith 1984, 115). Another is to distinguish between formally and materially independent propositions, and claim that HP should only be taken to apply in case the propositions are not just formally but also materially independent (cf. e.g., Macbride 2004). None of these options will be discussed here (but cf. Hochberg 2004 and Maurin 2005). For, interestingly enough, whatever stand one takes on Hochberg’s argument, the argument Armstrong calls ‘Hochberg’s argument’ is interestingly different from the original. This is because Armstrong does not want to accept HP in general, and so does not necessarily regard a theory that contradicts it as essentially flawed. Instead he prefers to “argue simply from a case” (Armstrong 2004, 44; cf. also his 2005). The case he asks us to consider, more precisely, is basically the same as the one discussed by Hochberg. A case, that is, in which there are two simple but exactly resembling tropes (Armstrong 2004, 44):

Given the existence of a and b , then it is a truth, a necessary truth, that $\langle a$ is diverse from $b \rangle$. I would say that the truthmakers are just the mereological sum of the terms: $a + b$. Hochberg would disagree, but this disagreement does not seem important for the purposes of this argument. Given the existence of a and b , then it is, by hypothesis, a truth that $\langle a$ is exactly similar to $b \rangle$. Again, I would say that the truthmakers are $a + b$: the very same truthmakers for the two different truths. Given that a and b are simples, this seems counter-intuitive.

‘Hochberg’s argument’ is much harder to make sense of, and therefore also much more difficult to evaluate, than Hochberg’s (original) argument. For if this is not an argument from HP, then what, exactly, is going on here? The situation “seems counter-intuitive”, Armstrong tells us. But, why? Without a principled underpinning (like HP), the ‘argument’ amounts to nothing much at all. Or it amounts to something very much like begging the question. For if it is not because it contradicts some underlying principle that the situation is regarded as highly suspicious, then it is most likely because *normally* distinct truths are given distinct grounds. But what does *normally* mean? Universals are entities able to exist ‘fully’ in more than one place in space at one moment in time. Tropes are entities able to resemble one another perfectly, yet still be distinct. Among many other things, this means that universals are not particulars, and it means that tropes are not states of affairs. If you think that the way particulars and states of affairs ‘behave’ is the *normal* way, then neither universals nor tropes behave normally. But so what? You simply cannot fault universals for being universals, just like you cannot fault tropes for being tropes. Therefore, ‘Hochberg’s argument’ does not provide the universal realist with a (non-question-begging) reason to prefer universals to tropes.

Laws of nature and resemblance

The cases of laws of nature and of resemblance are a bit more complicated. Take laws first. These provide the universal realist with a reason in favor of her view, Armstrong believes, since, if properties are universals, “a very much more plausible theory of the nature of laws of nature” can be formulated (Armstrong 1997, 24; cf. also Armstrong 1983, Dretske 1977, and Tooley 1977). On this view, if it’s a law of nature that *all Fs are Gs*, this is because a relation of ‘contingent (or ‘nomic’) necessitation’ (N) holds between (*universals*) F-ness and G-ness. This view, Armstrong argues, is not available to the trope theorist, at least not without significant loss of explanatory power. At best, using equivalence classes of exactly resembling tropes as a substitute for Armstrong’s F-ness and G-ness, the trope theorist “can put forward a quite plausible general principle of ‘like causes like’” (Armstrong 1997, 24). What she cannot do is come up with a ‘suitable truthmaker’ for that principle. At least, she cannot produce a truthmaker that is not a ‘mere regularity’. Armstrong explains (Armstrong 1997, 237):

What, in particular, can the truthmaker for true law-statements be? The principle required is that exactly resembling tropes should bestow the very same nomic powers. But what is the truthmaker for this principle? Can it be anything more than the state of affairs that all the token state of affairs do in fact behave in accordance with this principle? And what is this but a Regularity theory of laws?

If properties are universals, on the other hand, the ‘like causes like’ principle *is* adequately grounded. It is grounded, moreover, in the state of affairs N(F,G). And this is why universals are preferable to tropes. Armstrong’s argument from laws of nature rests on a number of substantial assumptions. First, it assumes that tropes cannot function as adequate truthmakers for the ‘like causes like’ principle. Truthmakers, that is, that are not ‘mere’ regularities. Second, it assumes that ‘mere’ regularities aren’t acceptable truthmakers for that principle in the first place. And, third, it assumes that a theory of laws of nature of Armstrong’s variety is without (serious) problems of its own. All of these assumptions may be questioned. Here we can only begin to scratch the surface.

That tropes, if considered as *powers*, might function as adequate truthmakers for the ‘like causes like’ principle, is a possibility Armstrong considers (and then rejects) in his 2004. On this view, what it is to *be* an F-ness trope is to be such that you (are likely to) produce something that is (characterized by) a G-ness trope.¹⁷ But this means that, that tropes belonging to the same resemblance class give rise to tropes belonging to the same resemblance class (the infamous regularity), is now grounded in the nature of the relevant tropes. Which means that the ‘like causes like’ principle can be given what, to Armstrong, are acceptable truthmakers. If viable, Armstrong admits, this view therefore provides the trope theorist with a ‘satisfactory substitute for the generality that laws ought to exhibit’ but without having to posit the existence of universals (Armstrong 2004, 132-3).

But Armstrong rejects the powers view. Not all properties, not even all scientifically respectable properties, he argues, can be treated as powers. For if they were, “potency [would] never issue in act, but only in more potency”, which would be absurd (Armstrong 2004, 139). And the alternatives—that the world contains *both* power- and categorical tropes (the mixed view), or that it contains tropes that are simultaneously powers-and-categoricals (the aspectual view)—are likewise problematic. What, on the mixed view, is a purely categorical property

¹⁷ This view is in fact defended by a number of trope theorists (cf. e.g., Martin 1980, Molnar 2003, and Heil 2003).

supposed to be? It must have some power to affect things around it causally, or it, apart from being entirely unknowable, will offend against the, according to Armstrong truly fundamental, Eleatic principle. But then whatever causal efficacy it has, it must have only contingently, or categoricals collapse into powers. Which, if at least some of the properties that figure in at least some of the laws are categorical, most likely means that some laws will have to be understood in terms of ‘mere’ regularities after all (for details, cf. Armstrong 2004, 140). If the trope is understood along aspectual lines, on the other hand, how does its power-side relate to its categorical side? Is their connection contingent? Is it necessary? Again, both options lead to trouble (for details, again, cf. Armstrong 2004, 141). All of these problems, Armstrong concludes, are most likely unsolvable. Therefore, regarding tropes as powers is not an option.

Suppose, therefore, that tropes cannot in any straightforward way replace Armstrong’s universals in Armstrong’s account of laws. This is a problem, according to Armstrong, because it means that the trope theorist must make do with a theory of laws (the regularity view) with inferior explanatory value. But this is only because, as we have seen, Armstrong thinks that the ‘like causes like’ principle *cannot* be adequately explained by or grounded in ‘mere’ regularities. Why not? Explanation must come to an end somewhere. Armstrong thinks that this end should come one step *after* the observed regularities. But the regularity theorist does not agree. Who is right will depend on which basic assumptions—about explanation, about ontological parsimony, and about theoretical simplicity (etc.)—one accepts. The issue is therefore much more complicated than it may at first appear. Note also that, just like the regularity view is not without its defenders (cf. Carroll 2012 for a good overview), Armstrong’s theory is not without its critics. Among other things, it has been pointed out, it is unclear if, in positing N, Armstrong does a much better job explaining than do his rivals. In Lewis’ words (Lewis 1983, 366; cf. also van Fraassen, 1989):

Whatever N may be, I cannot see how it could be absolutely impossible to have $N(F,G)$ and Fa without Ga . (Unless N just is constant conjunction, or constant conjunction plus something else, in which case Armstrong’s theory turns into a form of the regularity theory he rejects.) The mystery is somewhat hidden by Armstrong’s terminology. He uses ‘necessitates’ as a name for the lawmaking universal N; and who would be surprised to hear that if F ‘necessitates’ G and *a* has F, then *a* must have G? But I say that N deserves the name of ‘necessitation’ only if, somehow, it really can enter into the requisite necessary connections. It can’t enter into them just by bearing a name, any more than one can have mighty biceps just by being called ‘Armstrong’.

If laws of nature provide the universal realist with any reason at all for rejecting tropes, it is therefore a rather weak, and certainly a theoretically loaded one. A reason, that is, which shouldn’t keep the trope theorist up at night.

Armstrong’s argument from the axioms of resemblance, finally, is the one he himself finds the most compelling. The argument is first mentioned in his 1978a. Here it is introduced as a reason not to be a ‘classic’ resemblance nominalist, but Armstrong clearly considers this a problem also for the trope view. The problem, more precisely, is that, on any view according to which sameness of property is understood in terms of resemblance, all of resemblance’s formal (and other) properties must be accepted as bedrock primitives. This is problematic, first, because then, what is taken as not further explicable (or even as ‘inexplicable’) really isn’t. Rather (Armstrong, 1978a, 49; cf. also his 1989, 57 and 137; and his 1997, 23):

[i]t is natural to derive the symmetry of resemblance from the symmetry of identity. *a* resembles *b* if and only if *a* and *b* are in some respect identical. There exists a respect, *C*, in which *a* and *b* are identical. The symmetry of *C*'s identity with itself then ensures the symmetry of resemblance.

And it is problematic, second, because, since the things that resemble each other must be *self-identical*, the formal (and other) properties of identity must *likewise* be taken as bedrock. But then not one, but at least two sets of axioms will have to be accepted as 'brute' and not further explicable. The same is not true if you are a universal realist. For on this view, resemblance is explained in terms of identity, which means that only the axioms of identity need to be taken as primitive. This makes universal realism the preferable view, because "[i]n philosophy, as in science, the theory that explains by appealing to the least number of principles is to be preferred, other things being equal" (Armstrong 1997, 23). According to Armstrong, in other words, resemblance is a reason to prefer universals to tropes, because resemblance can be accommodated in a theoretically simpler way by the universal realist, than it can be by the trope theorist. But can it really? Only if the universal realist can account for *all* cases of resemblance in terms of identity. And only if she can do this without overly complicating her theory.

First point first. As we have seen, if properties are universal, there is a perfectly natural sense in which resemblance between concrete particulars can be understood in terms of identity: *a* and *b* resemble each other if they (literally) share a property. Not all cases of resemblance are that straightforward, however. Take two perfectly determinate shades of redness that resemble each other to degree *D*. It seems wrong—or, at least, it doesn't seem obviously right—to explain their resemblance in terms of some 'respect' they share. Especially as it is far from clear that universals *have* respects in the first place. That resemblance between properties is a more difficult case than is resemblance between concrete particulars is readily admitted by Armstrong himself (in fact, he would go as far as to say that this is "one of the most difficult issues in the theory of universals" (Armstrong 1997, 47; cf. also his 1989a, 124)). Rather than account for the resemblance between properties in parallel with how he accounts for the resemblance between concrete particulars (in terms of 'identical respects'), Armstrong opts for accounting for it in terms of 'identical part', or, in other words, in terms of *partial* identity: (universals) *F* and *G* resemble each other if they *literally* share some part(s). In Armstrong's words (1989a, 106, cf. also his 1978b, 116-30):

Being five kilos in mass involves the five-kilo thing having a part, a proper part to put it technically, that is four kilos in mass...The properties resemble because a four-kilo object is a large proportion of a five-kilo object. The bigger the part, the closer the identity, and so the closer the resemblance.

So far this sounds rather straightforward. However, the account soon becomes quite complicated. To be successful, first, it requires that, not just concrete particulars, but also universals, *have parts*, and that these parts are *also* universals, although not (as for the properties of universals, if such exist) universals of a higher order. A part of a universal (at least this is what Armstrong argues in his 1978b) is not to be equated with a part of the aggregate of particulars which instantiate it. Equally, it is not a sub-class of the class of particulars which instantiate it. Most likely, Armstrong suggests, determinate universals which resemble each other by being partially identical, are *structural* universals, and they are also and simultaneously a certain state-of-affairs type (1978b, 122). Here's Armstrong again (1989a, 106):

Consider the property of being just five kilograms in mass. For something to have that property the thing must consist of two parts, parts with no overlap between them, such that one part is just four kilos in mass, the other just one. It is a simple form of structural property, simple because no special relations are needed between the two parts: The parts can be scattered parts. We can use the language of states of affairs. The state of affairs of something's being a five-kilo object is the conjunction of two states of affairs: something's being four kilos plus something else's (nonoverlapping something else) being a one kilo state of affairs.

On this view, as we have seen, all universals (at least those able to resemble other universals) must be understood as complexes made up from parts (which are *also* universals). This is relatively easily made sense of if we think of properties like determinate masses, lengths, and durations (which also happen to be Armstrong's favorite examples of properties when defending this view). For these are typically extensive properties. However, not all properties are like that. Some properties are (or appear to be) *intensive* rather than extensive. Colors are one example. These are properties which do not obviously have the complex structure required for the proposal to go through. In his 1978b, Armstrong responds to this worry—but then only as a worry about color—by pointing out that colors do not appear to be complex because we judge their nature by their phenomenology. But we shouldn't. The true nature of the colors is revealed to us by science, and science tells us that colors, just like masses, lengths, and durations, are internally structured. Similar arguments are given in Armstrong 1989a, 107 (“the color properties have a concealed complexity”) and in Armstrong 1997, 57-61 (where the phenomenology of color is explained by saying that the properties revealed in perception are “second-class”). But this response arguably misses the point, which is that a view that *forbids* resemblance between simple properties burdens the theory with a whole host of ‘extra’ theoretical assumptions. Not only in the case of color (which, Armstrong admits explicitly, forces him to regard Physicalism as a ‘premise’ on which a large portion of his overall metaphysics rests (1997, 58)), but in general. For Armstrong must not only consider color a (disguised) extensive property. He must consider *all* properties—at least all properties which resemble other properties—that way. But there are reasons not to accept this. Electrons, for instance, are often thought of as point-sized. Yet they are also taken to have determinate mass. This means that the following certainly seems possible (not just metaphysically, but also physically): two point-sized particles that have different mass, and that resemble each other ‘mass-wise’. But Armstrong must—and does—reject this possibility (Armstrong 1997, 64):

I take courage and declare that this metaphysics has no place for such quantities. They are as objectionable as determinable/determinate relations holding between simple properties.

In declaring this, however, Armstrong arguably contradicts the basic tenets of his own scientific realism. Or, to put the objection more mildly, in declaring this, Armstrong burdens his account with yet another not further explicable theoretical assumption. An assumption, moreover, that doesn't seem to have any other justification than that it is needed in order for Armstrong's account of resemblance in terms of identity to have general applicability. To require of all properties—that resemble—that they are complex, finally, might makes one wonder about the possible existence of simple properties. Either such properties exist, or they don't. If they do, then those are properties which *cannot* resemble other properties. Which seems a bit weird. And if they don't exist, then *all* properties are complex properties, which means that Armstrong's account automatically—and necessarily—commits him to the

existence of, not just possible—but actual—gunky structures. A substantial commitment, indeed.

The price of being able to account for *all* kinds of resemblance in terms of identity is in other words high. It does not cost you an additional set of primitive axioms of resemblance, mind you. But it's unclear if this 'saving' is enough to tip the balance in the universal realist's favor. For, if resemblance is accepted as primitive, your theory of resemblance at least would seem to become considerably more straightforward: concrete particulars resemble each other because the tropes they instantiate do, and those tropes resemble each other because of their nature. Which, then, is the theoretically simpler view? No obvious answer seems forthcoming. Which means that resemblance is not a good reason for preferring universals to tropes.

In this paper, Armstrong's main reasons for rejecting the trope view have been critically scrutinized. And all of them have been found wanting. Does this mean that Armstrong ought to have been a trope theorist? If the 'best' version of the trope view is ontologically more parsimonious than is the 'best' version of the universals view, then yes. That it is has also been argued in this text. Therefore, Armstrong ought to have been a trope theorist.

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