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WHY PROPERTIES ARE TROPES

3.1 Tropes versus universals

There are several ongoing debates about the metaphysics of properties (Armstrong 2005). An old one concerns whether properties are universals or particulars. Realists like Armstrong (1978a–b; 1983; 1989a; 1996; 1997; 2005; 2010) claim that properties are universals. Universals are "repeatable" entities (Loux 2006); numerically one and the same universal can be instantiated by and thereby be wholly present in diverse individuals; it is a one-in-many, as Aristotle put it. Nominalists deny that there are universals. According to them, there are only particulars; although exactly what kinds of particulars exist is a matter of dispute. Extreme nominalists posit only individuals. Moderate nominalists posit other particulars besides. The latter are often called 'abstract particulars' to distinguish them from individuals, which are the concrete particulars. Abstract particulars include classes (Quine 1960; Quinton 1957; Price 1953a, 1953b; Lewis 1983b) and tropes (Stout 1921, 1923; Williams 1953, 1986; Campbell 1981, 1983, 1990; Simons 1994; Bacon 1995; Mertz 1996; Martin 1996a–b, 1997, 2007; Molnar 2003; Heil 2003, 2005; Mumford 2012).

Tropes are particularized properties, also called 'unit properties', 'property instances', 'individual accidents', and 'modes', among other things.[1] Intuitively, each is a *way* that an individual can be (Levinson 1978; Lowe 2006; Martin 2007). To understand the concept of a trope, it is helpful to contrast it with the concept of a universal. Consider two apples, *a* and *b*, which are qualitatively indistinguishable. The redness, roundness, and other qualitative characteristics of *a* are completely indistinguishable from those of *b*. Since properties are supposed to account for the objective

similarities and differences among things, these qualitative similarities should be explained by appeal to *a*'s and *b*'s properties. Realists explain them by claiming that there are universals. There is a universal, redness, for instance, that is instantiated by both *a* and *b*. Trope theorists deny this. There is not a single entity, they say, the universal redness, which is instantiated by both *a* and *b*; rather, *a*'s redness is a property that is numerically different from *b*'s redness. What is it that explains the similarity between *a* and *b* if *a*'s redness and *b*'s redness are numerically different properties? The answer, say trope theorists, is that *a*'s redness and *b*'s redness exactly resemble each other. Because they exactly resemble each other it can seem as though there must be an entity, a universal, which the two literally have in common. But according to trope theorists, this is not the case. Objective similarities can be explained by appeal to exactly resembling tropes. Saying that *a* and *b* have the same color is analogous to saying that a boy and his father have the same nose, or that two embarrassed celebrities arrived wearing the same dress. Statements like this do not posit a single nose or a single dress, but two exactly resembling ones. Realists insist that all similarities must be grounded in numerically identical universals, but trope theorists deny this. They take similarities as ground-level facts that stand in need of no further explanation.

Consider likewise how realists and trope theorists account for the reference of abstract nouns such as 'redness' or 'color' in statements such as 'Redness is a color.' Realists claim that these nouns refer to universals; trope theorists disagree. According to what is probably the most popular kind of trope theory, these nouns refer to classes of resembling tropes (Williams 1953, 1986; Campbell 1981, 1983, 1990; Martin 1996a–b, 1997, 2007; Molnar 2003; Heil 2003). When we say 'Redness is a color' we are talking about the resemblance class of red tropes. There are different ways of constructing resemblance classes. One way bases them on handfuls of paradigmatic examples (Price 1953b: 20-23). In the case of redness, the exemplars might include stop signs and ripe tomatoes. The resemblance class based on these exemplars would include all and only those

tropes that resemble each of the exemplars at least as closely as the exemplars resemble each other. On this view, saying that redness is a color amounts to saying that the resemblance class of red tropes is a subset of the resemblance class of color tropes.[2]

Many trope theorists have been attracted to bundle theories of substance (Stout 1921, 1923; Williams 1953, 1986; Campbell 1981, 1983, 1990; Simons 1994; Mumford 2012), but I follow those trope theorists who remain committed to a substance-attribute ontology. They include Martin (1980, 1996a–b, 1997, 2007), Molnar (2003), Heil (2003, 2005), and trope theorists of the past such as Thomas Aquinas, William of Ockham, and perhaps even Aristotle.[3]

3.2 Arguments for trope theory

There are several arguments for trope theory. One kind of argument appeals to the particularity of causal relations. E. J. Lowe provides an example:

> …it seems that only particulars can participate in causal relationships and that an object participates in such relationships in different ways according to its different properties. Thus, it is a rock's *mass* that explains the depth of the depression it makes upon falling on to soft earth, whereas it is the rock's *shape* that explains the shape of the depression. Perception itself involves a causal relationship between the perceiver and the object perceived and we perceive an object by perceiving at least some of its properties—we perceive, for instance, a flower's colour and smell. But this seems to require that what we thus perceive are items that are unique to the object in question—*this* flower's redness and sweetness, say, as opposed to a universal redness and sweetness that are also exemplified by other, exactly resembling

> flowers. For, surely, in seeing and smelling this flower, I cannot be said to perceive the colour and smell of any other flower (2006: 15).

Causal relations are relations between particulars. As Lowe indicates, this seems especially evident in the case of perception. My seeing this flower's redness involves a causal relationship between me and this flower. It is because of its redness—that property—that the flower is able to affect my visual organs the way it does. If it were not this flower's redness which affects my sensory organs, but something else, then there would be no straightforward account of what it means to say that I see this flower's redness. Trope theory thus emerges as the most straightforward way of accounting for causal relations.

A second kind of argument alleges that realism faces a variety of difficulties, and as a result, trope theory is relatively better off. One objection to realism, for instance, dates back to Peter Abelard and even earlier to Boethius. It claims that realism is incoherent since it implies that one and the same entity, a universal, can have contradictory properties (Campbell 1990; Heil 2003; Molnar 2003). If, for instance, tomato_1 and tomato_2 both instantiate the universal redness, then that universal is both located where tomato_1 is and also not located there.[4] But surely, says the objection, nothing can have contradictory properties. Another objection concerns the instantiation relation (Loux 2006: 31–2; Campbell 1990: 14–15; Price 1953b: 22–24; Donagan 1963: 135–9). The objection was first suggested by Plato in *Parmenides* (131E–132B ff.). Aristotle called it the problem of the 'Third Man' (*Metaphysics* 990b17). Its modern formulation is inspired principally by F. H. Bradley (1899). If realism is true, says the objection, then *a* is red because *a* instantiates the universal redness, for in general realism looks to explain statements of the form '*a* is *F*' by appeal to *a*'s instantiating the universal *F*. But consider now the statement '*a* instantiates the universal redness'. If realism is true, it seems that the truth of this statement must be explained the same way: it is true

because *a* instantiates the instantiation of redness. But what explains the truth of this statement? Again, if realism is true, it seems that this must be true because *a* instantiates the instantiation of the instantiation of redness, and so on ad infinitum. Consequently, it seems that in order to explain the truth of a simple statement such as '*a* is red', realists must posit an infinite number of instantiation relations. But surely this is absurd, says the objection. Among other things, it makes it difficult to see how the original statement '*a* is red' gets explained at all, for the first explanation in the series depends on the second, and the second depends on the third, and so on. Consequently, in order to grasp what makes it true that *a* is red we would have to grasp every item in the infinite series. But we cannot do that. Hence, we cannot grasp the realist's explanation for what makes it true that *a* is red.

Objections of this sort are far from decisive. Realists have responses ready to hand. In response to the first objection, for instance, realists can reject the premise that one thing cannot be wholly present at two different locations (Lewis 1983b: 11). They can insist that this premise is based simply on intuitions that beg the question against realism by assuming that universals must obey the same kinds of ontological principles that apply to particulars. In addition, there are several ways that realists can respond to the second objection. They can posit instantiation as a primitive that does not give rise to a regress (Loux 2006: 35–6; Armstrong 1978a: 109ff.; 1997: 118–119);[5] they can deny that if the attempt to explain *a*'s being *F* generates further explananda (even an infinite number of them) this implies that *a*'s being *F* has not been adequately explained (Loux 2006: 33), or they can argue *tu quoque* that nominalist theories face analogous regresses (Russell 1912; Armstrong 1978a; Daly 1994; Macdonald 1998).[6] Nominalists have counter-responses, but the range of strategies and counter-strategies available both to them and to realists suggests that arguments like the foregoing result in stalemate.

Trope theorists can nevertheless still appeal to ontological parsimony to bolster their case (Campbell 1990; Bacon 1995). Nominalism, they can argue, is in general preferable to realism since it

posits fewer basic types of entities: particulars only versus particulars plus universals. Ockham's razor bids us to posit no entities other than those needed to satisfy our theoretical demands, so all other things being equal we should favor a coherent nominalism to a coherent realism. Moreover, trope theorists can say, among the available forms of nominalism, their own theory has arguably the most going for it (Armstrong 1989a: 119–131). We thus have good reason to accept trope theory. The crucial premise here is that all other things are in fact equal between realism and nominalism. What reason is there to think this is true? Armstrong (1989a: 122) suggests the following:

> [F]or each instantiated universal, a class of exactly corresponding tropes can be postulated as a substitute. The correspondence also goes the other way… So provided you abandon uninstantiated universals (good riddance, I say), and provided Universals theorists and Trope theorists coordinate their views on just what properties and relations the world contains, it is easy to pass back and forth between the theories. This is all rather nice business for the Trope theory… You get a construction that will do almost all the work that universals do, without having to postulate them. Paradise on the cheap! (Armstrong 1989a: 122).

If Armstrong is right, then resemblance classes of tropes can be taken to correspond to universals one-one. In that case, though, tropes and resemblance classes of them can be expected to do all the theoretical work of universals but with an ontology of only particulars. As a result, there seems good reason to favor trope theory on grounds of parsimony.

Martin (1996a: 72–3, 75–6) suggests a slightly different appeal to parsimony. I take it to be analogous to instrumentalist arguments against scientific realism. Instrumentalism and scientific realism both aim at empirical adequacy; both aim to account for the same body of empirical data, and to the extent that they succeed, they are both confirmed by that data. But, say instrumentalists,

scientific realists go beyond what the data confirm when they insist that the predicates and terms of our best scientific theories must correspond to real entities. Martin suggests something analogous when it comes to tropes versus universals. Trope theory and realism about universals both aim at explaining the same facts about predication, similarity, and so on. To the extent that the theories succeed, those facts can be taken as confirming evidence in favor of them. Realists, however, go beyond merely accommodating the facts when they postulate universals, for the same facts can be accommodated by particulars alone. Consider again the similarity between *a*'s redness and *b*'s redness. According to trope theorists, *a* and *b* are similar to each other because they have exactly resembling tropes. This exact resemblance seems sufficient to accommodate the facts. Realists do not deny those facts; they do not deny that the redness of *a* and the redness of *b* are exactly similar. But realists appear to go beyond the facts when they claim that there is more than similarity but rather numerical sameness, the sameness of numerically one and the same universal. This seems an unnecessary ontological extravagance. We thus have reason once again to favor a more frugal trope theory.

Molnar (2003) suggests a slightly different argument for trope theory, one that resembles an inference to the best explanation. Trope theory, he argues, does the best job of blending the strengths of realism and the strengths of nominalism while avoiding their corresponding weaknesses:

> I am convinced that there is something fundamentally correct in all versions of realism, and there is something (else) that is fundamentally correct in all versions of nominalism. It is desirable that trope theory should recover and preserve the insights of both realism and nominalism… *What is wrong in nominalism?* It seems perfectly reasonable to ask for a robust, ontologically grounded, explanation of the fact that a predicate applies to an object. Such explanations… typically present as explanans the existence of some properties borne by

> some objects… Nominalism, being globally anti-realist about properties, cannot offer any such explanations. Instead it restates the semantic criterion for the correct application of the predicate… This gives a formally adequate answer to the request for a truthmaker for the claim '*a* is *F*'. But it is not metaphysically adequate… [N]ominalists' well-founded distrust of universals misleads them into denying the reality of properties as such. *What is right in nominalism?* The great insight is particularism: everything is particular. Even the properties had by individuals… *What is wrong in realism?* Classic realism identifies properties with universals, which are strange posits indeed… I agree with the many philosophers who have thought that such entities cannot explain or cast light on anything. Whenever universals are invoked in an account of something… we understand less *after* the explanation is given then we understood before… *What is right in realism?* [R]ealism… is ontologically serious on an issue that calls for ontological seriousness. By including properties among the irreducible contents of this world, realism allows us to construct the robust explanations, of the facts predication, of causation, of nomological connection, etc., that are blocked by nominalism (Molnar 2003: 23–5).

Because tropes are particularized properties, trope theory combines the strength of realism with that of nominalism. It affirms the reality of properties while maintaining the particularity of everything that exists. It does this, moreover, without taking on either theory's liabilities. It provides a metaphysically robust framework for explaining predication, causation, and so on, yet it does so without positing universals.

A further advantage of trope theory is that it enables us to avoid positing states of affairs or events as a separate ontological category (Campbell 1981: 354–5; Williams 1986: 4; Armstrong 1989a: 117–119). This point becomes clear if we once again contrast trope theory with realism.

Armstrong (1989a: 88–89; 1997: 115ff.) takes states of affairs to be a necessary addition to his ontology because individuals, universals, and the instantiation relation are insufficient by themselves to supply him with truthmakers for statements like 'The apple is red'. If apple *a* is red, there must be something in the world that makes it true that *a* is red. That something, it seems, cannot be *a* by itself since it is possible for *a* to exist without being red, nor can it be the universal redness by itself since it is possible for that universal to exist without *a* instantiating it (perhaps it is instantiated by *b* instead). Nor can the truthmaker be the sum of *a*, redness, and the instantiation relation, Armstrong argues, since this does not amount to *a*'s being red. Consequently, says Armstrong, we should take *a*'s being red, the state of affairs itself, to be the truthmaker.

Trope theorists, however, do not need to posit states of affairs in this way, for on their view, individuals and properties (tropes) are together sufficient for truthmaking. What drives Armstrong to posit states of affairs is that on his view universals and the individuals that instantiate them are related only contingently: *a* need not instantiate *F*, and *F* need not be instantiated by *a*. According to at least one version of trope theory, however, the relation between a trope and its individual bearer is not contingent but necessary, something that trope theorists have termed 'nontransferability' (Heil 2003: 141–2; Molnar 2003: 43–46). Martin explains:

> Properties are nontransferable. The redness or sphericity of this tomato cannot migrate to another tomato. This is a consequence of the idea that properties are particular ways things are. The identity of a property—its being the property it is—is bound up with the identity of its possessor (Martin 2007: 44).

Tropes belong necessarily to the individuals having them: *a*'s redness cannot belong to something other than *a*, any more than Eleanor's smile can belong to someone other than Eleanor.

Consequently, there is no need to posit something in addition to tropes and individuals to tie one to the other and make it true that *a* is red. *a*'s being red—the trope itself—does the truthmaking work on its own.

In addition to the foregoing point, Bennett (1988: 90–1) argues that the best way of understanding a property exemplification theory of events is to construe events as tropes. Events with the aforementioned identity conditions must be either tropes or triples, Bennett argues, but it is implausible to suppose that events are triples, for many of the things we take to be true of events are not true of triples. For instance, events but not triples occur. Likewise, events are located in spacetime, but triples are not. Moreover, triples don't cause other triples, but events do cause other events. Consequently, Bennett concludes, events must be tropes. In addition, Campbell (1981: 354–5) argues that the theoretical jobs events are asked to perform in theories of causation are best performed by tropes. There are, then, good reasons to think that events are tropes. A corollary of this claim is that an ontology that includes events must be an ontology that includes tropes as well, or as Bennett puts it, "An enemy of tropes must either oppose events… contending there are no such things, or find a good rival account of what events are" (1988: 90).

A final reason to prefer a trope ontology is that it dovetails with an attractive view of powers, a point that I discuss in detail in Chapter 4. Before turning to that topic, however, I want to say a word about some objections to trope theory.

3.3 Objections to trope theory

The past three decades have made it increasingly clear that trope theory provides an account of properties that is at least as adequate as any other. Even Armstrong, who at one time dismissed trope theory (1978a), came to regard it as the most promising alternative to his own view:

> In my earlier work… I underestimated the strength of a tropes + resemblance (+ substance-attribute) view. In my present estimation… it is a close second to the first choice, which is a Realism about universals (Armstrong 1989a: 120).[7]

Based on the foregoing discussion, moreover, it is not evident that tropes are in fact second best. We've seen that there are reasons to favor trope theory over Armstrong's preferred view. Are there any considerations that cut the other way?

Many criticisms of trope theory target the conjunction of tropes with a bundle theory of substance. Others target the idea that terms like 'red' and 'color' refer to resemblance classes of tropes, and yet others target the existence of tropes themselves. Because the ontology I've outlined rejects a bundle theory of substance, we can put objections of the first sort to one side, and focus on the other two.

Perhaps the most commonly heard objection to tropes claims that there cannot be brute resemblances among individuals. If *a*'s redness resembles *b*'s redness, then this resemblance must be explained by something. In particular, say realists, it must be explained by *a* and *b* instantiating the same universal. Trope theorists, however, reject the argument's premise; they take at least some resemblances among individuals to be brute. Realists might see the commitment to brute resemblances as a theoretical cost, but trope theorists take a commitment to universals to carry with

it offsetting costs. Realists are likely to disagree that the costs are truly offsetting,[8] but the replies and counter-replies available to trope theorists and realists alike ought to make us suspect that debate over this objection will end in stalemate. It is perhaps for this reason that ardent critics of trope theory, such as David Armstrong, have advanced different arguments.

Armstrong (2004a: 43–4; 2005: 310) has objected to tropes by appeal to an argument originally suggested by Herbert Hochberg (2001a: 69–70; 2001b: 178–9). The gist of the objection is that trope theorists ask tropes to play too many theoretical roles. Consider *a*'s redness, a trope that is ostensibly simple not complex. Given this trope's simplicity we would expect that it would not be able to play very many theoretical roles, yet this is exactly what trope theorists demand of it. According to them, *a*'s redness must have a nature that distinguishes it from every other trope, that makes it exactly similar to some of them, that makes it less similar to others, and that makes it quite dissimilar to yet others. But it is implausible to think that a simple trope could perform all these theoretical roles, says Armstrong: "You would expect that to the complexity of the various truths made true by the tropes, there would need to be some complexity in the tropes themselves" (2005: 310).

The Armstrong-Hochberg objection is based on the premise that tropes can be simple. But why should we accept this premise? Armstrong defends it by appeal to the simplicity of properties: "Presumably properties can be simple, so there can be simple tropes" (2005: 310). But this argument appears to be a non sequitur that equivocates on 'simple'. Properties might be considered simple in a number of respects. Monadic properties might be considered simple by virtue of having only one term; qualitative properties might be considered simple by virtue of there being no analysis of what it takes for something to have them. Properties can be considered simple in these and many other respects, yet these respects are still compatible with each property playing a variety of theoretical roles—with each grounding similarity, grounding numerical difference, being a causal enabler, being

a causal explainer, and so on. Armstrong disagrees. This is not surprising since Armstrong endorses a view of properties that divorces them from most of their theoretical roles. As we'll see in detail in Chapter 5, according to Armstrong the natures of properties consist simply in primitive principles of identity, what some philosophers have called 'quiddities' (Black 2000). Any other theoretical roles properties might be expected to play are outsourced to other things such as laws of nature. It should not surprise us, then, that Armstrong balks at the suggestion that properties should play a variety of theoretical roles. What remains unclear is why we should favor his understanding of properties to an alternative that takes a variety of theoretical roles to be integral to what they are. In fact we'll see in Chapter 5 that Armstrong's view of properties has some rather unpalatable implications.

A third objection to trope theory appeals to a version of Bradley's regress analogous to the one facing realists. Recall that according to realists, a particular *a* is red because *a* instantiates the universal redness. A Bradley regress looms because it seems that realists are committed to saying that *a* instantiates the universal redness because *a* instantiates the instantiation of redness, and this is true because *a* instantiates the instantiation of the instantiation of redness, and so on ad infinitum. According to critics, trope theory faces an analogous problem. The relation between a trope and its bearer is not instantiation, which is a relation between a universal and a particular; it is something else. Lowe (2006) calls it 'characterization'. Individuals are characterized by their modes (Lowe's preferred term for tropes). But, says the objection, whatever trope theorists decide to call the relation between a trope and its bearer, they face the same problem as realists: *a* is characterized by *a*'s redness because *a*'s redness is characterized by the characterization of *a*'s redness, which is characterized by the characterization of the characterization of *a*'s redness, and so on ad infinitum.

In response to this objection, trope theorists can respond in a manner analogous to those realists who claim that instantiation is a sui generis relation that does not need to be explained by appeal to further instantiation relations. Lowe articulates the response in the following way:

> The flower's particular redness is a mode—a particular way that flower is—and one which for that reason may be said to 'characterize' the flower. Quite literally, the mode is a particular 'characteristic' of the flower… I am reluctant to say that characterization is a *relation* between a particular thing and its modes. For then, it seems, we should have to conceive of a thing and one of its modes as being the relata of a further *relational* mode, which would in turn 'characterize'… those two relata… And it is easy to see that in this way an infinite regress would be generated… [W]e can draw comfort from [the] observation that not every meaningful predicate need be supposed to denote a property—or, in this case, a relation. Just because 'is characterized by' is a meaningful relational predicate… we need not conclude that that predicate denotes a relation in which the flower and its particular redness stand to one another (2006: 92).

If characterization, as Lowe calls it, is not a relation, then trope theorists avoid a Bradley regress. Moreover, because tropes are nontransferable—because *a*'s redness cannot belong to anything other than *a*—it is prima facie more plausible for a trope theorist to respond in this way than a realist. Because the universal redness can be instantiated by things other than *a*, it is easier to view instantiation as a relation between distinct entities. As a result, realists have a heavier burden to carry when making this kind of response.

A fourth objection to tropes has been advanced by Cynthia Macdonald (1998: 346–7). It concerns the implications of trope theory for the philosophy of mind. Macdonald argues that realism is superior to trope theory because trope theory renders the notion of non-reductive monism incoherent:

> Non-reductive monism is the view that each mental event is a physical event although mental properties are neither reducible to nor correlated in a… lawlike way to physical ones. [T]his theory seems… to reconcile monism at the level of particular events and their causal transactions, with the *sui generis* distinctness of the mental and physical at the level of properties. However, trope theory has difficulties providing the underlying metaphysics for such a view… How… are we to understand the claim that each mental event is a physical event? Suppose… that we take it to mean that this pain-trope just is this neurophysiological event-trope. Then the distinction between mental and physical properties seems unsustainable… For properties are classes of exactly resembling tropes, and physical tropes that are exactly resembling will thereby be mental tropes that are exactly resembling… [T]here will be no means by which to distinguish mental properties from physical properties (Macdonald 1998: 346).

Since realism does not have the same result, Macdonald argues, realism is superior to trope theory.

Macdonald's argument tacitly assumes that non-reductive monism is committed to property dualism, to the claim that mental and physical properties are distinct ("distinctness of the mental and physical at the level of properties," as she puts it). I will argue in Section 11.4 that a characterization of nonreductive monism along these lines cannot be sustained. Roughly, the argument says that monism of any sort implies that everything is of only one kind. Physical monism, for instance, claims that everything is physical. Given the basic ontology of individuals, properties, and events sketched earlier, this implies that all individuals, properties, and events must be physical. With these terms in place, a physical monist cannot coherently claim that mental and physical properties are distinct, for if mental properties exist at all, this claim implies that they must be nonphysical. But if there are nonphysical properties, then not everything is physical, contrary to physical monism. The

correct way of characterizing nonreductive monism is not in terms of a dualism of properties, but in terms of a dualism of descriptive and explanatory resources or interests. Davidson expresses the idea in terms of our commitments to the different internal standards of psychological and physical discourse, respectively:

> When we turn to the task of interpreting the pattern [of verbal behavior] we notice the need to find it in accord… with standards of rationality… [T]he case is no different with beliefs, desires, and actions… As long as it is behavior and not something else we want to explain and describe, we must warp the evidence to fit this frame. Physical concepts have different constitutive elements. Standing ready, as we must, to adjust psychological terms to one set of standards and physical terms to another, we know that we cannot insist on a sharp and law-like connection between them… The limit thus placed on the social sciences is not set by nature, but by us when we decide to view men as rational agents with goals and purposes, and as subject to moral evaluation (Davidson 1974: 239).

According to Davidson, psychological discourse is irreducible to physical theory not because there are two different kinds of properties, physical and mental, but because there are two different kinds of conceptual schemes with "disparate commitments" (Davidson 1970: 222). On this view, the 'nonreductive' in 'nonreductive monism' derives not from a non-monistic metaphysics that endorses a property dualism, but from the plurality of our descriptive and explanatory resources.

If the gist of this argument is correct, then Macdonald's argument against trope theory fails. She mentions several other arguments against tropes, but those arguments concern the conjunction of trope theory with bundles. She does not consider the conjunction of tropes with a substance-attribute ontology of the sort defended here. Admittedly a substance-attribute ontology loses some

of its edge when it comes to Ockham's razor since it posits individuals and properties instead of just properties, but it is also spared the problems facing tropes plus bundles (Martin 1980: 7–8; Armstrong 1989a: 115; Molnar 2003: 47–54).

In addition to the foregoing objections, David Manley (2002) advances two arguments to the effect that properties cannot be resemblance classes of tropes. The first argues that a trope theory committed to resemblance classes faces a version of the coextension problem discussed in Section 2.3. Imagine a possible world populated by only red objects. If properties are resemblance classes of tropes, then redness is the same property as coloredness in the red world since the class of red objects is the same as the class of colored objects. Presumably the names of properties such as 'redness' and 'coloredness' are rigid designators; each designates the same property in every possible world in which that property exists. Consequently, if redness is coloredness in the red world, it follows that redness must be coloredness in all possible worlds. But redness is not coloredness in all possible worlds since there are actually colored objects that aren't red. Consequently, the objection concludes, properties must not be resemblance classes of tropes.

The thing to say in response to this objection, I think, is that the trope theory I've articulated is not committed to claiming that resemblance classes of tropes are properties. What it is committed to claiming is rather that properties are tropes themselves. Classes of tropes, by contrast, are just that: classes. For reasons discussed in Chapter 2, if properties are sparse, they cannot be classes since classes don't confer powers on individuals as sparse properties do. Consequently, resemblance classes of tropes are not even candidates for being properties on the view of tropes I've articulated.

Realists might think that this response gives up the game, that admitting that terms like 'redness' do not refer to properties is tantamount to admitting defeat. This attitude assumes that a workable theory of properties must include determinable properties such as redness and

coloredness. Yet there is reason to think that there are no determinable properties, but only determinable predicates.

To appreciate this idea, recall first that according to the account of properties defended in Chapter 2, properties are sparse. This account implies that any given predicate need not express a genuine property. In order not to beg any questions, then, let us speak not of determinable properties, but rather of determinable predicates such as 'is red' or 'is colored'. The claim that there are no determinable properties follows from two premises: first, determinable predicates are higher-order predicates, and second, higher-order predicates do not express genuine properties. I'll discuss these premises in order.

Higher-order predicates are logical constructions with definitions that quantify over properties. Suppose, for instance, that F_1, F_2,…, F_n are properties, and that we define being H (or the predicate 'is H') as follows: necessarily, for any x, x has H if and only if x has *some* F-property or other, either F_1, or F_2, or…, or F_n. Because H's definition quantifies over other properties, 'is H' is a higher-order predicate (and philosophers who endorse abundant properties would say that being H is a higher-order property). The general logic of determinable predicates seems to imply that they are higher-order predicates. Suppose that 'is D*' is a determinable predicate, and that 'is D_1', 'is D_2',…, 'is D_n' are its corresponding determinate predicates. In that case, the following seem to be true of D* and the D_is:

(1) Necessarily, for any x, if x is D*, then there is a D_i such x is D_i.

(2) Necessarily, for any x, if there is a D_i such that x is D_i, then x is D*.

(3) Necessarily, for any x, if there is a D_i such that x is D_i, then possibly, there is a y and a D_j such that y is D_j, where $j \neq i$.

(4) Necessarily, for any x, if there is a D_i such that x is D_i, then x is not D_j, for any $j \neq i$.[9]

The conditions that interest us here are (1) and (2). Consider a determinable predicate such as 'is red' and the predicates 'is R_1', 'is R_2',…, 'is R_n' which express all the determinate shades of red there are: Mandan red, cherry red, and so on. According to (1), necessarily, if something is red, then it is some determinate shade of red or other, either R_1, or R_2, or…, or R_n. According to (2), on the other hand, necessarily, if something is a determinate shade of red, then it is red. The necessity in both cases appears to be conceptual; it is a conceptual fact that if a determinable predicates applies to something, then one of the corresponding determinate predicates applies to that thing as well, and conversely, if a determinate predicate applies to something, then so does the corresponding determinable predicate. In that case, however, it seems that determinable predicates are higher-order predicates. Necessarily, something satisfies a determinable predicate if and only if it satisfies some corresponding determinate predicate. Something is colored if and only if it is some more determinate shade of color; something is a mammal if and only if it is a member of some more determinate animal kind; something is tall if and only if it is some more determinate height, and so on. We have some reason to think, then, that determinable predicates are all higher-order predicates.

In Section 5.3 I discuss in detail an argument to the effect that there are no higher-order properties, but only higher-order predicates. If they express any properties at all, higher-order predicates express the properties over which their definitions quantify. For instance, suppose that something has *H* if and only if it has some *F*-property or other, either F_1, or F_2, or…, or F_n. Suppose, moreover, that an object *a* satisfies the predicate 'is *H*' on account of having the property F_1. In that case, the predicate 'is *H*' expresses the property F_1. What it does not express in this case or any other is a higher-order property, *H*, that is distinct from the various F_1s. There are no higher-order properties, then, no properties with definitions that quantify over other properties; there are only higher-order predicates or concepts or descriptions (Kim 1998: 104; Heil 2003: 45). If this is

the case, then determinable predicates do not correspond to any properties distinct from the determinate properties that satisfy them. There are no determinable properties. If the object *a* satisfies the predicate 'is red' on account of being Mandan red, then in this particular case, the predicate 'is red' expresses the fully determinate property of Mandan redness. If *b* satisfies the predicate 'is red' on account of being cherry red, then in this particular case, the predicate 'is red' expresses the fully determinate property of cherry redness, and same is true of all determinable predicates.

The upshot of these considerations is that there are no properties such as redness or coloredness in general; there are only fully determinate properties, which are tropes. If terms like 'redness' or 'coloredness' refer to anything at all, they refer to resemblance classes of fully determinate tropes, and there is nothing odd about supposing that in some possible worlds the class of fully determinate color tropes may be coextensive with class of fully determinate red tropes.

Manley's (2002) second argument claims that a trope theory committed to resemblance classes faces a version of what Goodman (1966) calls the problem of 'imperfect community'. Let *w* be a possible world with only three objects: *a*, *b*, and *c*. *a* is pink, *b* is baby blue, and *c* is magenta. Suppose, moreover, that pink and magenta are both reddish, that magenta and baby blue are both blueish, and that pink and baby blue are both pale. Intuitively, we want to say that the class of reddish tropes includes only *a*'s being pink and *c*'s being magenta. The problem is that *a*'s being pink resembles *b*'s being baby blue to the same degree that it resembles *c*'s being magenta. As a result, it appears that *b*'s being baby blue must be included in the same resemblance class as *a*'s being pink and *c*'s being magenta. But intuitively a resemblance class that comprises all three tropes does not correspond to any natural property. Hence, resemblance classes of tropes cannot be natural properties.

Here, I think, the response to the objection has two parts. The first we have considered already: the trope theory I've articulated is not committed to resemblance classes being properties; in fact, as we've seen, it rejects that claim. Second, resemblance classes come in degrees of naturalness just as classes of particulars do (Lewis 1983; 2004). We are capable of coining predicates ad libitum, including predicates that apply to tropes that only loosely resemble each other, or that resemble each other in ways that do not satisfy intuitive notions of naturalness. But the existence of non-natural classes of tropes should not count as a strike against a trope theory unless that theory is committed to resemblance classes being properties with high degrees of naturalness. Since the trope theory I've articulated denies that resemblance classes of tropes are properties, it should have nothing to fear from the objection.

Critics might retort that the responses I've advanced to the foregoing objections (eschewing determinable properties and denying that resemblance classes of tropes are properties) exact a price that isn't worth paying. To philosophers of this mindset, I would offer a compromise: a theory like Lowe's (2006) that posits universals in addition to tropes. On this view redness and coloredness are universals instantiated by tropes. These universals are what terms like 'redness' and 'coloredness' refer to, and they are what explain the high degree of naturalness enjoyed by some classes of tropes and not others. Nothing I want to say about hylomorphic structure later on depends on denying that there are universals that play these theoretical roles. So philosophers who are uncomfortable with the responses I've made to the coextension problem and the problem of imperfect community can make use of universals.

3.4 Conclusion

I've argued in favor of trope theory over realism, and have defended it from some objections. Many of the arguments that would seem to favor tropes over universals or universals over tropes result in stalemate, but there is still some reason to prefer tropes on grounds of ontological parsimony and theoretical advantage. In addition, trope theory dovetails with an attractive view of powers, something I discuss in detail in Chapter 4. Having said all this, the account of hylomorphic structure I develop in later chapters is compatible with a view like E. J. Lowe's (2006) which posits universals in addition to tropes to help account for naturalness and abstract reference. My own preferred ontology does not posit universals, but I needn't insist on rejecting them in order to accomplish my theoretical aims.

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[1] There is an alternative way of understanding tropes which was introduced by Michael Loux (2015) and developed by Robert Garcia (2015; forthcoming). It claims not that tropes are particularized properties, but that they are propertied particulars. Loux describes the view as follows: "…one might propose a nominalistic ontology that has as its metaphysical atoms what we might call 'tropers.' Whereas tropes are particular properties—things like this redness, this triangularity, this pallor, tropers are thin individuals—things like *this individual red thing*, *this individual triangular thing*, and *this individual pale thing*. The claim would be that familiar objects are bundles of compresent tropers. So the view would again dispense with properties and would insist that the ultimate constituents of familiar particulars are intrinsically characterized or natured, but would construe those constituents as particulars rather than universals. Such intrinsically characterized particulars would be the ultimate or underived sources of character: a familiar particular would be, say, pale because it has a pale troper as a constituent. On this view, the ordinary individuals of pedestrian acquaintance are bundles

of tropes" (Loux 2015: 41). I look to defend a traditional trope theory, one that takes tropes to be particularized properties (what Garcia calls 'modifying tropes'), not tropers.

[2] An alternative worth exploring claims that the semantics of abstract nouns like 'redness' is actually similar to that of plural referring expressions like 'the tenors' in 'The tenors in the choir lost their pitch'. The term refers not to a class (the class that includes all and only the tenors in the choir); it refers instead to the individual tenors themselves. Trope theorists could claim that 'redness' has a similar semantics; it refers not to a class of tropes, but to the individual tropes themselves. Consequently, when we say 'redness is a color', we mean that the various tropes in the extension of the term 'redness' are also tropes in the extension of the term 'color'. For more on plural reference see Cameron (1999).

[3] For an interpretation of Aristotle's metaphysics in terms of tropes see Sellars (1957) and Irwin (1988). For an interpretation in terms of universals see Loux (2008).

[4] This problem concerns a theory committed to immanent or Aristotelian universals, a theory that denies that there are uninstantiated universals. I accept Armstrong's (1978a-b; 1989) reasons for favoring Aristotelian universals to Platonic ones.

[5] Armstrong has apparently not been satisfied with this approach, and describes a new alternative in Armstrong 2004b and Armstrong 2005: 317–18. Some might regard it as a liability of his new tack that it brings his metaphysics closer to David Lewis'.

[6] Realists and trope theorists respond to this worry in similar ways. Both claim that the tie or nexus between an individual and one of its properties is not really a relation. Lowe (2006: 91–2), for instance, says that individuals are characterized by their tropes, and that characterization is not really a relation. As a result, he says, his account of tropes is able to avoid a Bradley regress.

[7] Armstrong's realism is in fact very close to trope theory since it rejects uninstantiated universals, and claims that universals are wholly exhausted by their instances (Martin 1993: 178–179).

Armstrong (1989a: 122; 1996b: 88) and Martin (1996a: 72–3, 75–6) have even suggested that their views (the former committed to immanent universals, the latter to tropes) might be merely notational variants of each other.

[8]Pickel and Mantegani (2012) argue, for instance, that nominalist theories that are reticent about explaining why some things resemble each other carry a heavier ontological burden than realism.

[9] These correspond to the conditions on determinable predicates in Jaworski 2009: 142, which are gleaned from Prior's (1949), Johnson's (1964), and Yablo's (1992) discussions.