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Against Sparse Properties

Theories of properties come in two basic flavours: abundant and sparse. Abundant property theories say there are at least as many properties as there are ways to group the individuals. Sparse property theories count only a few properties: the ones that "carve reality at the joints", the ones in terms of which a full description of how things really are in themselves can be given. This paper describes one intuitive consideration in favor of sparse properties: roughly, things seem to us to have certain ordinary properties, and none of the very strange properties to which the abundantist is committed. I explain the appeal of the consideration in pragmatic terms, and reject it as invalid. I close by registering one cost of an abundantist position: it can be conjoined only very uncomfortably, if at all, with theses of the indeterminacy of translation, meaning and mental content.

1.

David Armstrong (Armstrong 1989, 13) formulates the Problem of Universals this way: "*What distinguishes the class of tokens that mark off a type from those classes that do not?*" I answer: nothing. All classes of tokens mark off types.

Types — properties — are abundant, not sparse.

In this paper I consider an argument that some things genuinely do not resemble one another. If the argument is sound, then I'm wrong: something *does* distinguish classes of tokens which mark off types from those that do not. I suggest a way to understand the argument that shows that it is not sound. If my suggestion is correct, then there will be one less reason to resist adopting an abundant, rather than a sparse, ontology of properties.

Before getting to the argument I set out what I take to be the lay of the metaphysical land and say something about why I am concerned to defend an abundant ontology of properties.

2.

Aristotle distinguishes substance from beings said of substances (Aristotle 1941, 2a13). Substance is what is neither said of any subject nor in any subject — e.g., an individual man or horse. Beings in substances but not said of substances are individual instances of properties. Beings said of substances and also in substances are properties.¹ Example: I am a substance. My knowledge of first order logic is an individual which is in me, but is not said of me. Knowledge of first order logic is in me and is said of me: I share the property of knowing first order logic with many other people.

Substances and properties, then, are like this. Substances are not repeatable. Properties are. There is only one of me but there are many people who know first order logic. I count these two points as basic to the theory of properties: (1) substance and property are distinct categories; (2) properties are repeatable, substances are not. (I'll also use the terms 'individual' and 'particular' for substances.)

There are accounts of properties that treat the distinction between substance and property as *derived*. Bacon takes tropes (what Aristotle calls an individual instance of a property) as basic (Bacon 1995, 23). A property is a class of tropes that exactly resemble in one sort of way; a substance is a class of tropes that exactly resemble in another sort of way. One cost of Bacon's proposal is the number and kind of the basic beings: one for every combination of substance and property, and all of them somewhat, for lack of a better word, "unfamiliar." I prefer an ontology of ordinary (or familiar) enduring things like people and trees and books, plus whatever other things inquiry leads us to talk about. So I prefer to keep the distinction between substance and property as basic. In the same way I am inclined against attempting to reduce properties to individuals or individuals to properties.

Individuals exist. Do properties? The classic arguments in favor of their existence strike me as oddly inconclusive. Two tokens are of one type; hence there must be one type that the tokens are tokens of; hence there exists one property that the two tokens have. The conclusion seems to follow only given the point at issue. Swoyer (Swoyer 1996) notes that these arguments appear to be inferences to the best explanation. For better or worse, "best" here has never been

¹ Aristotle doesn't consider beings which are said of substances but which are not in them.

by much of a margin, so again their existence hasn't been conclusively established.

I do, however, find it extraordinarily natural and useful to talk about properties. For the purposes of this paper this preliminary question of their existence doesn't require an answer. I will make existential claims about them, even though I have no official answer to the question what those claims mean.

Supposing there are properties, what might they be like? Russell gives an argument (Russell 1912) of the simple form just described to show the existence of "transcendent" properties. Plato's Forms are transcendent: non-spatio-temporal beings that are capable of existence even if nowhere and nowhen instantiated. My sense of familiarity says that's fine if there are other similarly transcendent beings. But my sense of familiarity also says prefer a sort of naturalism: try not to add too much beyond the spatio-temporal world. Armstrong's immanent universals must be instantiated to exist; are wholly present in their instances; and have no existence other than the existence they have in their instances. Trope theory must make this choice as well: can there be a trope for a property or an individual that is never actual? For the purposes of this paper the nature of properties will not matter, however, so I will leave at least four options open: transcendent universals, immanent universals, tropes and some sort of class nominalism.

So far, then, substances or individuals have properties. Each individual has indefinitely many properties. Each property is had by at least one individual. Leibniz' Law says what it is to be one thing: for any pair of things, they are the same thing if and only if they share all properties, distinct if there's a property one has that the other lacks. Something like Leibniz' Law says what it is for something to be one property: for any pair of properties, they are the same property if and only if they are had by the same things, distinct if there's a thing that has one of them but lacks the other.²

² Why not say it is Leibniz' Law itself, rather than something like it, that individuates properties? Then P1 and P2 are the same property if and only if, for every property P, P1 has it if and only if P2 has it? It seems to me that a regress threatens. We were trying to say what properties are. Now we are claiming that they are whatever second order properties distinguish (properties of properties). Now we'll have to say what second order properties are, and it seems we'll next want to talk about third-order properties. And so on. Or, put differently, the criterion offered in the text distinguishes properties by the individuals which have them. On the current proposal, what distinguishes properties are the (further and distinct) properties they may have or lack. And so on. But nothing stops or grounds the hierarchy of items which

What's important about properties, then, is that they distinguish things. The world is not one: there are many things and they are different. One difference is the properties they have.

Things are very distinguishable. (This is going to be the point of controversy later on, so what I say now just begs the question.) Take any pair of things. They may look the same or different, they may act in the same way or differently, they may stand in the same or different relations to other things. Each way of grouping things (all $2^n - 1$ ways of grouping n things) counts as a way these things may be the same or different: the same if in the same group, otherwise distinct.

This metaphysical condition on properties must be made modal. We seem to be able to think of 2 distinct properties such that exactly the same actual things have them. (Given the fullness of the actual world it's not easy to come by straightforward examples. For instance, while the extensions of "creature with a heart" and "creature with a kidney" very nearly coincide, still, there are creatures with hearts but no kidneys.) So, to begin with, we need to say two properties are distinct if there could be an individual who has one but not the other.

There are lots of possibilities. There could be anything, so long as it's not logically incoherent. It's not possible for there to be a round square cupola. It's not possible for one and the same person to be thirsty and not thirsty at the same time in the same part of himself (*Republic*, 436c). So there are lots and lots of properties: properties are abundant. Take two things as like as eggs. Even if there is no perceptible or even (ordinarily) detectable difference between them, still, perhaps one is mine and the other is yours. Or even: $a \in \{a\}$, while $b \notin \{a\}$.

David Lewis has a particular version of an abundant property theory (Lewis 1983; Lewis 1986). Properties are sets of actual and possible individuals: the set of all the properties is the set of all these sets of individuals. Nothing so like as eggs: so there is a property for all the actual eggs. That's not the property of being an egg, since that one is shared by possible eggs as well. Here's another way in which two ordinarily indiscernible eggs can be different. There is a property, rather like the property of being an egg, except one of these two actual eggs is removed — all and only the actual and possible eggs, *minus* one of these two.

The "class" theory of properties has the virtue of clarity. It has drawbacks. First, it would seem that it will not do if we are in the business of saying what

distinguish: each distinguishes things below it, and stands in need of something above it to distinguish it from its kin.

there is. It seems to leave individuals utterly featureless blobs, as Armstrong has it (Armstrong 1989, 38). Moreover it leaves the properties of things somehow outside of them. If these are problems, properties should somehow be distinct from sets of *possibilia*. Perhaps properties are *represented* by sets of *possibilia*. Settling this question requires going back to questions about the existence and nature of properties, so I'll say no more.

There may well be more properties still. There may be some distinct yet necessarily coextensive properties. If omniscience and omnipotence are necessarily instantiated by exactly one necessary being, then those two would be an example. So then either we need a way to cut properties even more finely, or else perhaps we might want to draw the line here. In any event, I am concerned here with claims that I've already allowed in far too many properties.

3.

If possibilities are very abundant (whether in Lewis' modal realist way or in some other) and properties are distinguished by actual and possible individuals, then properties are abundant. There are many ways to add conditions to the basic set I have imposed on properties to get a sparse set of properties. Many philosophers want to do just that. Intuition suggests that sensible features of things are properties, while what couldn't be sensed cannot be a property. Being green is a property of those trees. Being either green or a donkey is not. Being grue (green if observed before January 1, 2000, otherwise blue) is not a property of those trees.

Quinton (Quinton 1958, 36) says a natural class is one for which "a few representative instances are enough to enable us to go on picking out other members of the class for as long as we like." Then a property is shared by all and only members of a natural class. Even if we (following Armstrong (Armstrong 1989, 21-23)) make such a view of properties a scientific realist view, by insisting that the really natural classes are the ones final physical theory arrives at, the difference between such classes and arbitrary ones seems to have at least something to do with us. We can get ourselves completely out of the picture. Just say some classes are more natural than others, and that's the end of it. That is: natural classes are primitive.

Shoemaker's properties are collections of causal powers (Shoemaker 1984). A thing has the causal power G if and only if there is something about it which,

given suitable circumstances, is causally sufficient for its being G. Being knife-shaped causally suffices for cutting butter given that the size, material and other features of the thing are right and there's butter suitably in the vicinity. Hence part of the property of being knife-shaped is the causal power to cut butter. I have suggested that one condition on properties is that they should distinguish things. A striking virtue of Shoemaker's proposal is that differences among spatio-temporal individuals show up as differences in what they can do. One might even think that the two conceptions are the same, if we can arrange for any of the abundant properties to make a causal difference (and we can, by constructing the appropriate sorter). Shoemaker's conception does add something to mine, though. Shoemaker thinks that so-called "mere-Cambridge" properties are not properties. So being grue is not a property; whatever causal powers a thing might have by way of being grue it already has by way of being green, or blue (whichever it happens to be). No bed has causal powers in virtue of having been slept in by George Washington that it doesn't already have in virtue of various "intrinsic" properties it has, so this "historical" feature is not a property.

For Armstrong, properties are immanent universals that meet three conditions beyond my those from my basic framework. First, things that share in a universal constitute a genuine unity. Second, things that share in a universal genuinely resemble one another. Third, it is in virtue of sharing in a universal that a thing acts causally as it does. So for Armstrong there are some conjunctive universals, but no disjunctive or negative universals. For, supposing that F and G are universals, the group of things which have F and G constitutes a genuine unity; those things genuinely resemble one another; and they may cause things in virtue of being F and G. By contrast, the group of things which have either F or G is not a genuine unity; they do not genuinely resemble one another; and they may cause things in virtue of being F or in virtue of being G, but *not* in virtue of being either F or G.

Finally, while Lewis' properties are abundant, he sees need for universals or "natural" or "sparse" properties:

Sharing of them makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not entirely miscellaneous, there are only just enough of them to characterize things completely and without redundancy. (Lewis 1986, 60)

We need this distinction ("It is out of the question to be without it") to solve a host of problems: Goodman's new riddle of induction; the problem of interpretation of language; the problem of distinguishing between intrinsic and extrinsic properties; and hence of saying what things are duplicates (and from there, of saying what supervenience comes to), the analysis of natural law, the analysis of causation, the Kripke-Wittgenstein "paradox" ... Lewis has a generous ontology; whatever we may need to do with "natural" properties, we can, and we can have all the rest of the properties as well. Much of what I will say about sparse ontologies will apply, *mutatis mutandis*, to Lewis' distinction, but I will discuss his view separately in section 9 below.

4.

Lewis advocates not choosing up sides. People have said many things about properties. They have had many things in mind. We should pick our projects and ontology and then pick our conception of property. I do not see how to be so even-handed. First, if I believed that properties are things which are metaphysically later — as things which logically supervene on what is more basic — I should be pleased if I could show how to construct several different kinds of property. But if I think of them as basic, I cannot afford to have many conceptions of them. Also if I believed (which I do not) that an account of properties should do some philosophical work (for instance, ground set theory or modality (Jubien 1989; Bacon 1995)) then some conceptions will do and some will not.

5.

I myself need to take sides because sparse properties are said to solve the mental causation problem, and I want instead to solve it in a framework of abundant properties. I take the mental causation problem to be to show — assuming some sort of minimal physicalism — how it can be that mental events have effects in virtue of having the mental properties they do (Kim 1996, 138). A property identity theory (mental properties are physical properties) gives a tidy solution. But mental properties are clearly distinct from physical ones on my abundant conception. That is also (very plausibly) a consequence of several attractive "non-reduc-

tive physicalist" positions in the philosophy of mind: functionalism, anomalous monism, content-externalism.³ If mental properties are distinct from physical ones, and if only physical properties "do the causal work" (Kim 1996, 138) then mental events do not have effects in virtue of having the mental properties they do.

Sparse properties "solve" the problem in essence by denying there is a problem to solve. First, consider Shoemaker's "causal power" condition on being a property. If there are mental properties that are not physical properties, then they have causal powers that differ from any physical property. But they can't. For the causal powers of any particular mental event are just those causal powers it has in virtue of its physical properties. (It is paradoxical to suggest that a particular token of a multiply-realizable functional property has the causal powers of all and any of the tokens of the property. For one, any particular token simply cannot do the things that other, physically different, tokens can do. For another, since functional role is "abstract causal role," a realizer of an abstract causal role can be any thing at all, so this suggestion would entail that every functional property is the same property: the set of all causal powers.) (For the basic style of argument see (Kim 1996, 119); for an elaboration, see (Saidel 1996).) Hence mental predicates cannot express any real properties, and so there is no problem of mental causation to solve.

Again, we could offer a theory of causation in terms of sparse properties: events enter into causal relations in virtue of instantiating sparse properties. These are the basic physical properties. Other features of the world — other ways of grouping, what we might have wanted to call 'properties' — aren't really properties. For instance (Robb 1996) begins with a trope theory. Causal relations obtain among tropes. Mental properties are not tropes; they are sets of tropes in virtue of which things satisfy mental open sentences. Such a view stops the mental causation problem as I described it before it gets started. Mental "properties" just are not candidates for being the kind of thing in virtue of which events stand in

³ Why only "very plausibly"? Most recent philosophy of mind has not been especially explicit about the nature of properties. Functionalism could well be understood as a thesis about predicates rather than properties. Anomalous monism, on this point, is a thesis about descriptions or predicates. Content-externalism can be conjoined with several different accounts of mental properties; see, for instance, (Fodor 1991).

causal relations. (Not all trope theories are theories of sparse tropes; Bacon's is not (Bacon 1995, 44).)

Shoemaker's account of properties has the same consequence for "content-externalism" as an account of the nature of mental properties. Suppose we hold that mental predicates apply to persons in virtue of their historical relations with other things. But causal powers are intrinsic, and so properties are intrinsic, hence mental predicates cannot apply to things in virtue of their possessing mental properties. (For a criticism of Shoemaker's view from a different sort of naturalistic metaphysical position, see (Wilson 1993).)

6.

So there are many ways to support the idea that properties are sparse; many intuitions and features of our ways of thinking about things that back up the idea; and powerful philosophical reasons for wanting properties to be sparse. So it's not likely that I can change anyone's mind on the question. But I can say something about one way I have changed my mind. I have never found the idea of sparse properties very appealing. One argument for them has had some force for me but I have come to think it does not work. Before I discuss this argument, let me say in a programmatic way why I disagree with various other reasons offered for sparse properties.

(a) The very fact that an account of properties does substantive philosophical work seems to me to be a strike against it. Property theory looks to be prior to nearly all other metaphysical theory, and hence should not have consequences in particular areas. Besides, sparse properties seem so blessedly *handy*. Where the sparse property theorist sees a powerful tool for solving a wide variety of problems, the abundantist sees ontology invented to make deep problems vanish. Well, perhaps that is a mark of how philosophically powerful sparse properties really are, and a mark of how wedded I am to bad problems.

(b) To my knowledge neither Shoemaker nor Armstrong has an argument that intrinsic properties are causal powers and extrinsic ones are not; or that disjunctions of universals do not bestow causal powers. Lacking such an argument in the context of the mental causation problem looks awfully like begging the question. The idea of causation goes well with the idea of sparse properties: it's because they have the sparse properties they do that things enter into the causal

relations they do. (If all causation is at bottom physical causation, then the sparse properties are the physical properties.) I am sufficiently Humean about causation to be very dubious about this connection.

(c) I do not know what genuine unities are, and I do not know what genuine or primitive similarity or resemblance is. I do not know what 'homogeneous,' 'miscellaneous,' 'heterogeneous,' 'arbitrary,' or 'unified' mean in this context. Psychology offers a rich and complex account of how we wield concepts like these. But the abundantist, of course, happily admits that most of *the* properties are not ones we would ever notice, but for doing metaphysics. I see various ways to filter various subsets from all the abundant properties, but I do not see why the subsets count as ontologically different — why some really are images of real properties and others are not. For instance, perhaps naturalness is theoretically primitive. This means that when I come to formulate a philosophical or other kind of theory of something, and I am faced with a choice between a natural property and a gruesome one, I will always prefer the natural property. But why should that be a fact about *things*? This ignorance on my part comes out in other ways. I do not know what the joints of reality are at which the sparse properties are supposed to cut. Differences are one kind of joint, but there are supposed to be too many of them. What makes the other ones special?

Even though I do not understand what similarity and resemblance are (except sharing of abundant properties), I do find arguments that draw on similarity and resemblance appealing. Lewis says "sharing (sparse properties) makes for qualitative similarity." So the question is, why does sharing sparse properties make for similarity when sharing gruesome ones does not? The question arises no matter what account of properties we give: why should there not be tropes enough for all similarities provided by the abundant conception; or universals enough; or why we can't just count all the sets as similarities?

The answer is supposed to be, things are really only similar in certain respects. There is something to this claim. How is Eddy, my big cat, in and of himself — how are things with him? Well, things are *with him*, at least in one respect, pretty much like the way things are with Grusha, my smaller cat: they are both *cats*. Eddy is also a member of the set {Eddy, Lewis Carroll's writing desk, the last raven Lewis Carroll ever saw}. But surely how things are with Eddy is just different from how things are, or were, with that desk.

7.

At last, the argument.

Preamble: imagine that I am trying to persuade you that properties are sparse. We converse. We do and say various things. Here, roughly, is what I say to you:

Here are two things: a drinking glass and a Frisbee. Here's another: a raven. The first two are similar. Neither of the first two resembles the third. (This also is true: the drinking glass resembles the Frisbee. It doesn't resemble my car as it would have been if Ronald Reagan had bought it.) Conclusion: There is something about the glass and the Frisbee such that they genuinely resemble one another, while neither the glass nor the Frisbee genuinely resembles the raven.

8.

What is going on with this argument? Well, first, perhaps it's correct. Perhaps it just does point out the obvious fact that these two things genuinely resemble one another and these two do not. There are "Moorean facts" of partial or total sameness of nature.

I do not believe the argument is good. So here is another explanation, a pragmatic one. Imagine my interlocutor and I I am trying to persuade him of the truth of the sparse property position. I single out two objects as *circular*. How? Perhaps by saying, "here are two circular things." Perhaps by indicating them in some way that picks out their circularity. Simply holding up a drinking glass with a circular rim and a Frisbee in the context of a discussion of properties and first metaphysics between two Americans in 1996 will be enough for he and I to view the two objects as circular — as instances of *that* one property. It is true that whether and how people will count two things as similar depends on who and where they are. Still, people will find similarities; and even when they differ there are many respects in which people's categorizing is basically alike — for instance, in visual sensitivity.

The purported form of the argument is this:

Here's a thing: Thing1.

Here's another thing: Thing2.

Here's another thing: Thing3.

Thing1 and Thing2 are genuinely the same.

Thing1 and Thing3 are genuinely different.

Therefore, some things are, and some things are not, genuinely similar.

The fallacy is apparent: "not genuinely similar" does not follow from "genuinely different." The form doesn't actually bring out what seems gripping about the argument when it is actually made. I look at the glass and I look at the Frisbee and it's obvious that there is one feature they both genuinely share. It's that obviousness that seems to drive any inclination to assent to the conclusion (that the glass and the raven aren't genuinely similar). The obviousness comes from the situation in which the argument is made. When my interlocutor points out the two objects, he gets me to see them "under a particular aspect." Hence the following form reveals more of what operates in the argument:

Here, under the aspect of circularity, is a thing: Thing1.

Here, under the aspect of circularity, is another thing: Thing2.

Here, under the aspect of being a raven, is another thing: Thing3.

Conclusion 1: Thing1 and Thing2 are genuinely the same.

Conclusion 2: Thing1 and Thing3 are genuinely different.

Conclusion 3: Some things are, and some things are not, genuinely similar.

This, in turn, can be mapped into the predicate calculus (treating "this" as a quantifier, following Neale):

- p1: $(\text{this } x: \text{Circular}(x)) \ x = \text{Thing1}$
 p2: $(\text{this } x: \text{Circular}(x)) \ x = \text{Thing2}$
 p3: $(\text{this } x: \text{Raven}(x)) \ x = \text{Thing3}$
 c1: $\text{Circular}(\text{Thing1}) \wedge \text{Circular}(\text{Thing2})$
 c1': $\exists x \exists y \text{EP} (x \neq y \wedge \text{P}(x) \wedge \text{P}(y))$
 c2: $\text{Circular}(\text{Thing1}) \wedge \text{Raven}(\text{Thing3})$
 c2': $\exists x \exists y \neg \text{EP} (x \neq y \wedge \text{P}(x) \wedge \text{P}(y))$
 c3: $\exists x \exists y \text{EP} (x \neq y \wedge \text{P}(x) \wedge \text{P}(y))$
 c3': $\wedge \exists x \exists y \neg \text{EP} (x \neq y \wedge \text{P}(x) \wedge \text{P}(y))$

The argument to c1 now comes out as the somewhat trivial inference that two things singled out under a single property share that property. c2' does not follow from any premise offered in the argument, nor does c3.

If this suggestion as to the appeal of the argument is correct, then a familiar point follows about similarity and sparse properties. We see some similarities and we don't see others. This is partly because of the way the world is, and partly because of the way we are.

The suggestion depends on a pragmatic account of what is thought and said in making claims about demonstrated objects. Ray suggests a framework for how to understand *de re* modal claims (Ray 1991) which works quite well here as well. Ray takes the following puzzle from Gibbard (Gibbard 1975, 191). Suppose 'Lump1' and 'Goliath' name an enduring spatio-temporal particular. It is a certain lump of clay shaped into a statue of the infant Goliath. Let the lump and the statue come into existence at the same time and go out of existence at the same time. Lumps of clay are such that they can survive being squashed into a ball, but statues are not like that. So Lump1 has a property that Goliath does not, and hence, by Leibniz' Law, or so it would seem, Lump1 is distinct from Goliath. Yet this is paradoxical: surely there is only one thing on the mantel.

Ray suggests that a *de re* modal claim says something about its subjects only as regarded in a certain way. He sees a parallel between these claims and ordinary quantification. We understand the bus driver's remark "every seat is taken" as restricted to one particular bus. Similarly, if I say "this ball of clay can survive being squashed into a ball," I am restricting the way I will consider the object: I am only considering it as a ball of clay. We may map this sentence into "regarded as a ball of clay, Lump1 could survive being squashed into a ball." Now suppose we wish to give a possible-worlds semantics for this sentence. We can treat the phrase "regarded as a ball of clay" as a restriction on which possible worlds to consider in evaluating the rest of the sentence. Then we get the following truth condition: there is at least one possible world (selected from the worlds at which Lump1 is a ball of clay) at which Lump1 survives being squashed into a ball. There is such a world, and so the original sentence comes out true. The truth condition for the parallel mapping of "Goliath could be squashed into a ball" would be: there is at least one possible world (selected from the worlds at which Goliath is a statue) at which Goliath survives being squashed into a ball. There is no such possible world (assuming statues aren't squashable). So the English sentence comes out false. Yet Goliath and Lump1 are the very same object. The dif-

ference in truth value stems from the different restrictions placed on the possible world quantifier that emerges in the semantics for our mappings of these sentences.

The restrictions on the quantifier derive from the context. How exactly this happens is a question for pragmatics. The names we use may carry implications: 'Jump,' 'Goliath.' We can pick things out using descriptions. The restrictions could be explicitly adopted in the course of conversation. Or they may be implicit. What works for names works also for demonstratives. I think one could even manage truly to say "this could be squashed into a ball, but this could not" pointing twice at the same object. Doing this would require somehow making salient different aspects of the thing as one points. One could do this with signs: "Think: lump of clay!" and "Think: statue!" Different demonstratives pick up restrictions in different ways. For instance, the *de re* modal claim "I could have been a paper cup" is, I think, almost always understood as (at least implying), "Possibly something is able correctly to use the token reflexive 'I' and is a paper cup." Understood that way, it's false. Understood as "Possibly, this thing is a thing and is a paper cup" it may be true. That is, it is possible explicitly to cancel the restriction on the quantifier.

Suppose something like this pragmatic account of what is thought and said about things is right. I can prove that the little discourse on properties will always find "natural" properties. So: Assume whenever we have perceptual thought of objects we do so under some aspect or other. The aspect must at minimum distinguish what is being thought of from other things. So whenever we have perceptual thought of an object we will (in some sense) have a property of that object in mind. What kind of property will it be?

I take it most of us never had any inking of the abundant properties before we began to do metaphysics. Some of them are unthinkable; others are thinkable but, well, weird. So we will not have those in mind. Take the property of being @-circular: this is the property of being circular, intersected with all and only the actual things. Ascriptions of @-circularity support counterfactuals in a vacuous way. "All @-circular things are F" is true if and only if all the actual circular things are F. Suppose it is true. Then so is "If α were @-circular then α would be F," since there are no non-actual worlds at which the antecedent is true. Saying that something is @-circular then in some sense says nothing about what it would do. Yet when we classify things we do so with an eye to how they behave. And how they behave is a matter not only of what they actually do but of what they

would do. Put generally, for all sorts of familiar reasons, we classify things in ways that make for easy explanation and predication and control and manipulation by us. These are among the natural classifications. So perceptual thought involves thinking of things under aspects that correspond to natural or sparse properties.

9.

One way to put my conclusions about properties is this. We can, and we do, and we must, mark a distinction in the class of abundant properties. Some are more "cozy" (this term comes from (Taylor 1993) which argues for a conclusion similar to mine) to us than the rest; many of the rest are so far from being "cozy" that we could not even express them. But that is a distinction which depends on us. It is not a distinction "in the things." The things, objectively, have (or lack, as the case may be) all the abundant properties.

Lewis has both kinds of properties. The *natural* properties are a subset of the entire set of properties.⁴ The distinction between the natural properties and the rest is an objective matter; it in no way depends on us. But all of them are equally objectively real. It's not even entirely clear that there's any sense in which Lewis counts the natural properties as "ontologically primary" or "ontologically prior" (Kim uses these phrases: (Kim 1996, 11) Lewis is a physicalist in the sense of believing that "there are only just enough of them (the natural properties) to characterize things completely and without redundancy", but it's not clear whether that comes to saying the natural properties are *prior*.

Despite the advantages of his position, Lewis and the sparsist are not different on one crucial point. The sparsist says his properties are real—objectively the way things are and can be—while the rest are not. Lewis disagrees, but shifts the claim: his universals are natural—objectively the way some properties are—while the rest are not. The difference between properties which are natural and properties which are not is just as mysterious as the difference between the pro-

⁴ "Natural" for Lewis is a technical term. The set of natural properties is the union of all the sets of properties such that exactly that set "carves reality at the joints" for some world. Among these will be sets of "alien" natural properties, ones which "carve" at worlds where physics is completely different.

erties which are real and the other ways of grouping things. So if I reject the sparsist's distinction I ought to reject Lewis' as well. And so I do.

Why is Lewis' distinction so mysterious? For Lewis, there is simply no saying what the distinction depends on. It is impossible to draw the distinction in terms that do not presuppose it, he says, because "we presuppose it constantly" (Lewis 1986, 63). Any set of metaphysical categories in terms of which we might plausibly hope to draw the distinction already depend on the distinction. We could not, for instance, draw it in terms of the distinction between properties expressed by predicates used in a "finished" causal explanation for the total workings of the world, as against the rest of the properties.

Why not? Because our accounts of causation and of laws of nature — or Lewis' accounts, at any rate — depend on the distinction. There is a great deal to Lewis' accounts of these basic features of the metaphysical landscape, and so I can't begin to argue the point in any detail. But the shape of the problem is this. Lewis' overall account is Humean in spirit. Causation and lawhood are matters of a certain kind of pattern. "All F's are G's" is a law of nature, for instance, if it occurs in a system of similar generalizations which together offer the best balance of simplicity and explanatory power. The trouble then is that if there is one such system, there are infinitely many. Moreover, starting with *any* way of grouping things, there is a way to construct a system of generalizations which is a system of laws of nature. So there's nothing in the way of counting {my cat Eddy, Lewis Carroll's writing desk, the last raven Lewis Carroll ever saw} as a property expressed by a basic law of fundamental physics. But that result is absurd.

Lewis' response is to insist that we not "tolerate such a perverse choice of primitive vocabulary" (Lewis 1983, 367). Laws of nature must be formulated using predicates which express natural properties.

I think it is fair to say that most, if not all, of the items on Lewis' list of uses for the distinction between natural properties and unnatural properties have to do with indeterminacies like this: Goodman's new riddle of induction, the Kripke-Wittgenstein problem, the problem of defining "intrinsic". Take Putnam's problem (e.g., (Putnam 1978)) for metaphysical realism (stemming from Quine's thesis of the indeterminacy of translation and from the Löwenheim-Skolem theorem). Suppose the meaning of my language (and the content of my thought) depends on a relation between me and the world. So my word 'water' means water because assigning *that* meaning to my word makes the best overall sense of my doings in the world. Yet if there is one way to interpret my thought and speech,

which has me best satisfy a plausible collection of constraints on thought and speech, then, famously, there are infinitely many. Hence there is no clear sense to attach to the idea that there is a definite way the world is in and of itself. Whatever we might care to say by way of *stating* how the world is could (preserving all truths) be reinterpreted to "carve the world" at completely different joints. Again, Lewis' answer, in outline, is that interpretation correlates thought and speech with natural properties. "Metaphysical realism" takes the cost is assenting to natural properties.

So then the trouble with denying that there is an objective difference between the natural properties and the rest is that we lose this elegant way to avoid all these absurd results. We *could* do without this objective difference if we had hopes of different solutions to his family of problems. It is certainly a daunting array of problems. It would be a philosophical triumph if they all had basically the same sort of solution. But it's also possible that they don't. Naturalistic Realism, of the sort that lies behind Armstrong's account of properties and behind Shoemaker's, promises a unified solution to the whole set. But it's hard to shake the sense that the unified solution consists in calling "Real" one from infinitely many items that would otherwise satisfy the relevant constraints.

Lewis doesn't simply call "Real" the favored set of properties. What he does do differs little, though. If we can't say in any non-question-begging way which properties are natural, then we don't have a *solution* to the family of problems. Rather, we constantly presuppose just the right distinction in the properties that provides solutions. In effect, we simply stop counting the problems as problems.

Can we make do with a psychologized version of the distinction: the natural properties are the ones we reach in the course of inquiry? We'd have a couple of things to worry about. We would need to make sense of the indeterminacy results. Supposing we succeed in doing that, specific and localized problems remain. These worries we might be able to accept. For instance, I have discussed (Dardis 1994), within a Davidsonian account of interpretation, an interesting version of the Kripke-Wittgenstein problem that Davidsonians should worry about: an account of what makes it true that a use of a word is incorrect — where the account cannot appeal to conventions. I see no reason why a Davidsonian should not be able to give such an account. If it can be done, the resulting account of meaning would include some indeterminacy, and it would also solve a version of the Kripke-Wittgenstein problem.

There is a price to pay for all this. The Quine-Davidson indeterminacy results about meaning and content do not sit well with the idea that persons have mental properties, as for instance the property of believing that snow is white or that rabbits can be good to eat. The Quine-Davidson results say that my word 'rabbit' means rabbit because there is a theory that interprets my speech and actions as well as is possible. But there's another perfectly good theory that interprets the word as meaning all-the-rabbit-there-is. Isn't that inconsistency? No, since no one theory of meaning says both. The abundantist who accepts this thought now has a difficulty, of the familiar shape described by Putnam. Suppose we write down everything we can think of that might conceivably be relevant to my word's meaning what it does. That will yield a set of constraints on relations between words and things. These constraints will specify relations between things characterized in certain ways, i.e., in terms of properties they may share. But now if one pattern of groupings of things satisfies the constraints, indefinitely many further patterns of groupings will as well. The result is that there's no fact of the matter about which properties my thought concerns.

This absurdity threatens the possibility of an irenic psychologized version of the natural/non-natural distinction. Imagine such an account beginning with groupings that are important to us — green, for instance, matters to us more than grue — and refining the groupings by attempting to confirm a scientific theory of the ways of things. The trouble, of course, is that this process lacks a unique starting point. If one way of grouping things amounts to certain things being important to us (i.e., constitutes the property of holding certain things important) then indefinitely many others do as well. So the process can yield any set of properties one might wish.

So then the abundantist has a choice: either reject the indeterminacy results (without doing so by insisting on the objective distinction between the natural properties and the rest), or somehow make it palatable that meaning is indeterminate and moreover the fundamental intuitive difference between natural properties and the rest depends on our intentional history — all the while preserving what I take to be a datum, that our mental states have their effects in virtue of their mental properties. Neither is a happy choice.⁵

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