Maximality and Intrinsic Properties*

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Abstract

A property, F, is *maximal* iff, roughly, large parts of an F are not themselves Fs. Maximal properties are thus extrinsic, for their instantiation by x depends on what larger things x is part of. Maximality makes trouble for a recent analysis of intrinsicality by Rae Langton and David Lewis. Their theory implies that "non-disjunctive" properties are intrinsic if they are independent of "loneliness"; but many ordinary, apparently non-disjunctive, properties satisfy this test but are nevertheless extrinsic in virtue of being maximal.

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1. Maximal and border-sensitive properties

Many ordinary sortal predicates express maximal properties. Consider, for example, the mereological difference between a house and one of its windows. Linguistic intuition assures us that this entity, call it House-minus, is not a house. I own a single house, not thousands. House-minus is a very large part of a thing that *is* a house, and so it itself is not a house. **Being a house** is a maximal property.

But now suppose that the window is destroyed; or better, suppose it never existed in the first place. In that case House-minus (or something exactly like it, at any rate) *is* a house, for no larger house contains it as a part. Apparently, then, the property **being a house** is not an intrinsic property. For inspection of a thing — for example, House-minus — will not reveal whether it is a house; one must additionally inspect whether it is attached to other things that would collectively comprise a house.

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[1] Some refinements: for F to be maximal, large parts of Fs should be disqualified as being Fs *because* they are large parts of Fs; what counts as a "large" part of an F might vary depending on what F is. None of my arguments will depend on how, exactly, 'maximal' is defined.

Maximality is everywhere. Very large proper parts of houses, tables and chairs, rocks and mountains, persons and cats, are not themselves houses, tables, chairs, rocks, mountains, persons or cats. These properties are all maximal, and thus are extrinsic. With each of these properties, P, there seems to be some associated intrinsic property, P*, such that something is a P only if it is a P*, and it is not a part of any slightly larger P*. (I do not say that being an unembedded P* is sufficient for being a P. There might be other extrinsic requirements, for example having the right sort of causal history.) House-minus has what it takes, intrinsically, to be a house; it is a **house***. Whether it indeed is a house depends (in part) on whether it is part of anything slightly bigger that also has what it takes, intrinsically, to be a house.

Maximality is a special case of being *border-sensitive*. A property is border-sensitive iff whether it is instantiated by an object depends on what is going on outside that object at its borders. **Being a house** is border-sensitive because whether something is a house depends on what it is attached to. But maximality is only one kind of border-sensitivity. Consider a solid cube of gold with one-meter edges. This cube has a spherical part, S, one meter in diameter. Although S is *spherical*, linguistic intuition assures us that it is no *sphere*. To be a sphere, it would have to be extracted from the cube in which it is embedded. Thus, **being a sphere** is border-sensitive. **Being a sphere** is certainly a maximal property — spheres do not in general have spheres as parts (although they have spherical-shaped quantities of matter as parts) — but this is not what disqualifies S from being a sphere, for S is not part of any larger sphere. S is rather disqualified by being embedded in a cube.

My argument for the pervasiveness of maximality appealed to linguistic intuitions that cannot be denied, but it might be argued that I have misinterpreted those intuitions. How many houses does Ted own? Everyone agrees that the right answer is one, but perhaps **being a house** is not maximal despite this. Perhaps some other linguistic mechanism insures that "one" is the correct answer.

Compare Peter Unger's (1980) "Problem of the Many". Since there are many small objects such that it is indeterminate whether those objects count as part of my house, there are many objects in the vicinity of my house with an equal claim to being a house. But, as before, the answer to the question "how many houses do I own?" is one. Why? One solution, due to David Lewis, employs supervaluations: on any precisification of 'house', only one of the many counts as a house. But this solution presupposes that **being a house** is maximal (more carefully, that each of its precisifications is maximal). For

why think that a precisification counts only one of the many as a house? Lewis discusses a cat, not a house, and puts it thus (1993, p. 28):

> When is something very cat-like, yet not a cat? — When it is just a little less than a whole cat, almost all of a cat with just one little bit left out. Or when it is just a little more than a cat, a cat plus a little something extra. Or when it is both a little more and a little less.

The idea is that this speech is something like a conceptual truth, and so is super-true, true on any precisification. If so, then each precisification of **being a cat** is maximal; the statement that **being a cat** is maximal is thus super-true. (The speech actually presupposes more than maximality, since it presupposes that something a little more than a cat is not a cat, and that something both a little more and a little less than a cat is not a cat. What is presupposed is that **being a cat** is border-sensitive in a certain way. But maximality is part of this way of being border-sensitive.) *Mutatis mutandis* for **being a house** and my other examples. The supervaluations response to the problem of the many does not provide an alternative to maximality, but rather presupposes the maximality of many ordinary properties.

Lewis suggests a second (complementary) solution to the problem of the many: in a harmless approximation we count the many as one house because they are *almost* one, in that they nearly wholly overlap. A proponent of this response might then say that large proper parts of my house, like House-minus, are themselves houses, but nevertheless we count only one house since all my houses are nearly identical to one another. Think, however, of House-minus itself. Forget about counting; consult your linguistic intuitions about whether House-minus is a house directly. Mine say that it is not. Here there is an asymmetry with the problem of the many, for in that case linguistic intuition refuses to identify any of the many as being any more house-worthy than the rest. Not so for large parts of the house that exclude bits that are definitely part of the house. These seem clearly not to be houses.

Moreover, a house with a substantial addition might have a part that would count as a house, were it detached from the rest. If this part is small enough then it will not be almost identical to the whole house. So I continue to maintain that **being a house** is maximal.

2. Lewis, and Langton and Lewis, on intrinsicality

Any analysis of intrinsicality ought to count maximal and border-sensitive properties as extrinsic. This is straightforward on an attractive account of intrinsicality given by Lewis in his 1986 book *On the Plurality of Worlds*.[2] We begin with an undefined notion of the *perfectly natural properties and relations*, those most basic properties and relations on which all else depends. The idea is that the perfectly natural properties and relations "carve nature at the joints" and provide a minimal (global) supervenience basis for all of reality. A physicalist will say that the actual perfectly natural properties and relations are those of particle physics, but physicalism isn't "built-in": worlds at which physicalism fails would be worlds with non-physical perfectly natural properties or relations. Given the notion of naturalness, *duplicates* are then defined as objects whose parts — all parts, from the subatomic to the macroscopic — have the same perfectly natural properties and stand in the same perfectly natural relations to each other; finally, an *intrinsic property* is one that can never differ between any pair of possible duplicates, whether in the same or different possible worlds. **Being a house** comes out extrinsic on this account: while House-minus is not a house, it has a duplicate that is a house, namely itself in the case in which the window does not exist.

Matters are not so straightforward for the new theory of intrinsicality given in Langton and Lewis's 1998 paper "Defining 'Intrinsic'". Call an object *lonely* iff nothing contingent exists in its possible world other than its parts.[3] Say that a property P is *independent of loneliness* iff all four of the following cases are possible: P is had by a lonely thing, P is had by a non-lonely thing, P is lacked by a lonely thing, P is lacked by a non-lonely thing. Intrinsic properties cannot quite be defined as properties independent of loneliness, because the property **either being lonely and being red, or being non-lonely and being green** is clearly an extrinsic property, but is independent of loneliness. But counterexamples like this involve *disjunctive* properties. Lewis and Langton's strategy is to define a *basic* intrinsic property as a (qualitative) property that is independent of loneliness, and which is neither a disjunctive property nor the negation of a disjunctive property. Duplicates are then defined as objects that share all basic intrinsic properties; finally, a property is said to be intrinsic *simpliciter*, as before, iff it can never differ between any pair of possible duplicates.

[2] Pp.59–69. I defend this account against objections in Sider (1996).

[3] For simplicity of exposition here and elsewhere I assume the theses of temporal parts and world-bound individuals.

This definition rests on the notion of disjunctive properties, which Langton and Lewis define as follows:

> …let us define the *disjunctive* properties as those properties that can be expressed by a disjunction of (conjunctions of) natural properties; but that are not themselves natural properties. (Or, if naturalness admits of degrees, they are much less natural than the disjuncts in terms of which they can be expressed.) (P. 120).

The notion of naturalness itself remains undefined for Langton and Lewis. But Lewis's old analysis of intrinsicality also appealed to an undefined notion of naturalness — what is the advantage for the new theory? Langton and Lewis's answer is that the new theory of intrinsicality does not require strong assumptions about the notion of naturalness:

> Lewis's burden of commitments was … much heavier than ours. All we need is enough of a distinction to sort out the disjunctive properties from the rest. We need not insist that it makes sense to single out a class of *perfectly* natural properties, as opposed to a larger class of *natural-enough* properties; or that the members of our élite class will all, without exception, strike us as intrinsic; or that the élite class will serve as a basis on which the complete qualitative character of everything there is, and everything there could have been, supervenes. (p. 131)

Some of this flexibility is indicated earlier in the paper, where Langton and Lewis list some theories of natural properties that would suffice for their purposes:

> Some of us will help ourselves to some sort of primitive notion of naturalness of properties. Others will accept an ontology of sparse universals, or of sparse tropes, that has a built-in distinction between natural properties and other properties. Still others will wish to characterize the natural properties as those that play some interesting special role in our thinking — but for our present purposes, even this vegetarian metaphysics will suffice. (pp. 119–120)

But now let us return to maximal properties, for example the property of **being a rock**.[4] This property is independent of loneliness: there are possible

[4]Thanks to Brian Weatherson for this particularly useful example.

worlds containing nothing but a lonely rock, worlds containing nothing but a lonely non-rock, worlds containing non-lonely rocks and worlds containing non-lonely non-rocks. (The property **being a sphere** might also serve as an example.)

Matters are not quite so clear for other maximal and border-sensitive properties, such as **being a cat**, **being a statue**, **being a chair**, and so on, for it may be argued that it is impossible for there to be lonely cats, statues and chairs. Perhaps nothing is a chair unless it is created by beings with appropriate intentions. Perhaps nothing is a cat unless it has evolved in certain ways from other beings. Perhaps nothing is a statue unless it has been created by an artisan with the appropriate intentions. Perhaps. My guess is that our semantic intuitions are not entirely univocal and fixed here. No doubt someone could talk me into denying that a chair-shaped thing floating in space is really a chair; but I can also imagine my intuitions being coaxed the other way. A request to imagine a cat materializing out of nowhere in outer-space doesn't sound clearly incoherent. Moreover, there could be a community of language users much like our own but which uses 'cat', 'statue', 'chair' and so forth for maximal properties that are independent of loneliness; the Langton and Lewis of this community would then face a problem with 'cat', 'statue' and 'chair', even if our Langton and Lewis do not.

At any rate, let us focus on the property **being a rock**, which seems clearly to be independent of loneliness. (Isn't a rock a paradigm of the sort of thing that could exist in absolute isolation?) **Being a rock** is a maximal property and thus is extrinsic. When seamlessly embedded in a larger rock, a rock-like thing is not a rock, no matter how intrinsically similar it is to a genuine rock. But **being a rock** is independent of loneliness, so unless it is disjunctive or the negation of a disjunctive property, it turns out basic intrinsic and hence intrinsic *simpliciter*, on the Langton-Lewis theory.[5]

Is **being a rock** "disjunctive"? It certainly is not a disjunctive property in any ordinary sense. Nor does it seem to be the negation of a disjunctive property. More to the point, on at least one reasonable theory of natural properties, **being a rock** fails the Langton and Lewis definition of 'disjunctive'. I have in mind the conception of natural properties as those that play a special role in our ordinary thinking; call these the *conceptually natural* properties. The

[5] On their theory, all basic intrinsic properties are intrinsic: if P is not intrinsic then it differs between a pair of possible duplicates; but duplicates are defined as objects sharing all basic intrinsic properties; thus, P could not be basic intrinsic.

conceptually natural properties might be taken to be those that do not strike us as being "strange" or "odd", in Eli Hirsch's (1993) sense, or as those for which we have simple words or concepts, or as those on which we have relied in past inductions (whether in scientific or everyday contexts).[6]

Langton and Lewis expressly list a "vegetarian" conception on which natural properties "play some interesting special role in our thinking" as one of the conceptions of naturalness over which they remain neutral, citing Barry Taylor (1993, section IV). The relation between Taylor's notion of naturalness and conceptual naturalness is not completely clear. Taylor's naturalness is like conceptual naturalness in being relative to our practices. However, for Taylor, the natural properties of a given theory T — the "T-cosy properties", as he says — are the properties that play "the more central and fundamental classificatory roles within T" (p. 89). Taylor mentions "regimented common sense" and "unified science" as examples of theories to which cosiness may be relativized (p. 90). Which properties are T-cosy and whether they are conceptually natural, and perhaps even the acceptability of Langton and Lewis's definition of 'intrinsic', then depend on the choice of T; Langton and Lewis do not specify a choice here.

At any rate, conceptual naturalness is *a* legitimate notion of naturalness, and is not too distant from one of the conceptions Langton and Lewis explicitly allow. There is therefore interest in showing that their definition of 'intrinsic' fails if this conception of naturalness is adopted. **Being a rock** is presumably a paradigmatic conceptually natural property. Ordinary sortal concepts of rocks, spheres, cats, statues, chairs and so on are the backbone of our conceptual apparatus. So, rather than being a disjunction of natural properties, or the negation of such a property, **being a rock** is itself natural, given this conception of naturalness. (This argument *may* also go through for naturalness conceived as cosiness relativized to the theory of regimented common sense, but it is hard to tell what properties count as the central and fundamental classifications of regimented common sense.)

Imagine "factoring" the property **being a rock** into an intrinsic component, **being a rock***, and a maximality component. Something is a rock iff it is a rock* and it isn't a (seamless) part of any other rock*. Equivalently, something is a rock iff it is not the case that: either it is a non-rock*, or it is a rock* that is part of another rock*.[7] On Langton and Lewis's definition, a basic intrinsic property

[6]Compare Goodman (1955, chapter IV); see also Elgin (1995).

[7]Compare Langton and Lewis (1998, p. 119, footnote 5).

must not be the negation of a disjunctive property. Here we have expressed **being a rock** as the negation of the disjunction **either being a non-rock*, or being a rock* that is part of another rock*** — might this get Langton and Lewis off the hook? But of course, every property is disjunctive in the sense of being equivalent to a disjunction — every property **P** is equivalent to **(P and Q) or (P and not-Q)**. The question is whether this property is a *disjunctive property*, given the Langton and Lewis definition of disjunctiveness, and given the conceptual conception of naturalness. And the answer is that it is not, for this property is the property of **not being a rock**, which seems more conceptually natural than the disjuncts **being a non-rock*** and **being a rock* that is part of another rock***. The most conceptually natural statement of those disjuncts involves the concept of being a rock*, which is not part of our ordinary conceptual apparatus.

So it would seem that maximal and border-sensitive properties present a problem for Langton and Lewis. Given a legitimate conception of naturalness, their analysis of intrinsicality incorrectly classifies some maximal properties as intrinsic. They could disallow that conception of naturalness. But the whole point of the theory was to remain neutral about the proper conception of naturalness. If we cannot remain neutral in this way, the older Lewisian theory seems more attractive. It is simpler and moreover correctly classifies maximal properties as extrinsic.[8]

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[8]There is another way in which Langton and Lewis cannot remain as neutral as advertised. Suppose naturalness does not come in degrees (they allow, though do not presuppose, this). Let P be some qualitative relational property, and suppose that the property, Q, of **either having P and being red, or not having P and being green** is independent of loneliness. The correctness of their analysis rests on disqualifying this property as being disjunctive, which in turn rests, given their analysis of disjunctiveness, on the claim that while Q is itself not natural, it can be expressed as a disjunction of natural properties (or at least conjunctions of natural properties). But this requires substantive assumptions about naturalness. Langton and Lewis claim in the passage from p. 131 quoted above that they need not assume that all the qualitative facts supervene on the natural properties. But if P does not supervene on the natural properties then Q will not be expressible as a disjunction of (conjunctions of) natural properties. And even if P does supervene on the natural properties, Q may not be expressible as a disjunction of *conjunctions* of natural properties; perhaps quantifiers are needed. This problem would be avoided if the set of natural properties is assumed to be closed under certain property-forming operations, but that would be another substantive assumption.

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