

a logical definition of the *intrinsic/extrinsic* distinction

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Abstract

After the publication of Marshall's theorem (2009), it has been widely accepted that the intrinsic/extrinsic distinction cannot be analyzed in broadly logical terms, but instead requires appealing to more robust metaphysical notions like grounding, naturalness or duplication. However, this is not so. Instead of showing the limitations of Marshall's still impressive result, I will present here a broadly logical definition of the intrinsic/extrinsic distinction, and show that it is extensional adequate regardless of our preferred conception of property identity.

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I. The challenge

It would indeed be good if we could define the intrinsic/extrinsic distinction using only broadly logical notions without depending on substantial metaphysical assumptions about properties or possible worlds (Weatherson and Marshall 2013). However, beginning with Lewis 1983, a consensus has been growing to the effect that such a definition is impossible. In particular, the challenge has been to find a broadly logical way of fitting problematic extrinsic properties like

F. Being either a lonely positron or an accompanied electron (Langton and Lewis 1998, Marshall 2009)

where something is *accompanied* if it coexists with a contingent thing wholly distinct from itself, and something is *lonely* if it does not coexist with any contingent thing wholly distinct from itself (Lewis 1983). In 2009, Dan Marshall proved that, given certain prima facie sensible assumptions, properties of this kind satisfy the same broadly logical rigid formulas than the intrinsic properties that occur in them. This means that no broadly logical rigid formula is satisfied by all and only the intrinsic properties, and, consequently, that no purely logical definition of intrinsicity is possible.

II. My Proposal

Fortunately, as impressive as Marshall's result is, it does not actually prove that the

intrinsic/extrinsic distinction cannot be defined using only broadly logical notions. This is so mostly because it focuses too much on intrinsicity and fails to properly consider the possibility of defining extrinsicity independently of it. In order to see how the change in focus from intrinsicity to extrinsicity makes all the difference in this regards, consider what Langton and Lewis (1998) have called *independent of accompaniment properties*, i.e., properties P that meet the following four conditions:

- a. Possibly, there exists a lonely P .
- b. Possibly, there exists a lonely non- P .
- c. Possibly, there exists an accompanied P .
- d. Possibly, there exists an accompanied non- P .

Even if the existence of extrinsic properties like F shows that not all independent of accompaniment properties are intrinsic, it remains true that all intrinsic properties are independent of accompaniment, and therefore that any property that is not independent of accompaniment, like *orbiting around the earth* or *being married*, is extrinsic. Furthermore, looking at properties like F more closely reveals that even if, unlike most extrinsic properties, they are accompaniment independent, they still contain extrinsic properties that are not (like *lonely* and *accompanied*). Consequently, it seems that we can easily define extrinsic properties as those that are either not accompaniment independent or composed, in the proper sense, of at least one property that is not. The qualification “in the proper sense” is necessary to exclude properties that also contain at least one accompaniment independent property but are nevertheless intrinsic, like G or H :

G. Not being different from John Malkovich.

H. Being higher than the Eiffel tower and smaller than the Eiffel tower.

Identity properties like G are intrinsic because whatever object bears them, does so purely in virtue of what the object itself is, and not in virtue of the way anything wholly distinct from it is. For example, John Malkovich is not different from John Malkovich just in virtue of who he is himself and not of anything else outside of him (Weatherson and Marshall 2013). Also, whether a property is intrinsic or extrinsic depends of in virtue of what they can be possessed by objects. Therefore, properties that cannot be possessed by any object at all, like H , can be neither intrinsic nor extrinsic (Badder 2013).

Thus, we need a definition of extrinsicity that contains both accompaniment dependent properties and accompaniment independent properties like F , but excludes accompaniment dependent properties like G and H , even if they contain accompaniment dependent properties. These constraints can be easily met by a recursive definition, as follows:

1. Base clause: Every property that is not accompaniment independent is extrinsic.

2. Inductive clauses:

2.1. If P is extrinsic, then so is $P \vee Q$

2.2. If P is extrinsic, and P and Q are compatible, then $P \wedge Q$ is extrinsic.

2.3. If P is extrinsic, not necessary and either accompaniment independent or does not presuppose an individual, then $\neg P$ is extrinsic as well.

3. Extremal clause: No other property is extrinsic.

4. Every (not impossible) property that is not extrinsic is intrinsic.

Where a property P is necessary if it is necessary for any object x to be P (for example, *being identical to oneself*), a property P is impossible if and only if it is not possible for any object x to be P (for example, *being a round square*), a property P presupposes an individual if and only if for an object a to be P or not P , it is necessary that some particular object or set of objects $b_1, b_2, b_3, \dots, b_n$ be at least possible (for example, *being John Malcovich* or *being Elaine Irwin's neighbor*), and a pair of properties P and Q are compatible if it is possible for some object a to be both P and Q (for example, *whistling* and *working*).

III. Proving its extensional adequacy

It is not hard to see that this definition is broadly logical and that it treats properties like F as extrinsic, not intrinsic (since neither *being a lonely positron* nor *being an accompanied electron* are accompaniment independent). Showing that every property that it classifies as extrinsic is actually extrinsic is not that difficult. Let us start with the base clause. That every property that is not accompaniment independent is extrinsic follows from the very definition of accompaniment independence. According to it, if a property is not accompaniment independent, it either requires that something else exists or it requires that nothing else exists. Since both conditions are external to the object that bears the property, we can infer

that whatever property has these conditions must be extrinsic. In consequence, every property that is not accompaniment independent is extrinsic.

Now, in order to prove the adequacy of my definition's first inductive clause 2.1, it is sufficient to notice that any object a that is P is PVQ at least partially in virtue of being P and, in consequence, also at least partially in virtue of whatever makes a be P (Schnieder 2011, Fine 2012). Therefore, if an object a is P extrinsically (i.e., at least partly in virtue of the way something wholly distinct from it is), it also bears the property PVQ extrinsically as well. But since P is an extrinsic property only if it is possible for something to be P extrinsically, then it follows that if P is extrinsic, PVQ must be extrinsic as well. An analogous line of reasoning shows that 2.2 is true as well: if P and Q are compatible and P is extrinsic, PAQ is extrinsic too. We require P and Q to be compatible so that the conjunction is not impossible, since presumably, impossible properties are neither extrinsic nor intrinsic (if they are properties at all). Finally, for clause 2.3, we also want to exclude cases where $\neg P$ is impossible, hence the requirement that P be not necessary. As previously mentioned, the only other exceptions to the rule that the negation of an extrinsic property is also extrinsic are properties like *being different from John Malkovich* (Weatherson and Marshall 2013) which presuppose an individual (John Malkovich in this case) but, while being extrinsic themselves (because they are not independent of accompaniment), their negations are not (*not being different from John Malkovich* is a property John Malkovich has fully in virtue of how he is himself). Hence, it is necessary to exclude from the inductive clause extrinsic properties that presuppose an individual but are not independent of accompaniment. Notice that for any property P that presupposes an individual but is not independent of accompaniment, if $\neg P$ is extrinsic, then P is also extrinsic and not independent of accompaniment. For example, the pair of properties *being Elaine Irwin's neighbor* and *not being Elaine Irwin's neighbor* are both extrinsic, and neither is independent of accompaniment. This means that, even if they are excluded from the inductive clause, they are still deemed extrinsic in my definition, because its base clause deems as extrinsic any property that is not independent of accompaniment. Thus, we can be sure that all the complex properties resulting from the application of my definition's inductive clauses are actually extrinsic.

Finally, regarding the extremal clause, we can be confident that no other (not impossible) property is extrinsic by the fact that all known extrinsic properties that are independent of accompaniment are like F , i.e., composed of other properties, at least one of which is not accompaniment independent. Thus, even if they are not deemed extrinsic by the base clause, they are included in the inductive clause. This shows that the above definition is extensionally adequate: it classifies as extrinsic all and only those properties that are actually extrinsic, and classifies as intrinsic only those and all of those properties that are intrinsic.

IV. Extending the proposal

In formulating the definition and the proof of its extensional adequacy, I have assumed a hyperintensional conception of property identity (so that, for example, the extrinsic *being a lonely electron or an accompanied electron* and the intrinsic *being an electron* are different properties. Eddon 2011, Bader 2013). However, this has been done mostly for ease of presentation and is not essential to my analysis. After all, once we have an extensionally adequate distinction on hyperintensional properties, we can induce an equally extensionally adequate distinction for any coarser conception of properties. All we have to do is take whatever identity conditions we find adequate for properties, and model what we take to be the actual properties as equivalence classes on hyperintensional properties. For example, if we hold the intensional view that no two different properties can be necessarily co-extensional, then we can model these intensional properties as equivalence classes of hyperintensional properties related by necessary co-extensivity in such a way that an intensional property is intrinsic iff it contains only hyperintensional intrinsic properties, and extrinsic otherwise. Thus, for example, since the hyperintensional properties *being a lonely electron or an accompanied electron* and *being an electron* are necessary co-extensional, they correspond to the same intensional property, and since at least one of them – *being an electron* – is classified as intensional in my analysis, then the whole intensional property must be considered intensional as well. Since the analysis here proposed is extensionally adequate for hyperintensional properties, the resulting distinction applied to these more coarsely individuated properties cannot be but extensionally adequate too. We can thus presume that,

with the analysis here proposed, the elusive intrinsic/extrinsic distinction has finally been captured, through broadly logical means and without appealing to more robust metaphysical notions or making substantial metaphysical assumptions about properties or possible worlds.

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