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Multiplying co-intensional properties: a reply to Streumer

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ABSTRACT

Bart Streumer employs a *reductio ad absurdum* to show that a hyperintensional conception of properties has a multiplication problem; roughly, this conception of properties leads to the absurd result that we can multiply distinct but co-intensional properties without end. In this paper, I will explain why Streumer's *reductio* fails to convince.

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Hyperintensionalists think that properties can be distinct even if they are co-intensional – that is, have the same instances at all possible worlds. Bart Streumer has voiced an objection to a hyperintensional conception of properties in a few places.¹ His basic objection is a *reductio ad absurdum* that shows that this conception of properties suffers from a multiplication problem: roughly put, it permits us to multiply co-intensional properties without end. Should his objection prove successful, it further deepens the conviction that a hyperintensional conception of properties carries with it undesirable theoretical and methodological consequences.² Call this objection by Streumer, the ‘Multiplication Argument’.

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¹See Streumer (2008; 2013; and 2017). See also Enoch (2011: ch. 6) for discussion.

²For example, see Enoch (2011: ch. 6), Williamson (2013: ch. 6), and Simmons (2020). For a discussion on related issues, see Williamson (2021).

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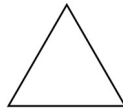
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In this paper, I will argue that the Multiplication Argument is unsuccessful. In section 1, I will present Streumer's formulation of the argument. Then, in section 2, I will identify three issues with his formulation and introduce a more rigorous formulation of the argument that sidesteps these issues while remaining faithful to Streumer's intentions. In section 3, I will challenge one of the premises of the argument on behalf of the hyperintensionalist. Finally, in section 4, I will close with some concluding remarks.

1. The multiplication argument formulated

In the following passage, which I quote here at length, Streumer formulates the Multiplication Argument using the predicates 'is a closed figure that has three sides' and 'is a closed figure that has three angles':³

... [T]hese predicates do not ascribe different properties. Instead, they both ascribe the property being a figure with the following shape:



For suppose that these predicates did ascribe two different properties. Figures with this shape also satisfy the predicate

'is a triangle'.

If the predicates 'is a closed figure that has three sides' and 'is a closed figure that has three angles' ascribed two different properties, there would be no reason why the predicate 'is a triangle' would not ascribe a third property. But, surely, these predicates do not ascribe three different properties. Therefore, the predicates 'is a closed figure that has three sides' and 'is a closed figure that has three angles' do not ascribe two different properties either.

Moreover, suppose that these predicates did ascribe three different properties. And suppose that we invented a new name for figures with this shape: suppose that we started to call these figures ' Δ ' (which we pronounced as 'deltas'). These figures would then also satisfy the predicate.

'is a Δ '.

³Bart Streumer, 'Are There Irreducibly Normative Properties', *Australasian Journal of Philosophy*, 86 (2008), pp. 537–561 (pp. 542-543).

If the predicates 'is a closed figure that has three sides', 'is a closed figure that has three angles' and 'is a triangle' ascribe three different properties, there would be no reason why the predicate 'is a Δ ' would not ascribe a fourth property. But, surely, these predicates do not ascribe four different properties. Therefore, the predicates 'is a closed figure that has three sides' and 'is a closed figure that has three angles' do not ascribe two different properties either.

Finally, suppose that these predicates did ascribe four different properties. And suppose that we started to call one half of a side a 'half-side' and one half of an angle a 'half-angle'. These figures would then also satisfy the predicate

'is a closed figure that has six half-sides and six half-angles'.

If the predicates 'is a closed figure that has three sides', 'is a closed figure that has three angles', 'is a triangle' and 'is a Δ ' ascribed four different properties, there would be no reason why the predicate 'is a closed figure that has six half-sides and six half-angles' would not ascribe a fifth property. But, surely, these predicates do not ascribe five different properties. Therefore, the predicates 'is a closed figure that has three sides' and 'is a closed figure that has three angles' do not ascribe two different properties either.

I understand Streumer's argument as follows: suppose that 'is a closed figure that has three sides' and 'is a closed figure that has three angles' ascribe distinct but co-intensional properties. Then this supposition leads to the absurd result that if we introduce a third predicate, 'is a triangle', that also applies to the same objects as 'is a closed figure that has three sides' and 'is a closed figure that has three angles', there would be no reason why 'is a triangle' does not ascribe a third property that is co-intensional with the original two. This same reasoning holds for any additional predicates we may invent that apply to the very same objects.

2. The multiplication argument reformulated

Streumer's formulation of the Multiplication Argument is problematic. He asserts that 'is a closed figure that has three sides' and 'is a closed figure that has three angles' ascribe the same property – "the property of being a figure with the following shape" where that 'following shape' is an image of a regular triangle.⁴ If this were right, both predicates would ascribe the property of *being a regular triangle*, a property whose intension is the following extension of that property at every possible world:

⁴Streumer, 'Are There Irreducibly Normative Properties' (p. 542).

the set of closed straight-sided figures with three sides that are all of equal length and with three interior angles that are all of equal measure – each angle measuring 60 degrees, to be exact.

But there are three issues with this assertion. One, the two predicates apply to all types of triangles, not just regular ones. Hence, neither predicate ascribes *being a regular triangle*. Two, the two predicates do not even apply to the same objects. For example, ‘is a closed figure that has three sides’ also applies to objects that are closed sided figures with two straight sides and one curved side, while ‘is a closed figure that has three angles’ does not. Hence, these predicates do not ascribe co-intensional properties. Three, even if the two predicates did ascribe *being a regular triangle*, ‘is a triangle’ applies to all types of triangles. Hence, ‘is a triangle’ does not ascribe a property that is co-intensional with *being a regular triangle*. Given these issues, the Multiplication Argument so stated, is a non-starter.

What we need, therefore, is to reformulate the Multiplication Argument in a way that is not vulnerable to the sort of issues just mentioned. The following formulation of the argument seems to better represent what Streumer has in mind:

- (1) Suppose for *reductio* that a pair of predicates ‘is F’ and ‘is G’ ascribe distinct but co-intensional properties.
- (2) Suppose additional predicates are invented, such as a third, fourth, fifth, and so on, that apply only to the same objects as ‘is F’ and ‘is G’ across every possible world.
- (3) If ‘is F’ and ‘is G’ ascribe distinct but co-intensional properties, then there would be no reason why these additional predicates that apply to the same objects as ‘is F’ and ‘is G’ do not themselves each ascribe distinct properties that are co-intensional with the two properties ascribed by ‘is F’ and ‘is G’.
- (4) The fact that these additional predicates ascribe distinct properties that are co-intensional with the two properties ascribed by ‘is F’ and ‘is G’ is absurd.
- (5) Therefore, ‘is F’ and ‘is G’ do not ascribe distinct but co-intensional properties.

3. The multiplication argument examined

In reply to this formulation of the Multiplication Argument, I wish to challenge premise (3). Streumer simply takes it for granted that something

like (3) must be true. But what is the justification for that? More exactly, how does the supposition that two predicates ascribe distinct but co-intensional properties result in the egregious multiplication of these properties? I can think of three potential explanations, and I will now address each of them in turn.

The first explanation is based on a certain view of properties that states that properties, including co-intensional ones, depend for their existence on what actual predicates we use. The idea is that when we introduce a new predicate into our language and use it to make successful predications, we thereby bring into existence a unique property that corresponds to that predicate.

There is, however, an obvious problem with this explanation. Such a view of properties is not forced upon hyperintensionalists. Hyperintensionalists may hold to a view that says that properties are not dependent on language (or the mind, for that matter). On this view, properties are not at all the product of our successful predications but, instead, properties already exist and are distributed throughout the world, awaiting to be ascribed by us.

The second explanation is founded on a view of properties that claims that every predicate in our language ascribes a unique property.⁵ According to this view, properties are not brought into existence through our successful predications; rather, predicates and properties simply stand in a one-to-one correspondence, with properties being like *mere* shadows of our predicates. The idea this time around is that all properties, including co-intensional properties, are governed by a property comprehension schema like the following:

Comp: An object x instantiates the property of *being F* if and only if x is F .

But this explanation is also problematic. This is because hyperintensionalists are perfectly free to reject the view that predicates and properties are isomorphic. That view of predicates and properties is not an essential part of a hyperintensional conception of properties, and there are several other reasons why hyperintensionalists might reject such a view.⁶ One well-known reason is that there are certain predicates – for example, ‘is not self-instantiable’ – that generate Russell-like paradoxes.

⁵This explanation seems to be hinted at in Streumer (2013; 319–324 and 2017: ch. 2, pp. 11–19).

⁶For more discussion of possible reasons, see Molnar (2003: ch. 1).

The third and the last explanation appeals to the absence of a criterion of identity for co-intensional properties. A hyperintensional conception of properties does not offer an alternative criterion of identity for such properties. While co-intensional properties may be distinct from one another, co-hyperintensional properties are supposed to be one and the same. But a property's hyperintension is typically characterised as being something that is more fine-grained than its intension.⁷ The issue with this negative characterisation is that it fails to give any indication of the conditions under which multiple predicates that apply to the exact same objects across every possible world ascribe one and the same property. Failing to have a criterion of identity for distinct but co-intensional properties, hyperintensionalists are unable to stop the multiplication of these properties.

But this explanation is no good, either. For it has at least three problems. One problem is that the absence of a criterion of identity for co-intensional properties does not entail that multiple predicates that apply to the same objects across every possible world must also ascribe multiple co-intensional properties. It is possible for these predicates to ascribe co-intensional properties that have the same hyperintension and, as a result, these co-intensional properties would turn out to be one and the same.

Another problem is that, while there is no definitive criterion of identity for co-intensional properties, hyperintensionalists have put forth, or at least suggested, various proposals that would resolve this issue. Here is a gloss over several stock examples of these proposed criteria:⁸

- (i) There is the *Analysis Criterion*.⁹ Properties F and G are identical if and only if F and G have the same analysis, where to have the same analysis is roughly for F and G to be built from the same fundamental properties, with the same logical operations applied to these properties.
- (ii) There is the *Impossible Worlds Criterion*.¹⁰ Properties F and G are identical if and only if F and G have the same instances at all possible worlds and impossible worlds, where impossible worlds are roughly ways things could not be, in contrast to possible worlds, which are ways things could be – maximal ways.

⁷For example, see Eddon (2011).

⁸For more details on each criterion, consult their associated sources.

⁹See Bealer (1982).

¹⁰See Yagisawa (1988), Vander Laan (1997), and Nolan (2013).

- (iii) There is the *Intentional Criterion*.¹¹ Properties F and G are identical if and only if F and G have the same instances at all possible worlds and whoever conceives of F also conceives of G, and vice versa, at all possible worlds.
- (iv) There is the *Leibnizian Criterion*.¹² Properties F and G are identical if and only if F and G instantiate the same properties at all possible worlds.
- (v) There is the *Real Definition Criterion*.¹³ Properties F and G are identical if and only if F and G have the same real definitions, where a real definition of a thing is a specification of what it is to be that thing – what is essential to it, as opposed to a nominal definition, which specifies the meaning of a word or phrase in a language.

No doubt there are more criteria than these. But it's clear enough that hyperintensionalists need not be without a criterion of identity for co-intensional properties.

Turning to the final problem: this third explanation assumes that having a criterion of identity for co-intensional properties is sufficient to stop the multiplication of them. But no hyperintensionalist should blindly accept this assumption. And that is because it overlooks the fact that other criteria of property identity, such as the intensional criterion, which is endorsed by Streumer and many others, is not even sufficient to stop the multiplication of distinct but co-extensional properties – that is, properties that have the same instances at the actual world. To illustrate, consider an intensionalist like David Lewis, who believes that properties are classes of both actual and possible particulars. For Lewis, there exists a property that corresponds to any predicate, no matter how complex it may be.¹⁴ More carefully, he endorses the following property comprehension schema:¹⁵

Comp*: For some property F, it is necessarily the case that, for every object x, x instantiates the property of *being F* if and only if x is F.

Now suppose that we have two predicates, 'is F' and 'is G', that ascribe properties that are co-extensional. Then, on Lewis' view, we can in principle invent disjunctive predicate after disjunctive predicate, and so on, that ascribe properties that are distinct but co-extensional with those

¹¹See Chisholm (1989: ch. 15) and van Inwagen (2004).

¹²See Moreland (2001: ch. 6) and Suikkanen (2010).

¹³See Audi (2016). See also Rosen (2015).

¹⁴David Lewis, 'New Work for a Theory of Universals', *Australasian Journal of Philosophy*, 61 (1983), 347–377 (p. 350).

¹⁵Ibid.

ascribed by 'is F' and 'is G'. For example, if 'is F' ascribes the property of *being F* and 'is G' ascribes the property of *being G*, we can combine 'is F' with 'is G' to form the disjunctive predicate 'is F or G', which ascribes the property of *being F or G*. This newly formed disjunctive predicate can be further combined with another predicate, say, 'is H', which ascribes the property of *being H*, to form the disjunctive predicate 'is (F or G) or H'. This new predicate, in turn, ascribes the property of *being (F or G) or H*. We can then repeat this process with other predicates in the language to form more disjunctive predicates that ascribe properties that are also co-extensional with *being F* and *being G*. Lewis' view allows for the multiplication of co-extensional properties through this process, which the intensional criterion won't stop. Streumer cannot therefore hold hyperintensionalists to one standard and yet intensionalists to another.¹⁶

Now I am out of ideas for why else it might be that Streumer thinks (3) of the Multiplication Argument is true. Absent other suggestions, this argument fails. I conclude, therefore, that a hyperintensional conception of properties does not have a multiplication problem.

4. Concluding remarks

In sum, I have discussed Streumer's Multiplication Argument. The Multiplication Argument purports to show that a hyperintensional conception of properties spawns an egregious multiplication of co-intensional properties. But I have explained why this argument falls short, pointing out that Streumer has not offered any reason, satisfactory or otherwise, to support its third premise.

What, then, can be gleaned from our discussion? At the very least, the conviction that a hyperintensional conception of properties is fraught with theoretical and methodological difficulties is somewhat overstated. Once the underlying details of these difficulties are sorted out, it becomes clear, upon closer scrutiny, that not all of them are as serious as one might initially think. Our discussion of the Multiplication Argument

¹⁶One may object that, although I correctly identify that Lewis' intensionalist view of properties entails all sorts of complicated disjunctive predicates that ascribe co-extensional properties, Streumer is not committed to Lewis' view in this respect; for example, see Streumer (2018). In response, I am happy to concede this point, but it is not central to the issue at hand. The key here lies in the assumption underlying the third explanation – that having a criterion of identity for co-intensional properties is enough to stop their multiplication. This assumption is misguided, as the intensional criterion alone fails to prevent such multiplication for co-extensional properties. My reference to Lewis is meant only to expose the flaw in that assumption, not to suggest Streumer affirms Lewis' specific view. Thanks to an anonymous referee for drawing attention to this point.

offers a modest step towards tempering this conviction against a hyper-intensional conception of properties.¹⁷

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¹⁷An ancestor of this paper was read during an open session at the 97th Joint Session of the Aristotelian Society and Mind Association. I wish to thank the audience at the open session for their useful comments and questions, with a special thanks to Bart Streumer. I wish also to thank an anonymous referee of this journal and A. J. Cotnoir for valuable discussions that improved this paper.

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