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Indiscernible universals

Gonzalo Rodriguez-Pereyra

Oriel College, Oxford, UK

ABSTRACT
Universals have traditionally thought to obey the identity of indiscernibles, that is, it has traditionally been thought that there can be no perfectly similar universals. But at least in the conception of universals as immanent, there is nothing that rules out there being indiscernible universals. In this paper, I shall argue that there is useful work indiscernible universals can do, and so there might be reason to postulate indiscernible universals. In particular, I shall argue that postulating indiscernible universals can allow a theory of universals to identify particulars with bundles of universals, and that postulating indiscernible universals can allow a theory of universals to develop an account of the resemblance of quantitative universals that avoids the objections that Armstrong's account faces. Finally, I shall respond to some objections and I shall undermine the criterion of distinction between particulars and universals that says that the distinction between particulars and universals lies in that while there can be indiscernible particulars, there cannot be indiscernible universals.

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1. The conception of universals I will have in mind is one according to which universals have instances, they exist in their instances (they are immanent, *in rebus* universals), and they are wholly identical through their instances. Armstrong and others have maintained such a conception of universals (Armstrong 1997, 27, 66).

By indiscernible universals I shall mean perfectly similar, or perfectly resembling, universals (I will understand exactly the same by 'similarity' and 'resemblance' and their respective cognates). But when

CONTACT Gonzalo Rodriguez-Pereyra gonzalo.rodriguez-pereyra@oriel.ox.ac.uk

are two universals perfectly similar? When they confer perfect similarity in a respect to the particulars instantiating them. If U and U* are two universals, *a* and *b* are perfectly similar in redness, and instantiating U is what makes *a* red and instantiating U* is what makes *b* red, then U and U* are indiscernible rednesses. This characterization of indiscernible universals is not a definition of them – in particular, one should not explain the indiscernibility of two indiscernible universals in terms of the exact similarity in a certain respect of the particulars that instantiate them, since such exact similarity in a respect should be explained in terms of the universals those particulars instantiate.

Often indiscernibility and perfect similarity are associated with sharing all properties. But there is a sense in which indiscernible universals, as I have characterized them, need not share all their properties. For instance, if U and U* are two perfectly similar rednesses, and U is instantiated by particular *a*, while U* is instantiated by particular *b*, U and U* will not share, among others, the property of *being instantiated by b*.

Indeed no matter how they are characterized, numerically different but indiscernible universals will never share all their properties: U and U* will never share the property of *being identical to U*. But normally when people associate indiscernibility with sharing all properties, there is an implicit restriction to a certain kind of property, e.g. intrinsic or purely qualitative properties. But nothing I have said in my characterization of indiscernible universals entails that they must have all their intrinsic or purely qualitative properties in common; for all I have said is that indiscernible universals are those universals that confer perfect similarity in a respect to the particulars instantiating them. Does this mean my characterization of indiscernible universals is defective? No, for it is not an incoherent view to think of universals as lacking any intrinsic or qualitative nature but nevertheless conferring qualitative character to the particulars that instantiate them. Indeed, it is not implausible that the universal redness is not itself red – but if it is not red, it is plausible that it has no qualitative nature at all.[1]

[1]It might be claimed that even if universals have no qualitative nature, they must have some general intrinsic properties, like *being a universal*, or *being an entity*. But this does not give one what one needs, because either properties like these are shared by all universals, in which case all universals would be indiscernible, or they are shared by many universals that confer different qualitative character to their instances, in which case some indiscernible universals would have instances that do not resemble perfectly in any respect.

But if universals have a qualitative nature, we should take indiscernible universals to be those that share their qualitative nature. But my characterization of indiscernible universals has this result. For if universals have a qualitative nature, the qualitative character they confer to their instances depends on that nature. Thus, if universals have a qualitative nature, universals conferring perfect similarity in a respect to the particulars instantiating them are universals that share their qualitative nature. Thus, my characterization of indiscernible universals is a condition that must be satisfied by them, whether or not universals have a qualitative nature.

I will argue that indiscernible universals can do useful philosophical work, and my arguments for this thesis will presuppose neither that universals have a qualitative nature nor that they do not. Thus, my conclusion will apply to conceptions of universals in which they have a qualitative nature and conceptions in which they do not.

Armstrong does not believe in indiscernible universals; he has said, for instance, that 'different universals cannot resemble exactly, because if they did, then they would be the same universal' (1997, 50). Armstrong is not alone in this. John Heil, for instance, has said that '[s]o long as we construe properties as universals, exact similarity among properties amounts to identity' (2003, 154). David Lewis, who did not believe in universals, briefly considered them – he called them amphibians – as one way of making sense of structural universals. But he thought it was not clear that they were really universals on the basis of the theoretical role universals are supposed to play (Lewis 1999, 98). (I will consider Lewis' objection to indiscernible universals in Section 4). Indeed, as far as I know, all philosophers who believe in universals believe that there cannot be indiscernible universals.

And according to some philosophers, like John Wisdom, D. C. Williams and Douglas Ehring, what distinguishes universals and particulars is precisely that the former cannot be indiscernible, while the latter can (such a criterion of distinction between particulars and universals will be discussed in Section 4).

On some conceptions of universals, it is plausible that there are no indiscernible universals. For instance, Peter van Inwagen has a conception of properties, or universals, as assertibles (2004, 27–29). A property, on this view, is what can be asserted of something.

I cannot make much sense of the idea of there being two perfectly similar assertibles, since I cannot make much sense of an assertible conferring qualitative character to a particular.

But whether or not I am right about assertibles, nothing in the conception of universals as entities that are identical through their instances rules out the possibility of indiscernible universals. Indeed, nothing in that conception rules out the possibility of different universals having the same qualitative nature, and therefore conferring perfect similarity in a respect to the particulars that instantiate them, and nothing in that conception rules out the possibility of different universals without a qualitative nature but nevertheless conferring perfect similarity in a respect to the particulars that instantiate them. It is no surprise, then, that Armstrong gives no argument when he says that different universals cannot resemble exactly, because if they did, then they would be the same universal – I don't think such an argument exists.

But that indiscernible universals are possible or conceivable does not mean one should postulate them. However, in this paper I shall argue that there is useful work indiscernible universals can do, and so there might be reason to postulate indiscernible universals. Thus, indiscernible universals deserve further consideration and investigation. In Section 2, I shall argue that postulating indiscernible universals can allow a theory of universals to identify particulars with bundles of universals. In Section 3, I shall argue that postulating indiscernible universals can allow a theory of universals to develop an account of the resemblance of quantitative universals that avoids the objections that Armstrong's account faces. Finally, in Section 4 I shall respond to some objections and I shall undermine the criterion that says that the distinction between particulars and universals lies in that while there can be indiscernible particulars, there cannot be indiscernible universals.

2. It has been traditionally thought that the Bundle Theory of Universals entails the Identity of Indiscernibles about particulars (Armstrong 1978a, 91; Loux 1998, 107). According to the relevant version of the Identity of Indiscernibles, there cannot be numerically distinct but perfectly similar particulars. The Bundle Theory says that particulars are entirely constituted by universals. But since universals are what confer similarity to particulars, and universals are supposed to be identical in their instances, it is concluded that

if particulars are entirely constituted by universals, numerically distinct particulars cannot be perfectly similar. Such is the argument that the Bundle Theory entails the Identity of Indiscernibles.

But if so, this is a problem for the Bundle Theory because the Identity of Indiscernibles is thought to be false of particulars. This is thought to be false, since it seems that there could have been perfectly similar particulars, e.g. a world inhabited only by two iron spheres having the same diameter, the same colour, the same mass, the same temperature and so on (Black 1952, 156).

But, as I shall argue in this section, one important thing indiscernible universals can do is to allow the Bundle Theory of Universals to avoid commitment to the identity of indiscernible particulars.

Now, I have argued that the Bundle Theory does not by itself entail the Identity of Indiscernibles (Rodriguez-Pereyra 2004). For the argument that the Bundle Theory entails the Identity of Indiscernibles depends on the assumption that no two particulars can have exactly the same constituents, an assumption for which there is no reason. And so, by rejecting that assumption, the Bundle Theory is rendered consistent with numerically distinct but perfectly similar particulars. When there are numerically distinct but perfectly similar particulars there are numerically distinct particulars having exactly the same constituents: two particulars, one bundle of universals.

But this requires distinguishing particulars from bundles. For if particulars were identical to bundles of universals, there could not be one bundle when there are two particulars. So what are particulars? A version of the Bundle Theory has been proposed according to which there are bundles, and there are instances of bundles, and particulars are instances of bundles, so that when there are numerically distinct but perfectly similar particulars, there is one bundle of universals and two instances of it (Rodriguez-Pereyra 2004, 78).

I think that is a good version of the Bundle Theory. But there is a cost to that theory, namely that particulars cannot be identified with bundles of universals. Simplification would be gained if the identification of particulars with bundles could be restored while keeping the Bundle Theory disentangled from the Identity of Indiscernibles. Can this be done? Yes, with the help of indiscernible universals. Let me explain.

There is a further assumption in the argument that the Bundle Theory entails the Identity of Indiscernibles, namely that the universals instantiated by two perfectly similar particulars must be numerically identical. Presumably, the reason behind this assumption is that only sharing numerically the same universal can confer resemblance to particulars. But indiscernible universals confer as much resemblance to particulars as does a single universal instantiated by them. That is, two particulars, one of which instantiates a universal U and one of which instantiates an indiscernible universal U*, would resemble each other in the relevant respect as much as two particulars both of which instantiate U – that is, two particulars, one of which instantiates a universal U and one of which instantiates an indiscernible universal U*, would resemble each other exactly in the relevant respect. So, if there are indiscernible universals, two particulars might be perfectly similar not because of instantiating numerically the same universals but because of instantiating indiscernible universals, i.e. numerically distinct but perfectly similar universals.

Thus, by postulating indiscernible universals and rejecting the assumption that the universals instantiated by two perfectly similar particulars must be numerically identical, the Bundle Theory can maintain that there can be indiscernible particulars. Furthermore, it can do so while maintaining the identification of particulars with bundles of universals. Suppose particulars *a* and *b* are indiscernible. In that case they instantiate indiscernible universals. And while particular *a* is the bundle constituted by universals U, V, W, …, particular *b* is the bundle constituted by universals U*, V*, W*… This is just one example and nothing here entails that two indiscernible particulars cannot instantiate one and the same universal. All that is required is that the particulars in question instantiate at least one pair of indiscernible universals; thus particular *a* might be the bundle constituted by universals U, V, W, …, and particular *b* might be the bundle constituted by universals U*, V, W…

This is not the only way in which one can identify particulars with bundles without committing to the Identity of Indiscernibles. For one could maintain that particulars are identical to bundles, but distinct bundles can have exactly the same universals as constituents.[2] Which theory is preferable depends on whether one prefers indiscernible universals or distinct bundles of universals constituted by exactly the same universals. My point here is not to argue that indiscernible universals are essential to render consistent the Bundle Theory with the rejection of the Identity of Indiscernibles, but only to show that they provide one way of doing so, and that it will have to be argued that it is not the best way.

3. The second job indiscernible universals can do for a theory of universals is to give a better account of the resemblance between quantitative universals than Armstrong's theory, which is the most worked-out account of the resemblance between universals. It is not clear, however, that his account works for all universals, e.g. colours. And, indeed, I have serious doubts that it works in that case. But this in itself is not important since there is no reason why the account of the resemblance between universals should apply to universals of *all* kinds. Perhaps different accounts work for different kinds of universals. But Armstrong's account works reasonably well for quantitative universals like masses, lengths and durations. However, even in these cases the account faces some problems. I shall argue that an account of the resemblance between quantitative universals like masses, lengths and durations based on indiscernible universals avoids some of the problems faced by Armstrong's account (so, from now on, when in this section I speak of universals without qualification, I should be understood to be referring to quantitative universals like masses, lengths and durations). I shall concentrate on Armstrong's account for masses, since it is here where the difficulties it faces are most clearly seen. I shall first explain Armstrong's account and the difficulties it faces, and then argue that a certain account based on indiscernible universals can avoid them.

According to Armstrong, every two resembling universals are partially identical, and he believes that every two masses are partially identical (1978b, 123, 1997, 51). This means that for any two masses, one will contain the other as a part. Consider the 3-kilogram mass and the 2-kilogram mass. The 2-kilogram mass is a part of the 3-kilogram mass. They also have other parts in

[2]I am indebted to Nick Jones for this point.

common. For the 1-kilogram mass is part both of the 2-kilogram mass and the 3-kilogram mass.

What is it for a universal to be part of another? According to Armstrong, that a universal is part of another one means that whenever a particular instantiates the latter, a part of the particular instantiates the former (1997, 55). Thus, whenever something is three kilograms in mass, a part of that thing is two kilograms in mass, and another part is one kilogram in mass and so on, for all masses lesser than the 3-kilogram mass.

But the account is not perfect even in the case of masses. Let us see some of the problems it faces. First, there seem to be point-sized particles, like electrons. Electrons have mass. The mass of electrons has other masses as parts. But electrons have no parts. But, according to Armstrong, if something instantiates a mass, it must have parts instantiating the mass' parts.

Armstrong offers a solution to this problem. He says that where the point-sized particle is, there are many other particulars, perhaps infinitely many, instantiating the parts of the mass instantiated by the point-sized particle (1997, 65). Thus there are many, perhaps infinitely many, particulars located at exactly the same point, and they are the parts of the point-sized particle. That is an odd conclusion (and one that is at odds with his own methodology of metaphysics).

Furthermore, note that this strategy for point-sized particles would not be applicable to simple objects, which, by definition, have no parts. But the reason why Armstrong implemented this strategy in the case of point-sized particles was that, on his account, anything instantiating a complex universal must have parts instantiating the universal's parts. This means that on his account no simples can instantiate complex universals, and so it means that he must rule out, for instance, extended simples.

Maya Eddon has pointed out that there are other problems with Armstrong's account of point-sized particles. First, this account makes it metaphysically impossible that there is a single object instantiating mass occupying a single point at a time. But it seems to be metaphysically possible and it is plausible that it is actually the case (Eddon 2007, 391–92).

Second, there is a disanalogy between Armstrong's treatment of quantitative universals instantiated by point-sized particles and those instantiated by extended objects. According to Armstrong, any point-sized particle that instantiates a quantitative universal has the same pattern of parts that it would have if it were extended. But then scientists should be able to isolate the parts of point particles just as they can isolate the parts of extended objects. But science has found no evidence of particles having half of the mass of an electron (Eddon 2007, 392).

Third, there is no independent justification for Armstrong's assumption that every point-sized particle has parts. Thus, although it is plausible to postulate proper parts of an object with mass if that object is extended, this is not so for point-sized particles. For prior to the adoption of Armstrong's account, we already had reason to believe in such parts of extended objects. But the only reason we have for postulating the parts of point-sized particles is that they are required by Armstrong's account (Eddon 2007, 392).

But the problems with Armstrong's account are not restricted to its implications for point-sized particles or extended simples. For consider intensive quantities, that is, quantities such that the parts of the thing having the quantity can have the same quantity. Temperature and hardness are examples of such quantities. They present a problem for Armstrong. For take a particular having an intensive quantity. Its parts should instantiate only smaller quantities, but this need not be the case. Thus, Armstrong rules out intensive quantities from his metaphysics (1997, 64). But this is a cost for the theory and makes it hostage to the possibility that irreducibly intensive quantities are found.

Indiscernible universals can account for the resemblance between quantitative universals in a way that avoids these problems of Armstrong's account. The problems for Armstrong arise from the fact that if a universal is part of another then parts of the particulars instantiating the second universal must instantiate the first universal. But in some cases, the particulars in question do not have parts (electrons, extended simples) and in other cases the parts of the particular do not instantiate the parts of the universal (intensive quantities).

The solution to these problems is to dissociate the idea that universals have parts from the idea that the parts of particulars instantiating a universal instantiate its parts. This can be done while still maintaining that larger masses contain smaller ones. So even if the parts of a particular instantiating a universal need not instantiate the parts of the universal, it is still the case that a 5-kilogram universal has a 4-kilogram universal as a part.

Let us consider extensive quantities first. If a particular has parts, and it has a certain mass, the masses corresponding to the parts in any partition of the object will add up to the mass of the particular in question. For instance, if a particular weighs 5 kilograms, the sum of the masses of the parts corresponding to any partition will add up to 5 kilograms. Some partitions will consist of five parts of 1 kilogram; some partitions will consist of two parts of 2 kilograms and one part of 1 kilogram; some partitions will consist of one part of 2 kilograms and one part of 3 kilograms; and some partitions will consist of one part of 4 kilograms and one part of 1 kilogram (for simplicity, I am ignoring any partitions including parts having masses not measured by integer numbers). No partition will include more than five parts of 1 kilogram, no partition will include more than two parts of 2 kilograms, no partition will include more than one part of 3 kilograms and no partition will include more than one part of 4 kilograms.

A natural suggestion, to be developed here, is that the mereological structure of a universal corresponds to this structure. That is, the 5-kilogram universal is composed of one 4-kilogram universal, one 3-kilogram universal, two indiscernible 2-kilogram universals and five indiscernible 1-kilogram universals. In general, a universal corresponding to an extensive quantity is composed of the universals that would be instantiated by the parts of a particular instantiating the universal, if it had parts and all its parts had parts; and it is composed of as many universals of a kind as there can be parts instantiating universals of that kind in any partition of the particular in question. Thus, a 4-kilogram universal is composed of one 3-kilogram universal, two indiscernible 2-kilogram universals and four indiscernible 1-kilogram universals.

The theory makes a further claim: intensive quantities like temperature and hardness also have this kind of structure. Thus, a universal corresponding to a temperature is composed of the universals that would be instantiated by the parts of a particular instantiating the universal if the temperature in question were extensive. Thus, a 5-kelvin universal is composed of one 4 kelvin universal, one 3 kelvin universal, two indiscernible 2 kelvin universals and five indiscernible 1 kelvin universals.[3] A bolder version of the theory claims that all quantities or even all complex universals have this structure. But I shall limit my attention here to the weaker version of the theory that claims merely that quantities like masses, lengths, durations and temperatures have the structure in question.[4]

Now, parthood is transitive. So the four indiscernible 1-kilogram universals that are parts of a 4-kilogram universal must be parts of a 5-kilogram universal of which the 4-kilogram universal is a part. But the 5-kilogram universal has five 1-kilogram universals as parts – which four of these five are parts of the 4-kilogram universal? This must be a brute, arbitrary fact, of the kind that *any* theory postulating indiscernibles is bound to include.

A key claim the theory makes is the following: when a particular instantiates a universal, it instantiates its parts too. Thus, a 5-kilogram particular instantiates the 4-kilogram universal, the 3-kilogram universal, the two indiscernible 2-kilogram universals and the five indiscernible 1-kilogram universals that are parts of the 5-kilogram universal it instantiates. This claim is key because it respects the plausible idea that when a universal is instantiated, its parts are instantiated, without requiring that the parts of the universal are instantiated by the parts of the particular instantiating it. Indeed, this claim adheres more strictly to the idea that an immanent universal, the whole of it, is present where and when it is instantiated than does the alternative idea that the parts of a universal are only instantiated by the parts of particulars instantiating it.

But saying that a particular instantiating a universal instantiates its parts gives raise to a difficulty. For the claim seems to entail that all objects have infinitely large masses. Take, for instance, a

[3]I use the Kelvin scale rather than the Celsius or Fahrenheit scales because in the Kelvin scale the zero point is, by definition, absolute zero. I am indebted here to Huw Price.

[4]Why not consider the theory that claims that all quantities have the structure in question? Because not all of them seem to have such structure. Charges, for instance, have both positive and negative values and there seems to be no unit of charge that is a component of every other charge. But perhaps there is. Perhaps every charge is composed of, among others, one charge of −e/3 and one charge of e/3, so that these two charges would cancel each other. But I cannot develop and explore such speculative hypothesis here. Nor do I need to, since as I said above, there is no reason why one single account of the resemblance between universals should work for all universals. I am indebted to Markku Keinänen for the point about charges not having the structure I am discussing for masses, lengths, durations and temperatures.

2-kilogram particular. It instantiates the two 1-kilogram universals that are parts of the 2-kilogram universal it instantiates. But if it instantiates these two other universals, each of them must give the particular a mass of 1-kilogram. But then its total mass is four kilograms (2 + 1 + 1). But, if so, the particular in question instantiates a 4-kilogram universal. And, if so, the particular in question must also instantiate the 3-kilogram universal, the two 2-kilogram universals and the four 1-kilogram universals that are parts of the 4-kilogram universal it instantiates. These universals must confer mass to the particular. But then its total mass (since we have already counted one 2-kilogram universal and two 1-kilogram universals) is 11 kilograms (4 + 3 + 2 + 1 + 1). But then it instantiates a 11-kilogram universals. And so on. Thus, the particular in question is infinitely massive. This argument generalizes, and so every particular with a certain mass is infinitely massive.

Clearly, one must reject this conclusion. The argument presupposes that masses are additive. But I do not see much prospect in rejecting that assumption. And it will not do to claim that a particular's mass corresponds to the largest mass universal it instantiates. For do particulars really have a largest mass? According to the above argument, particulars have no largest mass.

The argument presupposes that if a particular instantiates a mass of *n* kilograms, then *n*-kilograms is a mass of the particular. This can be supported by appealing to the general principle that if something instantiates a universal F-ness, then that thing is F – that is, the principle that instantiating F-ness is a sufficient condition for being F.

It might seem that rejecting this general principle is a bad thing because it would mean to sever the connection between instantiating F-ness and being F. But the connection need not be severed – such connection can be understood in a different way. Thus, a proponent of the theory we are considering should reject the principle that instantiating F-ness is a sufficient condition for being F and replace it by the following sufficient condition: a particular is F if it instantiates F-ness and it instantiates no universal G-ness such that (a) G-ness is a determinate of the same determinable as F-ness and (b) F-ness is a proper part of G-ness.

With the new sufficient condition in place, a 2-kilogram particular instantiating a 1-kilogram universal is not thereby also a

1-kilogram particular and so the argument that massive particulars are infinitely massive cannot get started. Furthermore, the new sufficient condition explains why a 2-kilogram particular instantiating a 2-kilogram universal and no other larger mass universal weighs two kilograms, i.e. it explains why a 2-kilogram particular instantiating a 2-kilogram universal and no other larger mass universal is a 2-kilogram particular.[5]

What universals do the parts of a particular instantiate? It depends on whether the universal is an extensive or an intensive quantity. If a universal is an extensive quantity, the parts of a particular instantiating it instantiate the parts of the universal. So consider a 5-kilogram particular with parts. It will instantiate five indiscernible 1-kilogram universals. But, similarly, some of its parts will instantiate 1-kilogram universals. Will the 1-kilogram universals instantiated by its parts be universals that are instantiated by the particular itself? The theory is simplified if one assumes that this is indeed the case.

But note that this means only that the universals instantiated by the parts of a particular are parts of the universals instantiated by the particular. It does not mean that every part of a universal instantiated by the particular is instantiated by one of the parts of the particular. For consider two separate 5-kilogram particulars instantiating one and the same 5-kilogram universal. Imagine that they come to compose a new composite 10-kilogram particular. It is plausible to think that composing a new object does not make the component objects change their universals, especially if composition is achieved, say, by coming into contact. But the new composite particular will instantiate a 10-kilogram universal which will have two indiscernible 5-kilogram universals as parts. Only one of these two 5-kilogram universals will be instantiated by the parts of the 10-kilogram particular.[6] But both such universals will be instantiated by the 10-kilogram particular.

[5]It is also true that something is F if it instantiates F-ness and it instantiates no universal of which F-ness is a proper part. But this would not explain why a particular that instantiates a 2-kilogram universal and no other larger mass universal weighs two kilograms, i.e. why such a particular is a 2-kilogram particular. For the 2-kilogram particular, if red, also instantiates the conjunctive universal *2-kilogram and red*, of which the 2-kilogram universal is a part.

[6]I owe this example to Martin Pickup.

As the previous example makes clear, separate things, things that share no parts, can instantiate the same universals on this conception. Nothing rules it out that the same 5-kilogram universal is instantiated by two different particulars bearing no mereological relations to each other. But if that happens, the 1-kilogram universals instantiated by the parts of those 5-kilogram particulars will be 1-kilogram universals that are parts of the 5-kilogram universal in question. And if one of those 5-kilogram particulars is a part of a 10-kilogram particular, the 10-kilogram particular will instantiate the 10-kilogram universal of which that 5-kilogram universal is a part.

Now, if a universal is an intensive quantity, the parts of a particular instantiating it might instantiate it as well. In this case, the universal and all its parts will be instantiated by both the particular and its parts.

There is another way in which this theory must depart from Armstrong's. For Armstrong, the resemblance between universals is a matter of partial identity in the sense that, of any two resembling universals, one must be part of the other. This can't be the case here. For neither of two indiscernible universals is part of the other. But the connection between resemblance for universals and partial identity can be preserved in a different way. One should say that for two universals to imperfectly resemble each other is either for one of them to be part of the other, or for one of them to be indiscernible from a part of the other (since indiscernibility is reflexive, simplification is possible and one can merely say that for two universals to imperfectly resemble each other is for one of them to be indiscernible from a part of the other). Thus, a 2-kilogram universal and a 1-kilogram universal resemble each other because the latter is part of the former. Similarly, a 1-kilogram universal and a 2-kilogram universal such that the former is not part of the latter will resemble each other because the 1-kilogram universal is indiscernible from a part of the 2-kilogram universal.

The explanation above of imperfect resemblance between universals presupposes the notion of perfect resemblance between universals, since that explanation is in terms of indiscernible universals, and indiscernible universals are perfectly resembling universals. But it is obvious that on this theory, indiscernibility or perfect resemblance between universals cannot be accounted for as complete identity. For on this theory there are indiscernible universals that are not numerically identical. Thus, universals are perfectly similar when they are either numerically identical or indiscernible.

This is a rough outline of how a theory postulating indiscernible universals will account for the resemblance of quantitative universals. The important point here is that neither electrons, nor simples, nor intensive quantities pose a problem for this theory. For the theory does not require that the parts of a universal be instantiated by the parts of the particular instantiating the universal, nor does it require that a particular instantiating a universal has parts.

Take an electron of mass *m*. That mass resembles smaller masses even if the electron has no parts. This happens because either the smaller masses are part of *m* or they are indiscernible from parts of *m*. And this does not require that smaller masses are instantiated by things other than the electron in question, for the electron itself will instantiate the parts of *m*. Exactly the same considerations apply in the case of other simples.

Neither does the theory face Eddon's objections to Armstrong's account. First, on the theory presented here it is metaphysically possible that there is a single object instantiating mass occupying a single point at a time, and it is also metaphysically possible that there is an extended, massive simple object.

Second, since the new account does not postulate particles having half the mass of an electron, it is not an objection to it that science has not found such particles. It might be said that science has not found the indiscernible universals that the new account postulates. But given the problems with Armstrong's theory, evidence for point-sized particles or other simple objects is evidence for the theory developed here.

Third, since the new account does not postulate parts of point-sized particles, there is no problem of having an independent justification for such a postulation. It might be argued that the new theory does not have an independent justification for the postulation of indiscernible universals as parts of other universals. Indeed, such an independent justification does not exist. But this is such a basic feature of the theory that it does not require an independent justification. This feature is definitional of the new theory.

Similarly, intensive quantities like temperature pose no problem for the new theory. Consider two particulars, one instantiating temperature *q* and the other instantiating a smaller temperature *q**. These temperatures resemble each other because either *q** is a part of *q* or it is indiscernible from a part of *q*. And it is not required by this theory that any parts of the particular instantiating *q* instantiate *q**.

4. Another use of indiscernible universals is to help account for structural universals. This is something that David Lewis adumbrated and so I shall not go into that here (Lewis 1999, 98–100). Instead in this section, I shall consider some objections to the theory described above. The first objection is that indiscernible universals are not needed to account for the resemblance between universals. For the objector says, all the work is done by the requirement that the parts of the universal are instantiated by the particular instantiating the universal rather than by its parts, and so it is not necessary to require that some of the parts of the universal are indiscernible universals.

But, assuming some plausible assumptions, it can be shown that if larger quantities have smaller quantities as parts, they have some indiscernible quantities as parts. If quantities are assumed to be universals, this gives the result that quantitative universals have indiscernible universals as parts. Assume that a certain 4-kilogram universal is a part of a certain 5-kilogram. By the weak supplementation principle, there must be a part of the 5-kilogram universal that is disjoint from the 4-kilogram universal. Assume, for the sake of example, that such a part is a 1-kilogram universal, and call such a 1-kilogram universal *a*. But the 4-kilogram universal must have a 1-kilogram universal as a part. Let *b* be the 1-kilogram universal that is a part of the 4-kilogram universal. Since *a* is disjoint from the 4-kilogram universal and *b* is not, *a* and *b* must be numerically distinct 1-kilogram universals. But it is plausible that numerically distinct 1-kilogram universals are indiscernible universals. So, it is plausible that these two 1-kilogram universals are indiscernible universals and so it is plausible that there are indiscernible universals. Furthermore, it is also plausible that parthood is transitive. Therefore, the two 1-kilogram universals are parts of the original 5-kilogram universal. This argument generalizes and its conclusion is that if larger quantities have smaller quantities as parts, larger quantities have indiscernible universals as parts.

No doubt the three plausible assumptions that the weak supplementation principle is true, that numerically distinct quantities of the same value are indiscernible and that parthood is transitive can be rejected. But all I am committed to here is that they are plausible, not that they are indubitable.[7]

A second objection is that a theory postulating indiscernible universals is inconsistent with basic commitments of realism about universals. For instance, Ehring (2011, 37–8) argues that a theory that is committed to indiscernible universals is inconsistent with a fundamental principle of realism according to which objects that share no universals are neither similar nor exactly similar.[8] This is also Lewis' objection to indiscernible universals (Lewis 1999, 98). The theory Ehring has in mind is what he calls *Categorical Primitivism*, the view that simple universals of the same adicity are exactly similar but numerically different. This is not the view explored in this paper, since the view explored here is not restricted to simple universals, nor does it imply that all simple universals of the same adicity are indiscernible. Nevertheless, the view explored here is also inconsistent with what Ehring deems a fundamental principle of realism. But this principle can only be a principle of realism if realism is already committed to the rejection of indiscernible universals. Indeed, to see this more clearly, note that any realism admitting inexactly similar universals will maintain that sharing universals is not necessary for the similarity of objects, since objects having inexactly similar universals will thereby be similar (although not exactly similar).[9] But then, if having inexactly similar universals can confer inexact similarity, the ground for

[7]Maureen Donnelly (2011) has presented reasons to doubt the general validity of the weak supplementation principle. It is not clear that her reasons for doubting the principle apply to the case of universals of mass. In any case, my argument can also be run with her weaker principle MA_3, according to which if *x* is a part of *y* but *y* is not a part of *x*, then there is a *z* that is part of *y* but *y* is not part of *z*, such that *z* and *x* are disjoint (2011, 234). For never are a larger and a smaller mass parts of each other.

[8]Adam Pautz seems to have the same idea in mind when he writes: 'If different universals could resemble exactly, then two particulars might resemble exactly and yet instantiate different (non-relational) universals, which is contrary to the Universals theory' (Pautz 1997, 110, footnote 6).

[9]Armstrong defines resemblance for particulars *a* and *b* as follows: 'There exists a property, P, such that *a* has P, and there exists a property, Q, such that *b* has Q, and *either* P = Q *or* P resembles Q' (1978b, 96). Clearly, the properties in this definition are supposed to be universals and the resemblance between them is meant to be imperfect or inexact.

maintaining that objects sharing no universals cannot be exactly similar can only be the prior rejection of indiscernible universals. Thus, the argument against indiscernible universals cannot be that admitting them would be inconsistent with the principle that objects that share no universals are not exactly similar, since this principle is based on the rejection of indiscernible universals.

But what can be the reason for rejecting indiscernible universals? There is nothing in the concept of an immanent universal that entails that there are no indiscernible universals. And the idea of indiscernible immanent universals is perfectly intelligible. Could they be methodological reasons? Perhaps theories postulating indiscernible universals are less simple, less economical or less elegant than theories that do not admit indiscernible universals. But the point of this paper has been to argue that indiscernible universals can do useful work and therefore they confer theoretical advantage to theories postulating them. Such work (for instance, the fact that such theories are compatible with the falsity of the Identity of Indiscernible for particulars and that they can account for the similarity of quantitative universals without running into some of the problems of Armstrong's account) must compensate, at least to some degree, for the alleged lack of simplicity, economy or elegance. Whether the work done by indiscernible universals more than compensate for that, and therefore they should be accepted, or whether the alleged reasons of simplicity, economy or elegance prevail and indiscernible universals should be rejected, is something that must be left for another occasion.

In any case, a way in which it might be thought that the theory of indiscernible universals is less simple than Armstrong's theory is with respect to the definition of perfect or exact resemblance between particulars. For Armstrong has a simple definition of perfect or exact resemblance in terms of shared universals: *a* and *b* resemble each other exactly or perfectly if and only if for all universals U, *a* instantiates U if and only if *b* instantiates U (Armstrong 1978b, 97).[10] That is, two particulars resemble each other perfectly if and only if the universals they instantiate are numerically the same. But if one admits indiscernible universals, then perfect

[10] Armstrong puts the definition in terms of properties, but it is clear that for him properties are universals.

resemblance between particulars is not any more just a matter of sharing numerically identical universals. Once indiscernible universals are admitted, perfect resemblance between particulars becomes a disjunctive matter: *a* and *b* resemble each other exactly or perfectly if and only if the universals they instantiate are either numerically identical universals or numerically distinct but indiscernible universals (inclusive 'or'). According to the objection, the theory of indiscernible universals does not give a unified account of perfect resemblance for particulars.

But the theory of indiscernible universals can provide a unified account of perfect resemblance for particulars. And, indeed, this unified account is the basis and reason of the Armstrongian definition according to which two particulars resemble each other perfectly if and only if the universals they instantiate are numerically the same. For the reason why numerically identical universals confer to their instances perfect resemblance or similarity in a respect is that every universal perfectly resembles itself through its instances (i.e. every universal is indiscernible from itself). That is, universal U as instantiated by particular *a* perfectly resembles universal U as instantiated by particular *b*. If a universal as instantiated by a particular could be qualitatively different from itself as instantiated by another particular, those particulars would not perfectly resemble each other in a respect despite instantiating numerically the same universal. The definition of perfect resemblance of the theory of indiscernible universals is, then: *a* and *b* resemble each other exactly or perfectly if and only if for all universals U, *a* instantiates U if and only if *b* instantiates a universal indiscernible from U and vice versa.

Another methodological reason to reject the theory of indiscernible universals might be advanced by John Heil, who thinks that the only advantage of universals over tropes is that a theory of universals can do without primitive similarity (2003, 159; cf. 132). If so, any theory of universals not admitting indiscernible universals would be methodologically superior to any theory of universals postulating indiscernible universals. But it is not clear that this is the only advantage of universals over tropes. For instance, it might well be that theories of universals give a superior account of laws of nature than theories of tropes do (Armstrong 1997, 24).[11] Or it might be that theories of tropes face problems accounting for the truthmakers of certain truths, problems not faced by theories of universals (Armstrong 2005, 310). I am not saying that I agree with Armstrong about this. All I am saying is that it is not obvious that the only advantage of universals over tropes is that theories of universals, unlike theories of tropes, can dispense with primitive similarity.

Another objection to the theory of indiscernible universals is that on it universals collapse into tropes.[12] But even if all indiscernible universals were instantiated only once (which need not be the case), it would still be the case that they could have been instantiated by many different particulars, i.e. they could have been identical through their instances. And that is how they differ from tropes, since tropes could not have been multiply instantiated, for they are particular to the object of which they are a trope (Ehring 2011, 8). Indeed, some conceive of tropes as non-transferable, which entails that they could not have been multiply instantiated (Heil 2003, 141). And, of course, if tropes are furthermore ontologically dependent for their identity on the things of which they are tropes, i.e. if tropes could not have been had by things other than those which have them (Heil 2003, 141–42; Lowe 2006, 97), then this is a further difference between tropes and universals, since a universal could have been instantiated by particulars other than the ones that instantiate it.[13]

It might be objected that a theory of universals that postulates indiscernible universals undermines an argument for universals, and so it deprives itself from support.[14] For an argument for universals is that for particulars to be perfectly similar in some respect there must be some entity they have in common. But if there are

[11]It is interesting to note that a theory allowing indiscernible universals, if it follows Armstrong's account of laws, might have to admit indiscernible laws. For according to Armstrong, laws are universals (Armstrong 1983, 88–90). Suppose that F_1 and F_2 are two indiscernible universals and that G_1 and G_2 are two other indiscernible universals, and suppose that F_1 necessitates G_1 and F_2 necessitates G_2. Then $N(F_1,G_1)$ and $N(F_2,G_2)$ are two universals, and it might be argued that they are two indiscernible universals.

[12]This has been the most common objection when I have given this paper as a talk.

[13]Note that Heil (2003, 138) and Lowe (2006, 96–97) prefer to speak of modes rather than tropes, but their reasons for this preference are not relevant for the points I am making here. For my purposes here, their modes can be treated as tropes.

[14]Thanks to a referee for pointing out this possible objection.

indiscernible universals, it is not true that for particulars to be perfectly similar in some respect there must be some entity they have in common. And if this is not true, then there is no support for any theory of universals.

But this objection is not very powerful. For the mentioned argument for the existence of universals does not have much force anyway. Many alternatives to the theory of universals have been proposed and all of these reject the idea that perfect similarity between particulars requires these particulars to have an entity in common – and such a rejection is not a weakness in these theories. Indeed, the existence of universals is much better supported by appeal to its theoretical advantages over its rivals.

As I said in Section 1, nothing in the concept of an immanent universal rules out indiscernible universals. But some philosophers have defined universals in such a way that there cannot be indiscernible universals. Indeed, for them, what distinguishes universals from particulars is precisely that the latter can be indiscernible, while the former cannot. This thesis was maintained by John Wisdom (1934, 208) and then later by D. C. Williams (1986, 3). Neither Wisdom nor Williams give any arguments for their thesis – they just state it. More recently, the thesis has been endorsed by Douglas Ehring (2011), who not only gives an argument for it but also elaborates it and gives a careful formulation of it.[15] This is Ehring's formulation of the criterion:

> *x* is a particular just in case it is possible that there exists a *y* such that *x* and *y* are non-identical but exactly similar independently of their non-intrinsic properties, and *x* is a universal just in case it is not possible that there exists a *y* such that *x* and *y* are non-identical but exactly similar independently of their non-intrinsic properties (Ehring 2011, 35).

Ehring argues that the criterion gets the distinction right (2011, 32–40) and compares it with other proposed criteria for the distinction between particulars and universals and concludes that the criterion in terms of indiscernibility has advantages over the others (2011, 40–43). If so, the theory of indiscernible universals is incompatible with the best criterion of distinction between particulars and universals. But while I do not disagree that such a criterion

[15] John Heil hints at this way of distinguishing particulars and universals when he says: 'Particular objects could be exactly alike with respect to all their properties (or, at least, all their intrinsic properties), yet differ numerically. Universals are, in contrast, repeatable' (Heil 2003, 126).

has advantages over the others, I think, nevertheless, that such a criterion cannot be correct.

For it is not clear that such a criterion properly distinguishes between universals and particulars. For instance, concepts are, allegedly, particulars, and they seem to satisfy the Identity of Indiscernibles: nothing other than the concept *tree* could have been exactly similar to the concept *tree*. Numbers are another instance: nothing other than the number 2 could have been exactly similar to the number 2 (cf. Swinburne 1995, 392).

But concepts and numbers are supposed to be abstract objects. And it might be thought that what matters is distinguishing universals from concrete particulars, and that this is something that the criterion does well, at least from an extensional point of view, if it is restricted to concrete particulars. For it might be thought, necessarily every concrete object must be possibly indiscernible from some other object, while this is not so of universals.

But it is not clear that this is so, since there might be particulars such that it is necessary that *only they* have certain properties. That is, there might be a particular a and a property F such that it is necessary that if anything x is F, $x = a$. In such a case, the particular a would not have any indiscernibles, whether in the same world where a exists or in other worlds. If God is concrete, God is plausibly one such particular.

Furthermore, what is the reason why we should only want to distinguish between concrete particulars and universals? It is true that universals are supposed to account for sparse properties, and sparse properties play a role in accounting for the similarity between concrete particulars and the causal powers of concrete particulars (Ehring 2011, 3). But abstract particulars are also particulars and so what makes a universal a universal cannot be that which distinguishes them from concrete particulars but not from abstract particulars.

But perhaps all we need to distinguish is universals from those particulars that instantiate them? But abstract particulars also instantiate universals – and there is no reason why the universals of abstract particulars should be any less immanent than those of concrete particulars.[16] Furthermore, abstract particulars can also stand and fail to stand in similarity relations to each other. What accounts for this? If universals can account for the similarity between concrete particulars, surely they can also account for the similarity between abstract objects. Also, having the universals they have might be part of what accounts for the lack of causal powers of abstract objects. Some universals bestow causal powers on their instances, some don't. Thus, a theory of universals should be concerned not only with universals instantiated by concrete particulars but also with universals instantiated by abstract particulars, since it should be concerned with all universals. And so what a theory of universals needs is a criterion that distinguishes universals in general from particulars in general.

In short, the criterion distinguishing between particulars and universals in terms of indiscernibility is not the right one. Not respecting such a criterion cannot, then, be held against a theory postulating indiscernible universals. Of course, a theory of universals postulating indiscernible universals will have to provide a general criterion of distinction between particulars and universals. But it is not part of this paper to discuss what such criterion might be.

5. I have argued that postulating indiscernible universals can do useful work for a theory of universals. Nothing I have said here establishes or has the intention to establish the theory of indiscernible universals as the best theory of universals. However, if what I have argued here is correct, theories postulating indiscernible universals deserve further consideration and exploration.

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[16]Immanence should not be equated with *spatio-temporal* presence in its instances. Immanence is presence in its instances, and it is because concrete particulars are spatio-temporally located that their immanent universals are spatio-temporally located too. But abstract particulars can have immanent universals without these having to be spatiotemporally located.

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