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The argument from almost indiscernibles

Gonzalo Rodriguez-Pereyra[1]

Abstract What I call the argument from almost indiscernibles is an argument, put forward by Robert Adams in 1979, for the possibility of indiscernibles based on the possibility of almost indiscernibles. The argument is that if almost indiscernibles are possible, indiscernibles are possible, but since almost indiscernible are possible, indiscernibles are possible. The argument seems to be an improvement over the mere appeal to intuitions, like that suggested by Max Black, that situations in which there are indiscernibles are possible, for the argument purports to give us a reason that indiscernibles are possible. In this paper I shall assess the argument by examining whether there is support for the conditional premise that if almost indiscernibles are possible, indiscernibles are possible. I shall argue that there are reasons to think that either the premise lacks support or almost indiscernibles are dispensable. If the premise lacks support, the argument does not establish the possibility of almost indiscernibles; if almost indiscernibles are dispensable, the argument is not needed to establish the possibility of indiscernibles.

Keywords Identity of indiscernibles · Almost indiscernibles · Robert Adams

1. What I call the argument from almost indiscernibles is an argument, put forward by Robert Adams in 1979, for the possibility of indiscernibles based on the possibility of almost indiscernibles. The argument is that if almost indiscernibles are

✉ Gonzalo Rodriguez-Pereyra
    gonzalo.rp21@gmail.com; gonzalo.rodriguez-pereyra@oriel.ox.ac.uk

[1] Oriel College, University of Oxford, Oxford OX1 4EW, UK

possible, indiscernibles are possible, but since almost indiscernible are possible, indiscernibles are possible. The argument seems to be an improvement over the mere appeal to intuitions, like that suggested by Max Black, that situations in which there are indiscernibles are possible, for the argument purports to give us a reason that indiscernibles are possible.[1] In this paper I shall assess the argument by examining whether there is support for the conditional premise that if almost indiscernibles are possible, indiscernibles are possible. I shall argue that there are reasons to think that either the premise lacks support or almost indiscernibles are dispensable. If the premise lacks support, the argument does not establish the possibility of almost indiscernibles; if almost indiscernibles are dispensable, the argument is not needed to establish the possibility of indiscernibles.

In Sect. 2 I shall explain in more detail what the argument from almost indiscernibles is. In Sect. 3 I shall argue that the premise that if there is a world with almost indiscernibles, there is a world with indiscernibles, is in need of argumentative support. Sections 4–7 examine and discuss different ways of supporting that premise. Section 8 discusses the idea that the role of almost indiscernibles is simply that of a heuristic instrument to facilitate the intuition that there is a world with indiscernibles. Section 9 is a brief conclusion.

2. Adams intended the argument from almost indiscernibles to establish the possibility of indiscernibles that share all their pure properties (1979: 11), where pure properties are either intrinsic or relational properties that do not presuppose the identity of either the subject of the property or of any of the *relata* of the relation. Thus properties like *being spherical*, *being blue*, and *being two miles from a tall tower*, are *pure*. But properties like *being the Eiffel Tower*, and *being two miles from the Eiffel Tower*, are *impure properties*, since they depend on the identity of the subject of the property or of one of the *relata* of the relation. The traditional a priori reason for the possibility of such indiscernibles is that we have an a priori intuition that they are possible. One way to make vivid such an intuition consists in imagining Max Black's possible world, a world that consists of only two iron spheres two miles apart from each other. The spheres have the same diameter, the same colour, the same temperature, the same shape etc. In short, they share all their intrinsic properties. But more than that: they are both two miles apart from an iron sphere of diameter D, shape S, colour C, temperature T (Black 1952: 156). Thus they share all their pure properties, both intrinsic and relational. If such a world is genuinely possible, indiscernibles sharing all their pure properties are possible, and the corresponding version of the Identity of Indiscernibles is false. The argument from almost indiscernibles I shall discuss in this paper is an argument that concludes that it is possible that there are things sharing all their pure properties—in the language of possible worlds, it is an argument that concludes that there is a possible

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[1] There is an enormous body of literature on Black's discussion of the Identity of Indiscernibles (see, among many others, for instance, Cross (1995), O'Leary-Hawthorne (1995), Rodriguez-Pereyra (2004), Zimmerman (1997)). Whilst Adams' argument has been very influential and is always mentioned and discussed in the literature, I know only two papers devoted to Adams' argument: Baber (1992) and the present paper.

world containing things sharing all their pure properties.[2] (Nevertheless my points would apply—sometimes even with more force, e.g. my first point against the argument from mereological almost indiscernibles in Sect. 6—to a version of the argument from almost indiscernibles that pretended to establish only the possibility of intrinsically indiscernible things).

Is such a world really possible? It seems to be. But all that has been offered to support the possibility of such a world is a forceful intuition that it is possible. And there is no reason why our intuitions may not lead us astray when we are doing metaphysics. Furthermore, some philosophers may find reasons, based in some cases on alternative intuitions, to be committed to the Identity of Indiscernibles. Such philosophers have positive reasons to doubt the reliability of the intuition that Black's world is possible. To such philosophers the simple intuition that Black's world is possible will carry little if any conviction. One prominent example of this kind of philosopher is Leibniz.

One thing the denier of the Identity of Indiscernibles can do at this point is to support his intuition through reason and argument. Such an argument will of course depend on other intuitions, but such intuitions might be firmer or more reliable than the original intuition that Black's world is possible. This is the point of Adams' argument from almost indiscernibles. This argument rests, as Adams says,

> … on an intuition that the possibility of there being two objects in a given spatiotemporal relation to each other is not affected by any slight changes in such features as the color or chemical composition of one or both objects. If we accept that intuition, we can infer the possibility of indiscernible twins from the uncontroversial possibility of *almost* indiscernible twins (Adams 1979: 17).

It is clear to Adams that there is a possible world consisting of two iron spheres that differ only in that one has a small chemical impurity that the other lacks. The passage just quoted asserts that from this possibility of two almost indiscernible spheres one can infer the possibility of two indiscernible spheres.

Adams gives another example, in which there is no spatiotemporal dispersal. He imagines that he has an almost indiscernible twin such that their only difference is that on one night the monster in Adams' nightmare has ten horns, whereas the monster in his twin's nightmare has seven horns. Adams has no doubt that such a world is possible. And from it, he concludes the possibility of indiscernibles:

> But if such a world is even possible, it seems to follow that a world with perfectly indiscernible twins is also possible. For surely I could have existed, and so could my twin, if my monster had had only seven horns, like his. And that could have been if there were no other difference from the lives we live in *w*, except in the details causally connected with the number of horns in my

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[2] I am assuming, as Adams seems to have done, that establishing the existence of a possible world with indiscernibles is establishing the possibility of indiscernibles. Most of the paper will be conducted in terms of possible worlds. But I am not presupposing any particular metaphysics of possible worlds. I shall use the imagery of possible worlds partly because it was used by Adams, and partly because I find it easier to express some of the following thoughts in terms of possible worlds than in terms of possibilities.

dream. In that case we would have been distinct but qualitatively indiscernible—a relation which seems therefore logically possible (Adams 1979: 18).

Thus Adams' argument is a simple *modus ponens*:

(1) There is a possible world w with almost indiscernibles.

(2) If there is a possible world w with almost indiscernibles, then there is a possible world w^* with indiscernibles.

(3) Therefore, there is a possible world with indiscernibles.

Adams believes that the possibility of almost indiscernibles, and therefore premise (1), is uncontroversial (Adams 1979: 17). I believe that premise (1) is plausible. But, as I shall briefly argue in Sect. 8, there are better arguments for indiscernibles, arguments that use a premise more plausible than premise (1). In this article I shall be mainly concerned with the premise (2).[3]

3. Premise (2) is not evident. It is not immediately clear that if there are worlds with almost indiscernibles, there are worlds with indiscernibles. Given that almost indiscernibles are possible, why should indiscernibles also be possible? Why couldn't there be worlds with almost indiscernibles but no worlds with indiscernibles?

It is important to note that '… is indiscernible from …' is a quantificational relational predicate in the sense that it applies to any things that share all their pure properties. So '…is almost indiscernible from…' is equivalent to '… shares almost all pure properties with …'. So premise (2) is drawing the possibility of things sharing all of their pure properties from the possibility of things sharing almost all of their pure properties. Thus premise (2) relies on a connection between the possibility of things sharing almost all of their pure properties and the possibility of things sharing all of their pure properties.

But this kind of connection is not, in general, correct. For in many cases it is invalid to infer the possibility of things sharing all of their properties of a kind K from the possibility of things sharing almost all of their properties of kind K. For

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[3] H. E. Baber discussed and rejected four versions of the argument from almost indiscernibles (Baber 1992). But of the four versions of the argument she discussed, three are not even remotely plausible and have only a superficial resemblance with Adams' argument. The other, more plausible version, the one Adams actually had in mind, was rejected by her because if one takes into consideration world-indexed properties or one requires that indiscernibles are objects that share all their properties in every world in which they exist, then Adams and his twin are not indiscernible in the world in which both dream about a seven-horned monster. For either Adams will have the property of *dreaming about a ten-horned monster at the actual world*, a property his twin does not have, or there is a property, *dreaming about a ten-horned monster*, that they do not share in the actual world. Either way, according to Baber, Adams and his twin are not indiscernible in the world in which they both dream about a seven-horned monster (Baber 1992: 379–380). But world-indexed properties are not pure. And that indiscernibles need not share all their properties in every world they exist is such a basic presupposition of the argument from almost indiscernibles (they cannot share all their properties in the world in which they are almost indiscernible!) that criticizing the argument on that basis is not giving it a fair hearing. The most that can be said is that the argument does not establish the possibility of a certain type of indiscernibles, namely those that share all their properties in every world in which they exist.

instance, two people can share almost all of their family relations. This will happen when they are siblings and they have not formed families of their own. But no two people can share exactly the same family relations. For *a* will be, say, a brother of *b*. But *b* cannot be a brother of *b*. Thus there are worlds where two people share almost all of their properties concerning family relations, but there are no worlds where two people share all of their properties concerning family relations. Also, there are worlds where two sets share almost all their members, and in these worlds these sets share almost all of their properties concerning their membership. But there are no worlds with sets that share all their members, that is, there are no worlds where two sets share all of their properties concerning their membership.

Nothing here shows that premise (2) is false. But it shows that some theses of the same kind as (2) are not true, and so (2) is not true merely in virtue of relying on a connection between the possibility of things sharing almost all of their properties of a certain kind K and the possibility of things sharing all of their properties of kind K. This, plus the fact that premise (2) is not evidently true, makes (2) in need of support. How can (2) be supported?

4. Given what he says in the first quotation above, it seems that Adams' argument for indiscernibles rests on the fact that a slight difference in properties cannot affect spatiotemporal relations. But this cannot be the whole story because he wants his argument to be general and not to apply only to spatiotemporal objects. Adams' prime intuition is the general intuition that if being a certain way is compossible with other things being a certain way, then being slightly different is also compossible with other things being *that* way. The point is that a slight difference in the properties of a thing does not entail any difference in the existence or properties of other things. Since almost indiscernibles are things that differ only slightly, principle (4) embodies this idea:

> (4) If *x* and *y* are almost indiscernible in world w, there is a world w* whose only difference with respect to w is that in w* *x* is almost indiscernible from how it is in w.

But (1) and (4) do not entail (3). Consider a simple model of modal space which consists of three worlds. There are at least two things that exist in the worlds: *a* and *b*. In each world *a* and *b* share all their pure properties except their temperatures. They differ in temperature as follows:

> w1: *a* has T2 and *b* has T3

> w2: *a* has T2 and *b* has T4

> w3: *a* has T1 and *b* has T3

Let T1 and T2, T2 and T3, and T3 and T4, be the only pairs of slightly different temperatures.[4] Thus *a* and *b* are almost indiscernible in w1. So these worlds make

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[4] It may be thought that things can be almost indiscernible even when they differ in properties that differ more than slightly, provided the things in question share all the other properties. If so, let the pairs T1 and T2, T2 and T3, and T3 and T4, be the only pairs of temperatures with respect to which almost indiscernibles can differ. This amendment will not affect the argument in the text.

premise (1) true. And they also make principle (4) true, for *a* and *b* are almost indiscernible only in w1, and w1 and w2 differ only in that *b* is in w2 almost indiscernible from how it is in w1, and w1 and w3 differ only in that *a* is in w3 almost indiscernible from how it is in w1. But (3), the conclusion of the argument, is false in this model.

It might be said that although this shows that (1) and (4) do not logically entail (3), the model is artificially simple and it does not represent the variety of modal reality. The idea is that, given certain additional features of modal reality, (1) and (4) entail (3). But what can these additional features be? One relevant feature might be (5):

(5) If there is a possible world in which an object of kind K has a pure property F, then for every possible object of kind K there is a possible world where it has F.

Since *a* and *b* were assumed to share all their properties except their temperatures, it is plausible to think of them as being objects of the same kind. If so, (5) is a feature that our simplified model lacks. But it is plausible to think that (5) is true. And it might be thought that once (5) is in place, (1) and (4) guarantee that (3) obtains.

But even with (5) in place, (1) and (4) do not ensure that (3) obtains. If (5) is true, then there are worlds, in addition to the worlds w1, w2 and w3 above, in which *a* has temperatures T3 and T4 and worlds in which *b* has temperatures T1 and T2. So let us add worlds w4–w6 in which, as before, except their temperatures, all pure properties of *a* and *b* are the same both within and across them:

w4: *a* has T3 and *b* has T2

w5: *a* has T4 and *b* has T2

w6: *a* has T3 and *b* has T1

Worlds w1–w6 satisfy principle (5). Premise (1) and principle (4) are also made true by w1–w6. But there are no indiscernibles in any of these worlds.

Again, it may be said that worlds w1–w6 fail to represent some features of modal reality. But what can those features be?[5] That according to those worlds there is only a finite number of temperatures that objects of the kind *a* and *b* are can have, while most kinds of objects can have an infinite number of temperatures? That is probably a feature of modal reality that is not represented in worlds w1–w6, but in fact, as we shall see later on, the more possibilities are open for objects of a certain kind, the more difficult it is to make premise (2) true.

Perhaps the problem with worlds w1–w6 is that principle (6) is not true of them:

(6) If there is a world w where *x* has a property F, and there is a world w* where *y* has F, then there is a world w** where both *x* and *y* have property F.

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[5] It cannot be that in worlds w1–w6 there are only two things, while modal reality contains worlds with more than two things. For all that is assumed is that *at least a* and *b* exist in those worlds.

(6) is a plausible principle, at least when 'F' is understood to range over intrinsic properties.[6] If we make the plausible assumption that temperatures are intrinsic properties, (6) is not satisfied by w1–w6, since in no such worlds do a and b have the same temperature. To make (6) true we need to add some worlds like w7–w10:

w7: a has T1 and b has T1

w8: a has T2 and b has T2

w9: a has T3 and b has T3

w10: a has T4 and b has T4

If in worlds w7–w10 a and b share all their pure properties, then a and b are indiscernible in them. But all principle (6) requires is that in worlds w7–w10 a and b share their temperatures, not that they share all their pure properties. So (6) is consistent with a and b differing in other pure properties in worlds w7–w10. In that case in none of the worlds w1–w10 are a and b indiscernible.

What plausible features of modal reality are missing from w1–w10? Principle (7), for instance:

(7) If there is a world w where x has a property F and there is a world w* where a distinct thing y has a slightly different property G, then there is a world w** where x has F and y has G.

Principle (7) is plausible at least when 'F' and 'G' range over intrinsic properties.[7] But (7) is not a feature of w1–w10 because, for instance, although there are worlds where a has T1 and worlds where b has T2, there is no single world where a has T1 and b has T2. That is, to make principle (7) true one would have to add worlds like w11:

w11: a has T1 and b has T2

But there is nothing here that entails worlds with indiscernibles, unless a and b differ only with respect to temperature in w11 and so they are almost indiscernible there. For if a and b differ only with respect to temperature in w11 then, given that, among the possible temperatures of a, T1 differs slightly only from T2, principle (4) entails that there is a world in which a and b share temperature T2 and all other properties.

What principles can guarantee that a and b differ only with respect to temperature in worlds like w11? Principle (8), for instance:

(8) If there is a world w where x has F and there is a world w* where a distinct thing y has a slightly different property G, then there is a world w** where x and y differ only in that one has F and the other has G.

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[6] (6) fails for relational properties like the property of *being the tallest man*.

[7] The relational properties of *being an army that occupies the whole of territory T and being the only army that occupies any parts of territory T* and *being an army that occupies only 90 per cent of territory T and being the only army that occupies any parts of territory T* cannot both be instantiated in the same possible world, and so they cannot be had by two distinct armies in the same possible world.

Principle (8) has false instances if 'F' and 'G' are substituted by some relational properties.[8] But is it plausible even when restricted to intrinsic properties? It seems to be, provided that differing *only* with respect to F and G is understood as differing with respect to no properties that are mutually independent of both F and G. Thus if F is the property of *being 10 degrees centigrades*, and G is the property of *being 9.99 degrees centigrades*, blue things that differ with respect to F and G will also differ with respect to the properties of *being F or red* and *being G or red* and with respect to the properties of *being blue and F* and *being blue and G*. But there is no reason why two things that differ with respect to F and G should not share all the properties that are mutually independent of both F and G.

So principle (8) makes *a* and *b* almost indiscernible in some worlds like w11. Let us assume that *a* and *b* are almost indiscernible in w11. If so, principle (4) entails a world where *a* and *b* are indiscernible. But this entailment holds only because of an unnecessary and unrealistic feature of our example, namely that there is a finite number of temperatures that *a* and *b* can have. But if, more plausibly, there is an infinite number of temperatures that *a* and *b* can have, principle (4) does not entail a world where *a* and *b* are indiscernible, even if they are almost indiscernible in w11.[9] In that case, given the almost indiscernibility of *a* and *b* in w11, principle (4) can be satisfied by a world like w12:

w12: *a* has T0 and *b* has T2

With w12 in the model, we still have premise (1) and principle (4) being true, but the conclusion (3) is false. Of course this presupposes that T1 is not the lowest temperature things like *a* can have. But even if w12 is not possible because T1 is the lowest temperature *a* can have, given that temperatures are densely ordered, *a* can have a temperature that is between T1 and T2, say T1.5. Since T1.5 is between T1 and T2, and T1 and T2 were assumed to differ slightly, then T1 and T1.5 also differ slightly. In that case all one needs to make principle (4) true is a world like w13:

w13: *a* has T1.5 and *b* has T2

Furthermore, to see that even with principle (8) in place, (1) and (4) fail to guarantee the truth of (3), we do not need to suppose that the properties in question can be densely ordered. All we need is the supposition that there is a group of properties each one of which differs slightly from at least two of the others. What makes it true that every temperature differs slightly from at least two others is that they are densely ordered, so that whenever two temperatures differ slightly there is a third which differs even less from those two. But the supposition that certain properties differ slightly from at least two other properties is independent of those properties being densely ordered.

And it is not implausible to suppose that there are other properties such that some of them differ slightly from at least two others. Lowest determinate colours may be

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[8] For instance, the same relational properties mentioned in the previous footnote.

[9] This exemplifies the point made earlier on, namely that the more possibilities are open for objects of a certain kind, the more difficult it is to make premise (2) true.

like that. All lowest determinates of red may differ slightly from each other, or, alternatively, all lowest determinates of scarlet may differ slightly from each other. Similarly for shapes and other properties. Suppose then that temperatures T1, T2, T3, and T4 are such that each differs slightly from the others. Then, again, even if *a* and *b* are almost indiscernible in w11, principle (4) does not entail worlds containing indiscernibles.

There are, of course, principles which have been thought to be a feature of modal reality but which are not represented in our model. One of this is (9):

(9) If certain properties are all the intrinsic properties of *x* in a world w and those properties are all the intrinsic properties of *y* in a world w*, there is a world w** where those properties are all the intrinsic properties of both *x* and *y*.

This is a principle about recombination which, if true, supports the possibility of worlds containing indiscernibles. For in some cases the world w** in which *x* and *y* have the same intrinsic properties is a world in which *x* and *y* have the same pure properties. For instance, some worlds where *x* and *y* are the only existing things and where they share all their intrinsic properties will be worlds where they share all their pure properties. But principle (9) is irrelevant to our discussion. For principle (9) provides an argument for the possibility of indiscernibles which is completely independent from whether almost indiscernibles are possible or not. The topic of this paper is not the general one of seeing whether there are any sound arguments for the possibility of indiscernibles, but the more specific one of seeing whether the argument from almost indiscernibles is sound.

The conclusion I draw from this is that (1) and (4) do not entail (3). Therefore (4) does not entail (2). (4) gives us no reason to think that if there are worlds with almost indiscernibles, there must be worlds with indiscernibles.

5. The prime intuition driving Adams' argument has to do with things being in other worlds almost indiscernible from how they are in a world where they have an almost indiscernible twin. But it may be thought that there are other intuitions, having to do with the possibility of almost indiscernible worlds, which may help to support premise (2). Consider for instance the following principle:

(10) For every world w there is an almost indiscernible world w*.

It might be thought that if every world has an almost indiscernible world, then, since worlds containing almost indiscernibles are almost indiscernible from worlds containing indiscernibles, if there is a world containing almost indiscernibles, there is a world containing indiscernibles.

But do (1) and (10) entail (3)? It may be thought that the answer depends on how little worlds must differ for them to be almost indiscernible. But, in fact, (1) and (10) do not entail (3), however little worlds must differ for them to be almost indiscernible. The more almost indiscernible worlds are allowed to differ, the clearer it is that (1) and (10) do not entail (3). But even if we make our definition of almost indiscernible worlds as stringent as possible, say by taking as almost indiscernible only those pairs of worlds w and w* such that their only difference is that there is *one* thing *x* that is in w* almost indiscernible from how it is in w, and

where x is almost indiscernible from y if and only if x and y differ with respect to only one pair of slightly different properties, (1) and (10) do not entail (3). If we assume that each of T0-T4 differ only slightly from the others, so that two things that differ only with respect to those temperatures are almost indiscernible, then worlds w1–w13 make (1) and (10) true without making (3) true. This shows that (1) and (10) do not entail (3) even given all the principles we considered before.[10]

6. But there is another way in which one may attempt to argue from the possibility of almost indiscernibles to the possibility of indiscernibles. Some things can survive loss of parts. And sometimes it is possible to survive a loss of a part without having it replaced by another part. Let us say that a part z of an object x is an *inessential part* of it provided (a) x can exist without z and (b) x can exist without any part playing the mereological role z plays. That is, if z is an inessential part of x, then x can exist without z and without having it replaced. Furthermore, that a thing loses a part does not in general entail a qualitative or mereological change in other things. So principle (11) holds, where x and y are things that do not share any parts:

> (11) If there is a world w in which x and y differ only in that x has a tiny inessential part z to which no part of y corresponds, then there is a world w* exactly like w except that x lacks z.

Given (11), if there is a world where there are two things that differ only in that one has a tiny inessential part, there is a world where those things are indiscernible. To make vivid this case just imagine a world w with two iron spheres which are otherwise indiscernible except for the fact that one of them has an extra bit of matter on part of its surface. Given that this world is possible, (11) entails that there is another possible world where the extra bit of matter is not there and where, therefore, the two spheres are perfectly indiscernible.

Things that differ only with respect to an inessential tiny part are almost indiscernible. Let us say that x and y are *mereological almost indiscernibles* if and only if they differ only with respect to an inessential tiny part. More exactly, x and y are mereological almost indiscernibles if and only if x and y share no parts and x has a tiny inessential part z such that $x–z$ and y are *intrinsically* indiscernible (thus that x and y are mereological almost indiscernible does not mean, as the phrase might suggest, that x and y share almost all of their parts).

Principle (11) entails that if there is a world with mereological almost indiscernibles, there is a world with indiscernibles. So we have the following argument against the Identity of Indiscernibles:

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[10] It may be thought that the above characterisation of almost indiscernible worlds is faulty because it does not make almost indiscernible those worlds which differ purely haecceistically, i.e. worlds which differ only with respect to which things instantiate which properties, but not with respect to the pattern of instantiation of properties. If this is thought to be a problem, one can redefine almost indiscernible worlds in order to make purely haecceistically different worlds almost indiscernible. But the important point is that making purely haecceistically different worlds almost indiscernible will not make (1) and (10) entail (3). If w contains almost indiscernibles, given (10), there must be a world w* that is almost indiscernible from w. But if w contains almost indiscernibles but no indiscernibles, then no world w* that differs purely haecceistically from w will contain indiscernibles.

(1a) There is a possible world w with mereological almost indiscernibles.

(2a) If there is a possible world w with mereological almost indiscernibles, there is a world w* with indiscernibles.

(3) Therefore, there is a world with indiscernibles.

This is a version of Adams's original argument. I shall grant the first premise. Furthermore I think that principle (11), which supports the second premise, is true. And the argument is valid. So this argument seems to establish the possibility of indiscernibles from the possibility of a certain type of almost indiscernibles.

One limitation of this argument stems from the fact that its first premise presupposes the possibility of numerically different but intrinsically indiscernible things. For mereological almost indiscernibles differ only with respect to a tiny part. Thus if a and b differ only with respect to a tiny part z, a–z and b are intrinsically indiscernible things. So, although this argument can establish the possibility of Black's world, i.e. the possibility of a world with two indiscernible spheres that share all their pure properties, one cannot use Black's world, when its possibility is established through the argument from mereological almost indiscernibles, to establish the possibility of intrinsically indiscernible things. For the argument from mereological almost indiscernibles presupposes the possibility of intrinsically indiscernible things.[11]

It might be thought that this is an irrelevant limitation, since the point of Black's world is to establish the possibility of things that are indiscernible with respect to all their *pure* properties, intrinsic and relational. It might be. But some of those who would deny the possibility of things that are indiscernible with respect to all their pure properties might also deny the possibility of intrinsically indiscernible things. Indeed, those who, like Leibniz, think that relational character supervenes upon intrinsic character, will reject the possibility of things that share all their pure

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[11] This discussion presupposes that if z is a proper part of a, a–z exists. But this is a plausible presupposition to make. That if z is a proper part of a, a–z is also a proper part of a is not only a theorem of classical mereology, it is also reasonable principle (the claim is listed as a theorem of classical mereology in, among others, Simons 1987: 39; its apparent reasonability has been noted, among others, by Van Inwagen himself (2001: 82)). So if z is a proper part of a, a–z exists. Furthermore, if one denies this idea, (1a) ceases to make any sense. For (1a) asserts that there is a world with things that differ only with respect to a certain part. But for a and b to differ only with respect to a part is for a part of one of them to be exactly similar to the whole of the other. One may claim that for a and b to differ only with respect to a part z of a is for them to be such that if a lacked z, a and b would be exactly similar. But this makes difference with respect to a part (and difference in general if the account is generalised to avoid arbitrariness) purely dispositional. But difference between things relates to how they *are*, not how they *would be*. Facts of similarity and difference are non-dispositional. But suppose, anyway, that one rejects arbitrary undetached parts, as Van Inwagen (2001) does. Even so, if a and b are mereological almost indiscernible, a and b, depending on the type of objects they are, will have non-arbitrary parts, and if so, each non-arbitrary part of one will be intrinsically indiscernible from one of the other (except, possibly, for z). And there is no reason not to stipulate that the almost indiscernibles of the argument above have non-arbitrary parts.

properties *because* they reject the possibility of intrinsically indiscernible things. So this is an important dialectical limitation of the argument.

If there are doubts that this is an important limitation, one might compare the argument from mereological almost indiscernibles with what might be called the *subtraction argument against the Identity of Indiscernibles*.[12] This argument establishes the possibility of a world containing indiscernibles that share all their pure properties from the possibility of a world containing a finite number of spheres, two of which, *a* and *b*, are intrinsically indiscernible. Then, by means of a subtraction premise, the argument establishes the possibility of a series of worlds, each one of which differs from the previous one only in containing one fewer sphere, and culminating in a world containing only *a* and *b*. In this last world, in which only *a* and *b* exist, *a* and *b* share all their pure properties, not merely all their intrinsic properties. It seems to me that this method of establishing the possibility of things sharing all their pure properties is dialectically deficient. And its dialectic deficit is the same I see in the argument from mereological almost indiscernibles, namely that it will not be accepted by anyone with serious doubts about the possibility of intrinsically indiscernible things.

Another limitation of the argument from mereological almost indiscernibles, from the point of view of this paper, is that mereological almost indiscernible are not really essential to it. For the basic idea behind that argument, the idea behind premise (2a), is that if there is a world w where two things differ with respect to an inessential part, there is a world w* exactly the same as w but in which the inessential part in question does not exist. But the requirement that the inessential part be tiny, and therefore that the things in question be mereological *almost* indiscernible in w, is not essential. The part in question is supposed to be tiny because that seems to suggest more easily that it is inessential. But Alaska is not a tiny part of the USA, although it may well be inessential to it. The idea behind the argument is principle (11), and the idea behind principle (11) is the idea that things have inessential parts. But this supports an argument for indiscernibles from inessential parts, whether tiny or not. So what supports the argument from mereological almost indiscernibles actually makes mereological almost indiscernibles dispensable for the purposes of establishing the possibility of indiscernibles.

7. Someone may attempt to support premise (2) by invoking an intuition about what would be counterfactually true in a possible situation. Consider the situation in which Adams' almost indiscernible twins differ because of dreams dreamt when they are 27 years old. It might be claimed that it is an intuition that it is true of that situation that, had the twins ceased to exist before the dream night, they would have been perfectly indiscernible.

But what exactly is this intuition? If it is simply that the counterfactual would be true if Adams' twins existed, then it does not support the possibility of indiscernibles, since the counterfactual might be vacuously true in such a situation.

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[12] In analogy with the so-called *subtraction argument* for Metaphysical Nihilism put forward by Baldwin (1996).

But clearly the intuition is that the counterfactual would not be vacuously true, that is, that if Adams' twins existed, then there would be a sufficiently close possible world where the twins cease to exist before they are 27 years old and everything else is exactly the same as things are in the situation in which Adams' twins exist.

But since all that can be established is that Adams' twins are possible, this intuition does not support the possibility of indiscernibles but rather the possibility of the possibility of indiscernibles. However I shall grant that if it is possible that it is possible that p, then it is possible that p. So I shall accept that the intuition in question supports the idea that indiscernibles are possible.

But is this intuition reliable? What general principles is it an instance of? The following principle is a candidate:

(12) For every temporal segment X of a world w, there is a world w* that has the same temporal length as X and it is indiscernible from X.

But this may not be true, since there may be a minimal temporal length that worlds must have. However, the following weakening of (12) is more plausible:

(13) For every temporal segment X of a world w, such that there are possible worlds with the temporal length of X, there is a world w* that has the same temporal length as X and it is indiscernible from X.

To understand (13) the notion of indiscernibility embodied in it must be made clear. Let us say that a world w* and a temporal segment X of a world w are indiscernible if and only if replacing X by w* would make no qualitative difference to the world w of which X is a segment. (Therefore if w* and X are indiscernible they have the same temporal length). This characterisation of the indiscernibility of w* and X is very informal and not without problems, but it is sufficiently clear and intuitive to render (13) intelligible, while giving a more precise and formal characterisation could damage the perspicuity of (13).

I think it is our adherence to (13) that explains our intuition that it is not vacuously true that if the twins had ceased to exist before they were 27, they would have been perfectly indiscernible. Consider the world where the twins have slightly different dreams at age 27. That world has temporal segments that comprise only what happens before the twins have their dreams. Consider the segment of that world that ends right before the twins have their different dreams. Given (13), there is a world that is indiscernible from that segment. But in that world the twins never have the differentiating dreams, and so in that world they are indiscernible. So (13) serves to support a premise analogous to (2) in the following argument:

(1b) There is a possible world w with almost indiscernibles x and y such that their difference depends on what happens at a time t such that the temporal length of some segments ending right before t is a temporal length that some possible worlds have.

(2b) If there is a possible world w with almost indiscernibles x and y such that their difference depends on what happens at a time t such that the temporal length of some segments ending right before t is a temporal length that some possible worlds have, there is a world w* with indiscernibles.

(3) Therefore, there is a world with indiscernibles.

Given the possibility of the world with Adams' twins, which I do not question, (1b) is true. (2b) is supported by principle (13), which I think is true. Since the argument is valid, it seems that it establishes the possibility of indiscernibles from the possibility of certain almost indiscernibles.

But, if things have temporal parts, the first premise of this argument begs the question against the identity of intrinsically indiscernibles in the same way in which (1a) did. For suppose the almost indiscernible twins *a* and *b* have temporal parts. Consider, for instance, the temporal part of *a* that covers his 26th year. That part of *a* is intrinsically indiscernible from the temporal part of *b* that covers *b*'s 26th year. In general any two simultaneous parts of *a* and *b* that are located before their 27th year of life will be indiscernible with respect to their intrinsic properties. So an ontology of temporal parts renders the argument above dialectically limited in the same way as the argument from mereological almost indiscernibles is. This argument is therefore more forceful if it presupposes endurantism.

Furthermore, once one sees that (13) is doing the work of supporting premise (2b) it becomes clear that the invocation of almost indiscernibles is dispensable. Indeed one can just run the following argument:

(1c) There is a possible world w with discernibles *x* and *y* such that their difference depends on what happens at a time t such that the temporal length of some segments ending right before t is a temporal length that some possible worlds have.

(2c) If there is a possible world w with discernibles *x* and *y* such that their difference depends on what happens at a time t such that the temporal length of some segments ending right before t is a temporal length that some possible worlds have, there is a world w* with indiscernibles.

(3) Therefore, there is a world with indiscernibles.

The two premises of this argument do not require that the discernibles be almost indiscernible. And (13) supports (2c) no less than it supports (2b). Thus (13) makes almost indiscernibles dispensable. (Note that this objection also applies to attempts to support premise (2) on the basis of counterfactuals about how a thing would have been from the very beginning of its existence—for that intuition would support an argument that, like the one above, is independent from almost indiscernibles).

8. It might be thought that the role of almost indiscernibles is simply that of a heuristic instrument to facilitate the intuition that there is a world with indiscernibles: we start imagining a world with two almost indiscernibles, *a* and *b*, and then we imagine a world whose only difference with the initial one is that in it *b* is exactly as *a* was in the initial one. Here the role of almost indiscernibles is not to provide a justification for the idea that there is a world with indiscernibles but to help us ensure that we imagine a world with two indiscernibles. If so, the support of premise (2) is not an issue, since we are not in the presence of an argument using (2) as a premise.

Perhaps so. But even as such heuristic devices almost indiscernibles are dispensable. For we can also imagine an initial world in which *a* and *b* differ simply because *b* has a large inessential part. And then we can imagine a world in which the only difference with respect to the initial world is that in it *b* does not have the large part in question. That one is no less a world with two indiscernibles than the world we imagine through having first imagined a world in which *a* and *b* are almost indiscernible.

But not only are almost indiscernibles dispensable in this heuristic role, they should be so dispensed. For the intuition of two almost indiscernible things is much less firm than the intuition of two much more discernible things. Indeed, how slightly must properties differ from each other for them to be slightly different? There does not seem to be an answer to this question. And if there is, we do not know it. But if so, it need not always be the case that when we think we imagine two almost indiscernibles we actually imagine two almost indiscernibles. Furthermore, when we think we imagine two almost indiscernibles, how do we know that almost indiscernibles are possible? Why could it not be the case that discernibles must differ considerably, even if such a larger difference is not detectable to us? The notion of clearly discernible things (that is, things that differ from each other more than almost indiscernible things do), on the contrary, is clearer than the notion of almost indiscernible things. It is plausible that when we think we imagine two clearly discernible things, especially if their difference is very large (and provided neither of the things we are imagining is inconsistent in itself), we are actually imagining two clearly discernible things. And there is much less of a doubt that clearly discernible things are possible than there is that almost indiscernible things are possible.

Thus, considered as heuristic devices to elicit the intuition that indiscernibles are possible, almost indiscernibles should leave their place to clearly discernible things, for instance, things that differ with respect to large inessential parts. But if the intuition that clearly discernibles are possible is firmer and more plausible than the intuition that almost indiscernibles are, the arguments based on the possibility of mereologically discernible things, that is, things that differ with respect to a large inessential part, and the argument with premise (1c) from the previous section, should be preferred to the respective versions of the argument from almost indiscernibles.

9. I do not pretend to have shown that the second premise of the argument from almost indiscernibles cannot be adequately supported, nor do I pretend to have shown that no version of such an argument can be effective. But I think I have established that the argument from almost indiscernibles has a doubtful premise. Indeed I have given reasons to think that either the premise lacks support or almost indiscernibles are dispensable. If the premise lacks support, the argument does not establish the possibility of almost indiscernibles, in which case the argument from almost indiscernibles does not represent an improvement upon Black's argument. If almost indiscernibles are dispensable, the argument is not needed to establish the possibility of indiscernibles, in which case there are stronger and better arguments for indiscernibles that appeal to clearly discernible entities. Either way there is

reason to think that the argument from almost indiscernibles should not supplant the argument based on the intuition that Black's world is possible.

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