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BACK TO BLACK

Claudio Calosi and Achille C. Varzi

Abstract
This is a brief sequel to Max Black's classic dialogue on the Identity of Indiscernibles. Interlocutor *A* defends the bundle theory by endorsing the (by now popular) view according to which Black's world does not contain two indiscernible spheres but rather a single, bi-located sphere. His opponent, *B*, objects that *A* cannot distinguish such a world from a world with a single, uniquely located sphere, hence that the view in question adds nothing to *A*'s original response to Black's challenge. *A* is simply denying that there can be worlds with two or more indiscernible entities.

B: Are you convinced now?

A: Convinced?

B: That a world containing nothing but two intrinsically indiscernible spheres, at some distance from one another, is a counterexample to your beloved principle of the Identity of Indiscernibles.[1]

A: I am not convinced at all. On the contrary, I have now come to appreciate beyond the shadow of a doubt that your counterexample was conceived in sin.

B: And how is that?

A: The spheres are not two spheres. There is just one sphere in your world.

B: I clearly remember telling you they were two.

A: Right. You just *told* me so. You have done nothing more than stipulate their existence. But as I have now learned to say, you merely described a world in which there is a sphere that happens to be bi-located.[2]

B: Bi-located?

A: Located at two distinct places, just as a universal – an immanent universal – can be fully present at two or more places at once. Actually, this is the kind of answer a bundle theorist should have embraced all along. For, according to her theory, particulars are

[1] From Max Black, 'The Identity of Indiscernibles', *Mind* 61 (1952), pp. 153–164.

[2] *A* has learned this from John O'Leary-Hawthorne, 'The Bundle Theory of Substance and the Identity of Indiscernibles', *Analysis* 55 (1995), pp. 191–196.

just bundles of qualities, and qualities are universals. Since universals can be multiply located, so can bundles thereof. Hence, if the world you envisaged is one in which exactly the same qualitative universals show up at two distinct spherical locations, for a bundle theorist it is a world in which exactly one sphere is bi-located, and my principle is safe.

B: Are you saying that you are willing to tolerate multi-location of particulars to save your principle?

A: I am not just trying to save my principle. Multiple location for particulars must be tolerated regardless, if particulars are bundles of universals.

B: And how do you understand location, if I may ask? You say that a bi-located sphere is a sphere located at two distinct places. But you once told me that on your view there are no such things as places at the metaphysical groundfloor. Otherwise you might as well insist on your original claim, that we have two spheres that differ in their relational properties (or "characteristics", as you call them): one sphere is located at region R_1, the other is located at region R_2. Since $R_1 \neq R_2$, the spheres would thereby be discernible.[3]

A: Please do not take me literally. Indeed there are no such things as places at the metaphysical groundfloor, understood as particular regions of space. I have not changed my mind about that. When I say that a universal can be bi-located, you should take me to be saying that it can be at a distance from itself. Ditto for entire bundles of universals.

B: When we first talked about this, you denied that *two* spheres being at different places amounts to their being at a distance from one another. Now you are telling me that *one* sphere being at two different places amounts to its being at a distance from itself. That sounds like a contradiction to me.

A: But it isn't. That one sphere is in a certain place does not entail the existence of any *other* sphere; that is why I denied the first claim.[4] The second claim is immune from such concerns, so I am free to assert it.

B: All right, then. So really what you have come to appreciate beyond the shadow of a doubt is that a sphere may be at a distance from itself, where *being at a distance from* is a primitive relational universal.

[3] See Black, at pp. 157ff.
[4] *Ibid.*, at p. 158.

A: Well put – thank you.

B: Don't you think relational universals should supervene on monadic ones? If something, *x*, bears a certain relation *R* to something, *y*, isn't that because of the way *x* and *y* are?

A: Obviously that is not what I think. Otherwise bi-location would make no sense. I know some philosophers would part company with me right here,[5] but so be it. Take it or leave it.

B: What about the mereology of the situation? Take the sum of your bi-located spheres. (I know I should use the singular, but please allow me this rhetorical device.) Presumably it is identical to the sphere itself. The sum of *x* plus *x* is just *x*. But how can that be? How can the bi-located sum be identical to the sphere, if it is not spherical? How can it have the same mass, the same volume, etc.?[6]

A: Look, I know multiple location involves all sorts of oddities. If you wish, we can talk about that, or I can point you to some good literature on the topic. All I am saying is that multiple location, insofar as it can be made sense of (and I think it can), allows me to resist your challenge. The world you asked me to consider does not contain two indiscernible spheres; it contains a single, bi-located sphere.

B: But surely you are not a committed essentialist. A particular need not be exactly the bundle it is. So I could simply insist that the spheres must be two insofar as, though actually indiscernible, their intrinsic properties *might* differ. (I could easily give you a detailed description of how such a possibility may arise.)

A: I am not an essentialist. Unlike you, I understand modality through counterpart theory. And counterpart-theoretically, you would just be describing a world in which a single bi-located sphere has two counterparts in some other world – two discernible counterparts.[7]

B: So, multiple location *cum* counterpart theory. I am beginning to understand why it is so hard to convince you.

A: Philosophy is no easy game.

[5] See e.g. Ian Hacking, 'The Identity of Indiscernibles', *Journal of Philosophy* 72 (1975), pp. 249–256.

[6] These worries are inspired by Katherine Hawley, 'Identity and Indiscernibility', *Mind*, 118 (2009), pp. 101–119; see also Stephen Barker and Phil Dowe, 'Paradoxes of Multi-location', *Analysis* 63 (2003), pp. 106–114, and the literature that followed.

[7] Here, *A*'s view is indebted to Dean W. Zimmerman, 'Distinct Indiscernibles and the Bundle Theory', *Mind* 106 (1997), pp. 305–309, esp. p. 307.

B: Yet you must play it consistently. Don't you think counterpart theory is incompatible with your beloved principle? If a sphere in one world is qualitatively indiscernible from its counterpart in another world, your principle entails that it is one and the same sphere in both worlds. It entails that those worlds overlap, whereas counterpart theory entails that they do not.

A: That is one version of counterpart theory.[8] My favourite version does not rule out wordly overlap in special cases: indiscernible counterparts are numerically identical. Alternatively, I could insist that the Identity of Indiscernibles is a principle that holds only within worlds, or about worlds, not across worlds. These are complex issues. Do you really want me to go into the details?

B: I suppose we can leave the details for another occasion. But I am not done.

A: Go ahead.

B: You do understand, of course, that my spheres were a rhetorical device?

A: Of course.

B: I might as well have asked you to consider a world in which there are, say, just two molecules of water.[9] They, too, would be indiscernible; both would be mere H_2O composites.

A: Yes. I would say that in such a world there is just one H_2O molecule, though one that is bi-located.

B: I suppose you would be happy to generalize. If I asked you to consider a world inhabited by n indiscernible water molecules, you would reply that no such world could possibly exist; at best, there are worlds with a single water molecule located n times over.

A: Exactly so.

B: But then, a world with a small drop of water and a world with a whole watery ocean would contain the same amount of water, namely, just one H_2O molecule?

A: Um . . .

B: And a world with a single leaf of gold and a world with the entire golden mountain would contain exactly the same amount of gold?

[8] As in David Lewis's classical formulation: 'Counterpart Theory and Quantified Modal Logic', *Journal of Philosophy*, 65 (1968), pp. 113–126.

[9] This was Kant's example in the *Critique of Pure Reason*, A263/B319.

A: Um . . . I can see why you might be inclined to say so. Same number of gold molecules, same amount of gold. However, that way of putting things conflates two notions of counting, two ways of measuring that may well coincide on your metaphysic, but that come apart in the presence of multi-located bundles. Obviously, in the second world that gold would be more widely present than in the first – more generously available, if I may say so. I take that to mean that it contains a greater amount of gold than the first world, even though the number of gold molecules is the same. You will concede that some linguistic revision may be necessary when we do metaphysics, especially if one adopts a metaphysic that treats ordinary talk as unperspicuous, as I do.

B: Point taken. Still, let me change the scenario slightly. Let us suppose that those physicists are right in telling us that everything is made up of just a few types of fundamental particles, say, the six quark flavours – Top and Bottom, Up and Down, Charm and Strange – and the electron. (I know this is a simplification, but bear with me.[10]) Particles of the same type are perfectly indiscernible from one another. For example, each Charm particle has a spin of 1/2, a charge of +2/3, a mass of 1500 MeV, etc. Now consider a simple world, W_1, in which there is just one particle of each type, located at exactly one place. Then consider a prosperous world like ours, W_2, with oceans and stars, leaves and mountains, dust and winds, trees, flowers, beetles, butterflies, people, etc. Since particles of the same type are indiscernible, you are committed to saying that W_2, too, contains only seven particles overall, hence W_1 and W_2 would contain, if not the same amount of stuff, the same number of things – right?

A: *(Ponders)*

B: W_1 and W_2 *must* be ontologically equinumerous, on your view.

A: Yes, I think that is what I'd want to say.[11] There are just seven things in both cases, though of course W_2 contains many more bundles thereof.

[10] For instance, *B* is ignoring force-carrying particles such as bosons, or the fact that quarks cannot be found in isolation.

[11] John Wheeler seems to have entertained a view of this sort, suggesting that if all electrons have the same charge and the same mass, it is because 'they are all the same electron' – a single particle with the gift of ubiquity. See Richard Feynman, 'The Development of the Space-Time View of Quantum Electrodynamics' (Nobel Lecture, Dec. 11, 1965), in his *Selected Papers*, ed. by Laurie M. Brown (Singapore, World Scientific, 2000), pp. 7–32, at p. 17.

B: You cannot really add that qualification. Otherwise you would have to concur that my original scenario involves two spheres, which you deny.

A: Okay, same number of things – period.

B: I think you must say more than that. W_1 and W_2 would be ontologically *indiscernible* (on your understanding of counterpart theory): not only would each world contain the same number of things; each would contain the very same things. For each of those things would have exactly the same properties in each world. For example, in each world the Charm particle would have a spin of 1/2, a charge of +2/3, a mass of 1500 MeV, etc. But then, if W_1 and W_2 were ontologically indiscernible, your identity principle would imply that they are one and the same world after all. Doesn't that strike you as utterly absurd?

A: W_1 and W_2 would be ontologically indiscernible only in a limited sense: they would contain the same things in the same number. However, only our "prosperous" world contains those particles many times over, located at many different places. Hence, W_1 and W_2 would differ – they would feature different locative facts.

B: I thought locative facts are not allowed to enter the picture.

A: I told you how to construe my locative facts. Our world contains those fundamental particles many times over insofar as they enter the relation *being at a distance from* with themselves. Indeed, they enter many such relations reflexively: *being 10 feet away from, being 72 feet away from, being 1,000 miles away from,* etc. That is what makes our world a prosperous one. Not so with W_1, where none of these relational universals is satisfied reflexively.

B: So, two worlds can be populated by the very same number of the very same things satisfying the very same monadic properties, and yet differ in the relational characteristics of those things?

A: Exactly.

B: But then the things making up the two worlds would not really be the same things after all. Their relational characteristics would differ.

A: Sorry, I was too quick. You are absolutely right: in W_2, each of the particles would have the relational characteristic of being at a distance from itself, whereas in W_1 it would lack that relational characteristic. You are helping me out! For now it is obvious that W_1 and W_2 would be ontologically discernible after all. They would not contain the same things – merely counterpart-related things.

B: Except that you *cannot* say that in W_2 each of the seven particles would be at *a distance from itself.* We have gone through this already.[12] All you can say is that, for instance, a Charm particle – call it Castor – would be *at a distance from a Charm particle.* (I was willing to pass on this when you first used the locution earlier on, but now the point is absolutely crucial.)

A: Fine. You must agree, however, that Castor's counterpart in W_1 would *not* be at a distance from a Charm particle. Surely I can say *that,* and it is enough to warrant the relevant difference between W_1 and W_2.

B: It is. But it is not enough to warrant your claim that, in W_2, the distant Charm particle would be *the same* as Castor, hence that Castor would be bi-located. It warrants equally well the claim I would make, namely, that in W_2 the distant Charm particle would be a qualitatively indiscernible but numerically distinct duplicate of Castor.

A: So be it. I am not saying that your claim would be incoherent. All I have been trying to show is that I can coherently reject it (on behalf of the Identity of Indiscernibles).

B: Remember when I asked you to imagine a radially symmetrical world in which everything has an identical twin? You told me that my description of such a world fails to describe anything "verifiably different" from a corresponding world without twins.[13] Now you are telling me that W_1 and W_2 are verifiably different? (I am using the expression in your narrow sense: *x* and *y* are verifiably different if and only if it is possible to show that *x* has a property – be it a qualitative universal or a relational characteristic – not possessed by *y*, or vice versa.)

A: Yes. W_1 and W_2 are verifiably different because they contain different things, things that differ in their relational characteristics.

B: But that explanation would also apply to my original two worlds – the world with identical twins and the world without. You cannot apply different standards in the two scenarios. Either you grant me that those two worlds are verifiably different (only one would be truly described by propositions of the form 'Such and such a thing is at a distance from such and such a thing'[14]), or you deny that W_1 and W_2, too, would be verifiably different.

[12] See Black, at p. 157.
[13] *Ibid.*, at p. 162.
[14] See again Hacking, at p. 251.

A: Your scenario involved duplication within a single world. W_1 and W_2 are two worlds. I don't see why I should apply the same standards.

B: No. In the original scenario I described two worlds, one with identical twins and one without. The current scenario involves the description of two worlds: one with multiple location and one without. You said that in the first case there is no verifiable difference between the worlds I described. By the same pattern – which is to say, by your standards – I can say that there is no verifiable difference between the worlds you describe in the second case.

A: You are still ignoring an important difference. In the first scenario, the world with identical twins is radially symmetrical: there is no quality *and* no relational characteristic that distinguishes the twins, hence there is no verifiable way of saying that everything is in fact duplicated; any true description of such a world would be equally true of the twinless world. Not so with W_1 and W_2. For instance, the truths about W_2 would include, not only that Castor is *at a distance from* a Charm particle, but also that Castor is *surrounded by* Charm particles. And *surrounded by* is not symmetrical.

B: I have to think about that. I am not sure what to make of *surrounded by* in the presence of multi-location (as I don't know what to make of the relevant mereology). But never mind. I asked you to imagine a radially symmetrical world because I was trying to describe a world populated by things that are truly indiscernible. Suppose Castor is indeed surrounded by Charm particles. Either those Charm particles have the same relational characteristics as Castor, or they do not. If they do not, then surely they are not numerically identical to Castor, i.e., it is not Castor itself that is multi-located (and surrounding itself). This follows from the Indiscernibility of Identicals, which you obviously accept. If so, however, then we are no longer in W_2 and the case is irrelevant . . .

A: Sorry to interrupt you, but that is precisely how things are in this "prosperous" world of ours. It is not just those seven particles, massively multi-located. There are plenty of particles of each kind, differing in their relational characteristics. Here is Castor, a Charm particle with such and such relational characteristics; there is Pollux, another Charm particle, but with such and such relational characteristics; and so on. I think each of Castor, Pollux, etc. may be multi-located, you think each of them may be duplicated, but neither of us thinks that our prosperous world – with oceans, stars, leaves, mountains, etc. – is a world in which Castor = Pollux and all Charm particles are relationally indiscernible. You said that W_2, our world, is ontologically equinumerous with W_1, and I agreed. But I should have not. On closer inspection, these worlds involve a different number of particles.

B: You are right. I guess I overstated my rhetoric. Forget our prosperous world. Just think of W_2 as a world in which, by stipulation, the seven particles of W_1 (or counterparts thereof, if you prefer) are massively multi-located.

A: And in which Castor is surrounded by Charm particles.

B: Yes. Now, as I was saying, either those particles have the same relational characteristics as Castor, or they do not. We have just seen that the second option would not help your view. So those particles *must* have the same relational characteristics as Castor in order for you to say that it is Castor itself that is genuinely multi-located. (Ditto for each of the other six types of particles.) But then – this is what I was getting at – then *surrounded by* must behave symmetrically after all, at least in this respect, and there is no verifiable way of telling W_2 from W_1. That is, there is no verifiable way short of conceding that I, too, could redescribe W_2 as a world populated by a multitude of genuinely indiscernible particles.

A: In W_2, Castor could be surrounded by other things besides itself. For instance, it could be surrounded by the Strange particle, though the converse need not hold. Surely that would break the symmetry of the relation.

B: It would. But the bottom line would not change. You say in W_2 Castor could be surrounded by a single multi-located Strange particle; I say it would be surrounded by a multitude of indiscernible Strange particles.

A: *(Ponders)*

B: I repeat: you cannot apply different standards. Either you grant me that my original worlds (with and without twins) were verifiably different, or you concede that there is no verifiable difference between W_1 and W_2.

A: I am not going to grant you anything. If I really had to choose, I would go for the second option.

B: You *have* to choose.

A: All right, then, I retract. I say that W_1 and W_2 (under the new simplified description) would be wholly indiscernible after all: not only ontologically, but in every respect. The relevant locative facts would not constitute a verifiable difference.

B: Hence, by your principle, W_1 and W_2 would count as one and the same world.

A: Yes, they would.

B: Which is simply absurd.

A: I admit it may sound strange, but so be it. No difference without a difference maker.

B: It is not just strange. By the same pattern, what you describe as a world with a single, bi-located sphere must be one and the same as a world with a single, uniquely located sphere.

A: Yes, that surely follows.

B: But then what is the point of tolerating multiple location in the first place? Why are you saying that what you have come to appreciate lately establishes 'beyond the shadow of a doubt' that my two spheres do not constitute a counterexample to the principle of the Identity of Indiscernibles? We have just determined that multiple location does *not* make a difference. And if it makes no difference, then your appeal to it adds nothing new; you are simply saying what you have been saying all along. You are simply denying that there can be worlds with two or more indiscernible entities, in spite of my efforts to convince you of the contrary. We are back to day one.[15]

Department of Basic Sciences and Foundations
University of Urbino
Piazza della Repubblica 13
Urbino PU 61029 (Italy)
claudio.calosi@uniurb.it

Department of Philosophy
Columbia University
1150 Amsterdam Avenue
New York, NY 10027 (USA)
achille.varzi@columbia.edu

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