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The Bundle Theory is compatible with distinct but indiscernible particulars

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1. The Bundle Theory I shall discuss is a theory about the nature of substances or concrete particulars, like apples, chairs, atoms, stars and people. The point of the Bundle Theory is to avoid undesirable entities like *substrata* that allegedly constitute particulars. The version of the Bundle Theory I shall discuss takes particulars to be entirely constituted by the *universals* they instantiate.[1] Thus particulars are said to be just bundles of universals. Together with the claim that it is necessary that particulars have constituents, the fundamental claim of the Bundle Theory is:

> (BT) Necessarily, for every particular *x* and every entity *y*, *y* constitutes *x* if and only if *y* is a universal and *x* instantiates *y*.[2]

The standard and supposedly devastating objection to the Bundle Theory is that it entails or is committed to a false version of the Principle of Identity of Indiscernibles (Armstrong 1978: 91, Loux 1998: 107), namely:

> (PII) Necessarily, for all particulars *x* and *y* and every universal *z*, if *z* is instantiated by *x* if and only if *z* is instantiated by *y*, then *x* is numerically identical with *y*.

The most famous counterexample to the Identity of Indiscernibles is that put forward by Max Black, consisting of a world where there are only two iron spheres two miles apart from each other, having the same diameter, temperature, colour, shape, size, etc (Black 1952: 156). Let us from now on think of the properties of the spheres in this world as universals. The possibility of this world, which I shall hereafter refer to as 'Black's world', makes (PII) false.[3] And according to common philosophical opinion this means that the Bundle Theory is false

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[1] Other versions of the Bundle Theory take particulars to be constituted by tropes.

[2] Albert Casullo (1984, 1988) proposes a version of the Bundle Theory that is not committed to (BT), for his version of the theory makes a claim about the actual world rather than all possible worlds. But the Bundle Theory is a theory of the nature of particulars and so it should apply to all particulars in all possible worlds, not merely to actual particulars. If there are merely possible particulars that are not bundles of universals, what makes them particulars? Questions like these are left unanswered by a version of the Bundle Theory that makes only an assertion about actual particulars.

[3] So-called 'impure properties', like *being identical to a*, or *being in the same place as a*, are not universals.

as well. For the spheres of Black's world instantiate exactly the same universals. So the possibility of Black's world is taken to show that particulars are not bundles of universals.

In what follows I shall show that the Bundle Theory neither entails nor is otherwise committed to (PII) and so the Bundle Theory is compatible with the falsity of (PII). I shall also show that the Bundle Theory can give an account of particulars consistent with the falsity of (PII). Not only that, when developed in this way the Bundle Theory can be used to refute (PII). Thus I shall defend the Bundle Theory from the objection based on the falsity of (PII). I shall start by discussing a recent defence of the Bundle Theory from such objection.[4]

2. John Hawthorne has a simple and ingenious defence of the Bundle Theory from the threat posed by worlds like Black's (O'Leary-Hawthorne 1995). Hawthorne points out that bundles of universals, like universals themselves, can be multiply located. So Black's world is not adequately described by saying that it contains two indiscernible particulars. What the bundle theorist should say, according to Hawthorne, is that Black's world contains only one entity, namely one bundle of universals, located in two different places (O'Leary-Hawthorne 1995: 194). So not only does Black's world not refute the Bundle Theory, this is actually used to salvage (PII) (O'Leary-Hawthorne 1995: 191).[5]

Note that Hawthorne does not question that the Bundle Theory entails (PII). He does not show that the Bundle Theory is compatible with the falsity of (PII). On the contrary, his defence consists in describing Black's world so as not to violate (PII).

But Hawthorne's defence is not effective. The possibility that allegedly refutes the Bundle Theory is the possibility that there is a world with *two* indiscernible particulars. Hawthorne shows neither that this is not a genuine possibility nor that the Bundle Theory can accommodate this possibility. What Hawthorne shows is that a world that apparently contains indiscernibles may instead be a world containing a multiply located bundle of universals and no numerically distinct but indiscernible particulars. But for Hawthorne's defence to succeed what needs to be shown is that Black's world *is* a world that contains a multiply located bundle of universals and no numerically distinct but indiscernible particulars. For if Black's world contains *two* indiscernibles then it cannot be correctly described as a world that contains no numerically distinct but indiscernible particulars. But Black's world contains *two*

[4] That I here defend the Bundle Theory from its most powerful objection does not mean that I believe in the Bundle Theory. I do not believe in universals and so I do not believe in the Bundle Theory. I give reasons for rejecting universals in chapter 12 of my (2002).

[5] That worlds like Black's need not be described as containing two distinct particulars was also argued by Ian Hacking (1975), although he was not trying to defend the Bundle Theory and so he did not propose to describe it as a world having a bundle of universals located in two places. A defence of the Bundle Theory similar to Hawthorne's was proposed by James van Cleve (1985). For further discussion of this kind of defence, focusing, directly or indirectly, on Hawthorne's paper, see Vallicella 1997, Zimmerman 1997, and Hughes 1999.

indiscernible iron spheres, and so it cannot be correctly described as not containing two indiscernible particulars.

But perhaps Black's world is not really possible? After all, it may be said, all that is clear in our intuition is that a world where sphericity, whiteness, coldness, etc. are two miles apart is possible. But this leaves open whether the world in question is a world with two indiscernible particulars or a world with just one multiply located bundle of universals. To the extent that the possibility of Black's world is not firmly established, the bundle theorist need not feel threatened by the circumstance intuited by Black: that intuition might simply represent a world where there are no indiscernible particulars but just one multiply located bundle of universals.

But Black's world *is* possible. For there is a possible world with two almost indiscernible spheres. That is, there is a possible world like Black's except that the spheres differ infinitesimally in temperature. No one should deny the possibility of such worlds, and certainly there is nothing in them that a bundle theorist cannot accept. That world contains *two* particular spheres, *a* and *b*. But if *a* has a temperature T and a different particular *b* of the same kind as *a* has a temperature T* infinitesimally different from T, then it is possible for *a* to have T*. Thus if the world with the almost indiscernible spheres is possible, so is another world in which the spheres are completely indiscernible. So Black's world, which contains two indiscernible particulars, is possible.[6] And if so Hawthorne's defence fails, for Black's world cannot be correctly described as a world not containing two indiscernible particulars.

3. Black's world contains a multiply located bundle of universals. But it also contains two indiscernible spheres each of which is singly located. Is this compatible with the Bundle Theory? Yes. But before showing this I shall in this section describe other problems with Hawthorne's defence of the Bundle Theory.

Hawthorne invokes the multiple location of bundles. But what is it for a bundle to be in a place? He does not say. There are two options, and both have problems.

If the bundle theorist adopts relationism about space then he cannot distinguish these two different possibilities: a world W with just a single bundle located in two places two miles apart from each other, and a world W* with the same bundle located in three places every two of which are two miles apart from each other (thus the bundle forms an equilateral triangle). Given that what gives the bundle a place are its spatial relations, and in both worlds exactly the same spatial relations obtain (the bundle is two miles apart from itself), the worlds cannot be distinguished. But they should be, because they represent different possibilities.

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[6] This general kind of argument for the possibility of indiscernibles from the possibility of almost indiscernibles was first put forward by Robert Adams (1979: 17-19). There are, however, some important differences between Adams' argument and the one I am giving here.

Hawthorne and Jan Cover consider this problem. They suggest the difference can be captured by invoking triadic distance relations holding in the world where the bundle is tri-located but not in the world where the bundle is bi-located. They are no more specific than this (O'Leary Hawthorne and Cover 1998: 214).[7] But the triadic relation in the world where the bundle is tri-located is a relation R that obtains between *x*, *y* and *z* if and only if *x* and *y* are two miles apart, *y* and *z* are two miles apart, and *x* and *z* are two miles apart. But this relation R also obtains between the bundle and itself in the world where the bundle is bi-located. For there it is also the case that there is an *x*, *y* and *z* such that *x* and *y* are two miles apart, *y* and *z* are two miles apart, and *x* and *z* are two miles apart. So triadic relations do not distinguish the worlds in question.

Perhaps the bundle theorist should adopt absolutism about space? In that case being in a place is occupying a spatial region. But spatial regions are sets of points and so being in a place is occupying certain points. Being in the same place is therefore occupying the same points. But, according to Hawthorne and Cover, strictly speaking there are no points: there is just the single universal *pointhood* that bears infinitely many spatial relations to itself (O'Leary-Hawthorne and Cover 1998: 213). So what is being in a place? They do not say. But what they say suggests that being in a place is occupying the single universal pointhood. But if so, since all spatial things occupy the same entity, namely the universal pointhood, all spatial things occupy the same place. This is absurd.

In what follows I shall show how a version of the Bundle Theory that tolerates the falsity of (PII) can avoid these problems.

4. If (BT) entails (PII), then the Bundle Theory is incompatible with Black's world. But (BT) does not entail (PII). For all (BT) asserts is that particulars are entirely constituted by the universals they instantiate. This entails that particulars instantiating the same universals have the same constituents. But this is compatible with the falsity of (PII) – unless particulars with the same constituents must be numerically identical. So to reach (PII) from (BT) we need an extra premise, like the following Principle of Constituent Identity:

> (PCI) Necessarily, for all complex objects *x* and *y* and every entity *z*, if *z* is a constituent of *x* if and only if *z* is a constituent of *y*, then *x* is numerically identical with *y*.

[7] In fact, they speak of a triadic 'fact' rather than a triadic 'relation'. But since in the world where the bundle is tri-located there is only one entity – the bundle in question – any triadic facts obtaining there must obtain due to some triadic relation linking the bundle to itself.

That the extra principle (PCI) is needed in the derivation of (PII) suffices to show that (BT) does not by itself entail (PII). So by simply rejecting (PCI) one could maintain (BT) without thereby having to accept the false (PII).[8]

But perhaps (PCI) is true and must be admitted after all. In that case, by being committed to (BT), the Bundle Theory is also committed to (PII).

5. But is (PCI) true? Loux believes it is. For him (PCI) is based on the ontologist's use of 'constituent' and 'whole' and reflects the idea that the composed or constructed items are nothing more than the items that got together to constitute them, 'so that we can provide a complete "recipe" for complex things by identifying the items that count as their constituents' (Loux 1998: 107).

But, contrary to what Loux suggests, (PCI) is a very controversial principle. Indeed (PCI) is denied by all those ontologists who reject the idea that the only mode of composition is standard mereological composition. And, ironically enough, most ontologists postulating universals deny that the only mode of composition is mereological composition. For typically philosophers who postulate universals postulate states of affairs as well. And for them states of affairs are complex entities that do not obey a mereological mode of composition. So the bundle theorist has reasons to reject (PCI).

6. But even if there are complex entities that do not respect standard mereology, it may still be the case that the Bundle Theory is committed to (PII). For that states of affairs do not respect mereology only shows that (PCI) is false, while (BT) also entails (PII) if conjoined with the weaker principle (PCI*), which is just (PCI) restricted to particulars:

> (PCI*) Necessarily, for all particulars *x* and *y* and every entity *z*, if *z* is a constituent of *x* if and only if *z* is a constituent of *y*, then *x* is numerically identical with *y*.[9]

Are there any reasons to accept (PCI*)? One reason to accept (PCI*) would be to derive it from the more general principle (PCI) – but we saw that (PCI) is not compelling. What we need are independent reasons to accept (PCI*). We would have such reasons if particulars

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[8] The need for supplementation has been seen by other authors, like Michael Loux, from whom I take the name 'Principle of Constituent Identity' (Loux 1998: 107), and Herbert Hochberg (1969: 156). However Loux thinks that what entails (PII) when conjoined with (PCI) is something like the following thesis: 'Necessarily, all constituents of particulars are universals'. But this thesis, even in conjunction with (PCI), does not entail (PII) without a further premise asserting the identity between the universals constituting a particular and the universals instantiated by it.

[9] For some, like Armstrong (1997: 126), states of affairs are particulars. The particulars referred to in (PCI*) do not include states of affairs; they are the concrete particulars like apples, atoms, people, etc. that the Bundle Theory is typically concerned with.

were bundles of a sort that require the truth of (PCI*). For instance if particulars were sets of universals, (PCI*) would be true (with 'constituent' understood as 'member'). But particulars are not sets of universals. For sets are abstract and lack causal powers, while particulars are concrete and possess causal powers. Furthermore, a particular can cease to exist even if the universals it instantiates do not, in which case the set of those universals has not ceased to exist. Similarly, if particulars were mereological sums of universals, (PCI*) would be true (with 'constituent' understood as 'proper part'). But particulars are not mereological sums of universals. For a particular can cease to exist even if the universals it instantiates do not, in which case the mereological sum of those universals has not ceased to exist.

Thus to accept (PCI*) one would need a previous account of the kind of complex objects particulars are that commits us to (PCI*). But although it may not be clear what kind of complex objects particulars are, they are not those kinds of complex objects, like sets or mereological sums, that would render (PCI*) true. So there seem to be no reasons to accept (PCI*).

Thus the way seems to be open for the bundle theorist to reject (PCI*). By rejecting (PCI*) the Bundle Theory is liberated from its commitment to (PII). So by rejecting (PCI*) the Bundle Theory can accommodate Black's world.

7. But is it not incoherent for the bundle theorist to reject (PCI*)? We saw in §6 that particulars are neither sets nor mereological sums of universals. But this is consistent with identifying particulars with bundles of universals, provided these bundles are neither sets nor mereological sums of universals. And the Bundle Theory takes particulars to be just bundles of universals. But if a particular *is* a bundle of the universals that constitute it, how can there be two particulars with the same constituents? That is, how can the Bundle Theory not be committed to (PCI*)?

The sense in which particulars are bundles of universals is the one specified by (BT): they are entirely constituted by the universals they instantiate. But this does not mean that particulars *are* bundles of universals. So what are they?

I suggest the bundle theorist should tell the following story. When a bundle is in a place, there is also another entity there, namely an *instance* of the bundle. The instance is entirely constituted by the universals of the bundle. But the instance and the bundle are two distinct entities. Unlike the bundle itself, an instance of a bundle cannot be in more than one place at once. So a bundle that is in more than one place at once has more than one instance, one in each place in which it is. These instances are not identical to each other, since they are in different places at once and they cannot be in more than one place at the same time. Thus *this* bundle of universals wholly located *here* is the same bundle as *that* bundle of universals

wholly located *there*, but *this* instance *here* of the bundle in question is not the same as *that* instance *there* of the same bundle.

Having introduced this distinction between the instance of the bundle and the bundle itself the bundle theorist asserts that particulars are *instances* of bundles of universals. Thus particulars are entirely constituted by universals without being identical to bundles of universals. So when a bundle of universals has more than one instance, there are some numerically distinct particulars with exactly the same constituents. So it is not incoherent for the bundle theorist to reject (PCI*).

Not only that. By claiming that particulars are instances of bundles, the bundle theorist must reject (PCI*). For bundles can be in more than one place at once. So a bundle can have more than one instance. So there can be numerically distinct particulars with exactly the same constituents. So (PCI*) is false.

8. Once the Bundle Theory is developed in this way, it can accommodate Black's world. Black's world contains two particulars instantiating the same universals. This is a counterexample to (PII). But it is not a counterexample to the Bundle Theory as I am developing it. Given (BT), particulars with the same constituents instantiate the same universals. But given that particulars are instances of bundles, and that bundles can have more than one instance, numerically distinct particulars can have the same constituents. So numerically distinct particulars can instantiate the same universals. Thus Black's world can be accommodated by the Bundle Theory.

Not only that. The Bundle Theory is committed to the falsity of (PII). For bundles can be in more than one place at once. So a bundle can have more than one instance. So there can be numerically distinct particulars with exactly the same constituents. But given (BT) particulars with the same constituents instantiate the same universals. So there can be numerically distinct particulars instantiating the same universals. So (PII) is false. Thus the Bundle Theory can be used to refute (PII).

As I said the traditional view is that the Bundle Theory entails or is committed to (PII). But (PII) is refuted by Black's world. Hawhtorne thought that the Bundle Theory could be defended from Black's world by describing it as not containing two indiscernible particulars. In this way the Bundle Theory is used to salvage (PII) (O'Leary-Hawthorne 1995: 191, 194, 196). But, as I argued in §2, Hawthorne's defence fails. For Black's world cannot be correctly described as not containing two indiscernible particulars. But since the Bundle Theory neither entails nor is committed to (PII), there is no need to attempt to defend it from Black's world. Furthermore, as we have just seen, the Bundle Theory can be used to sink, rather than salvage, (PII).

9. Wherever there is a bundle there is an instance, and vice versa. But what is it to be in a place? As we saw in §3 a version of the Bundle Theory that does not invoke the distinction between instances and bundles has problems with this question. Relationism about space does not allow Hawthorne and Cover to distinguish between a world where there is a single bundle located in two places and a world where that single bundle is located in three places. And absolutism about space has for them the absurd consequence that all spatial things are in the same place.

But these problems are avoided by the Bundle Theory as developed here. Consider relationism about space. The location of a thing stems from its spatial relations to other things. So the location of an instance is given by its spatial relations to other instances. But the bundle theorist should say that the location of an instance is metaphysically prior to the location of the bundle. A bundle is in a place because it has an instance there, not the other way around.

In Black's world there are two instances of a certain bundle. These instances are spatially related: *a* and *b* are two miles apart from each other. Their being two miles apart makes them be in different places. And this is what makes the bundle in that world be in two places. But since in Black's world the bundle has only two instances, the bundle is there in two places. There is another world where the bundle in question has three instances. These instances are spatially related: *a* is two miles apart from *b* and also two miles apart from *c*, and *b* and *c* are two miles apart from each other. Their being two miles apart makes them be in different places. But since in this world the bundle has three instances, the bundle is located in three, not just two, places.

So what is the difference between a world with a single bundle located in two places and a world with the same bundle located in three equidistant places? The difference is that in the first world the bundle has two instances while in the other it has three instances. Something exists in one world that does not exist in the other.

Absolutism about space is also open to the bundle theorist. In this case the bundle theorist says that an instance has location by occupying a region, i.e. by occupying some points. But points are particulars, instances of the universal pointhood. So being in a place is occupying some *instances* of pointhood. And being in the same place is occupying the same *instances* of pointhood. But it does not follow from this that all spatial things occupy the same place, for each point is a different *instance* of pointhood and so different particulars may occupy different points.[10]

[10] Pointhood is thus a special universal in the sense that it can constitute a particular without being bundled with *other* universals. But it may be argued that this is not so and that a point is an instance of a bundle of the universals pointhood and distancehood. However the matter is resolved, it does not affect the points I am making in this paper.

Thus both relationism and absolutism about space are live options for this version of the Bundle Theory.

10. It is widely assumed that the falsity of (PII) refutes the Bundle Theory. I have argued that this assumption is wrong. The Bundle Theory neither entails nor is committed to (PII). Not only is the Bundle Theory compatible with the falsity of (PII), it can be used to refute (PII).

The version of the Bundle Theory here developed does not identify particulars with bundles of universals. But it is faithful to the spirit motivating it since, unlike the Substratum Theory, it makes universals exhaust particulars: particulars are entirely constituted by universals. Thus the Bundle Theory, probably the most attractive version of a theory of universals, does not succumb to what was supposed to be its fatal objection.[11]

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