

## Material Coincidence and the Indiscernibility Problem

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**abstract:** It is often said that the same particles can simultaneously make up two or more material objects that differ in kind and in their mental, biological, and other qualitative properties. Others wonder how objects made of the same parts in the same arrangement and surroundings could differ in these ways. I clarify this worry and show that attempts to dismiss or solve it miss its point. At most one can argue that it is a problem we can live with.

### 1.

The view that 'constitution is not identity' is all the rage these days.

Constitutionalism, as I will call it, consists of two claims.

First, two or more material objects can be made up of the same particles, or matter, at once. To put it the other way round, the same things can compose two different material objects at once, where some  $x$ s compose something  $y$  just in case each of the  $x$ s is a part of  $y$  and every part of  $y$  shares a part with one or more of the  $x$ s. For short, different things can materially coincide. The idea isn't just that two things can be co-located. Two events co-located, or an event co-located with a material object, or even two material objects in the same place at once but made of different matter--different kinds of matter that could interpenetrate--wouldn't be a case of material coincidence, and would be of comparatively little interest.

Second, materially coinciding objects can differ in important qualitative respects. (We can take any property that doesn't specify the identity of its bearer to be qualitative.) They can belong to different kinds, have different identity conditions, and differ in their mental, biological, aesthetic, modal, and other properties. For instance, a clay statue is supposed to coincide at any given time with a certain lump of clay. Lumps of clay can survive being crushed. Statues can't. So the statue isn't a lump and the lump isn't a statue.

Most Constitutionlists also say that whenever two things materially coincide, one of them 'constitutes' the other. Constitution, unlike material coincidence, is usually taken to be asymmetric and irreflexive: things can't constitute each other, and nothing can constitute itself. Few Constitutionlists bother to say what they mean by constitution, and those who do say different things (e.g. Doepke 1982, Thomson 1998: 157, Baker

2000: 27-46). But they usually agree about what constitutes what in particular cases. People, for instance, are constituted by their bodies, which in turn are constituted by masses of matter, and not vice versa. This is another respect in which materially coinciding objects can differ qualitatively. (Note that constitution in this sense, like material coincidence, is a relation between one object and another, and not between one object and several objects or between an object and some stuff. Neither my atoms nor my matter constitute me.)

Let us have a concrete example. Suppose a certain person--call him Person--coincides materially with a certain human organism--his body, if you like--called Animal. This is generally considered to be a paradigm case of material constitution. Questions about personal identity are among those that Constitutionalism is most often called upon to answer (see e.g. Shoemaker 1984: 112-114, Heller 1984, Johnston 1987, Sosa 1987, Baker 1995, 2000, Rea 1997b: xvi-xx). Most Constitutionalsists would say that Person and Animal differ in these ways:

Person and Animal have different and incompatible identity conditions.

Person is a person and not an animal; Animal is an animal and not a person.

Animal, but not Person, is alive (in the biological sense).

Person, but not Animal, can think and experience.

That Person and Animal have different identity conditions--that people can survive things that no animal could survive or vice versa--is what leads philosophers to deny that they are identical. It follows that there must be some sense in which Person is not an animal, else he would have the same 'animal' identity conditions as Animal has, and likewise a sense in which Animal is not a person. As for the third point: although we say that political movements, public debates, parties, and fires are 'alive', biologists use the term in a stricter sense to characterize living organisms. Constitutionalsists will deny that Person is alive in that sense. (There couldn't be non-organisms that were alive in the same sense as organisms are.) Finally, if Animal could think and experience, he would presumably have the same mental properties as Person has. That ought to make him a person--unless there could be rational, intelligent, self-conscious, morally responsible non-people. There would be two people sitting in your chair and reading this, an animal person and a non-animal one. You ought to wonder which one you are. (Olson 1997: 102-108) To avoid this absurd situation, Constitutionalsists must deny that Animal can think, or at least that he can think in the way that Person can.

I choose this example because it brings out more sharply than others just what Constitutionalism involves. (It is in what they imply about ourselves that metaphysical claims often show their true colours.) Those Constitutionalsists who think that we are

animals—that is, that each of us is identical with a certain animal, and that we have the identity conditions of animals—will object. But if there really is such a thing as constitution, it would be surprising if we weren't constituted by something or other. If there are such things as lumps of clay, there are such things as hunks of flesh, and unless you are immaterial you stand to a hunk of flesh just as a clay statue stands to a lump of clay. It would make no real difference if we took as our example human animals and hunks of flesh (as in Section 7 below) rather than people and human animals.

It is Constitutionalism's second claim, that materially coinciding objects can differ qualitatively, that is the focus of what seems to me to be the most forceful objection to that view. By definition, materially coinciding objects are made up entirely of exactly similar particles, related in precisely the same way, in identical surroundings. (They are, after all, the very same particles.) That would seem to make the objects so similar that not even God could tell them apart. How, then, could they have the qualitative differences that Constitutionists say they have? By virtue of what, for instance, could they belong to different kinds? What could give them different identity conditions? How could only one of them be alive? What could explain why one of them is rational, conscious, morally responsible, and so on, while the other has no mental properties at all, or at best very different ones? What prevents Animal, who has the same nervous system and the same surroundings as Person, from thinking or experiencing as Person does? Shouldn't the difference between animals and non-animals, and between people and non-people, be empirically detectable? Constitutionalism appears to rule out any satisfactory answer to these questions. But surely they must have answers.

I will call this the Indiscernibility Problem. Something like it, I believe, has been the main point of several criticisms of Constitutionalism (e.g. Burke 1992; Zimmerman 1995: 87-90; Olson 1996: 378-384). Most Constitutionists ignore it. Some dismiss it as grounded in confusion, while still others admit that it has some force, but take themselves to have solved it. I will argue that these dismissals and attempted solutions miss the point. My aim is to clarify the problem and to show that no version of Constitutionalism can avoid or solve it. How serious the problem is—whether it is still reasonable to accept Constitutionalism—is a more difficult question that I won't try to answer.

## 2.

First the attempts to dismiss the problem. You might think that the problem arises only if we suppose that two things could never be made of the same parts—only if we accept some principle of mereological extensionality. One of these, for instance:

Objects made of the same parts must be (numerically) identical.

Objects made of the same parts arranged in the same way must be identical.  
Any objects made of the same parts at the same time must be identical.

(By 'part' I mean 'proper part'. One thing is a proper part of another if it is a part of it but not identical to it.) Some try to defend Constitutionalism against the Indiscernibility Problem by arguing that these principles are implausible, or at any rate unsupported (Johnston 1992: 92-97, Corcoran 1999: 10).

This is to misconstrue the problem. It is true that each of these principles is incompatible with Constitutionalism (given certain natural assumptions, at least). But the Indiscernibility Problem has nothing to do with them. Critics of Constitutionalism needn't deny that the particles now composing you could compose something other than you at other times, even if they are arranged then just as they are now. They could even accept that numerically different objects might coincide materially. For all the Indiscernibility Problem says, the same atoms could compose any number of different objects at once. Those objects would simply have to belong to the same kind and have the same identity conditions and other qualitative properties. The idea that the same atoms might at once compose two or five or seventeen identical cats (say) faces problems enough, but the Indiscernibility Problem isn't one of them. Because the Problem has to do with qualitative rather than numerical identity, principles of mereological extensionality are simply irrelevant.

### 3.

Some suggest that the Indiscernibility Problem is founded on a linguistic confusion (Baker 1999, 2000: 197ff.). Constitutionalism, the idea goes, doesn't deny that Animal is a person, or that Person is an animal. Animal is a person, in the sense of constituting a person, and Person is an animal, in the sense of being constituted by one. It is true that Animal isn't 'predicatively' a person: Animal lacks the property of being a person, and is not identical with one. And Person isn't predicatively an animal. At any rate Animal isn't a person in the sense that Person is, and Person isn't an animal in the sense that Animal is. But (the thought continues) there is nothing surprising or paradoxical about this. Our ordinary intuition that anything empirically indiscernible from an animal must be an animal doesn't distinguish between 'being' an animal in the ordinary predicative sense and 'being' an animal in the sense of being constituted by one. Likewise, our intuition that, because Animal has the same nervous system as a thinking being, he ought himself to be able to think, is based on the fact, consistent with Constitutionalism, that Animal 'is' able to think in the sense of constituting a thinking being. Once we see this (the thought concludes), the Indiscernibility Problem dissolves.

Whether English has an 'is' of constitution depends, I think, on the truth of Constitutionalism. The only point in having such a term is to make the things we ordinarily say and think consistent with that doctrine. Unless one material object could constitute another, there would be no reason to suppose that the 'is' in 'Animal is a person' was anything other than the ordinary 'is' of predication, or that the 'is' in 'the statue is the lump' was anything other than the ordinary 'is' of identity.

But let us grant for the sake of argument that there is an 'is' of constitution, and that Animal 'is' a person and 'is' able to think in that sense. The fact remains, if Constitutionalism is true, that Animal cannot himself think, and is not predicatively a person. Likewise, Person isn't predicatively an animal. Constitutionalism implies that there can be two empirically indiscernible objects that, strictly speaking, in themselves, have radically different mental properties. The linguistic hypothesis does nothing to explain why, despite his healthy human nervous system, appropriate surroundings, and so on, Animal should be unable to think in the way that Person can. Appealing to the 'is' of constitution and other linguistic tricks may make the Indiscernibility Problem harder to state, but they don't make it go away.

#### 4.

The Indiscernibility Problem is often put in terms of supervenience: a thing's kind, identity conditions, mental and biological properties, and so on must supervene on the properties of and relations among its smallest parts (or, if it has no smallest parts, its very small parts: its atoms, say): in short, on its microstructure. Since coinciding objects have the same microstructure, they must be of the same kind, with the same identity conditions and other qualitative properties, contrary to what the Constitutionists say.

This thought has apparently led some Constitutionists to see the Problem as a straw man, relying on the claim that all properties of material objects, or at any rate all qualitative properties, supervene on their microstructure (Baker 1997: 605f.). That claim is easily refuted. Forgeries are the most obvious counterexample: something microphysically indistinguishable from a dollar bill needn't be a dollar bill.

But the Indiscernibility Problem makes no such claim. It would arise if even one of the properties that Constitutionalism says coinciding objects can fail to share were to supervene on a thing's microstructure. Constitutionalism would be false if a thing's microstructure fixed its kind, its identity conditions, or some of its mental properties. The possibility of counterfeit dollar bills indiscernible from real ones in no way supports the possibility of counterfeit people, counterfeit pain sufferers, or counterfeit organisms, indiscernible from real people, real pain sufferers, and real organisms.

In any case, the difference between being a forgery and being genuine is a relational difference: a difference in a thing's spatial and temporal surroundings. It would be

relevant to Constitutionalism only if the qualitative differences between coinciding objects were always relational. But no one thinks that being a person, being able to think, being alive, being constituted by an organism, and having certain identity conditions are all relational properties like being a forgery. And even if they were, it would help the Constitutionalist only if Person and Animal differed in their surroundings in something like the way that a genuine dollar bill and a forgery do. But they don't. Constitutionalist believe that microphysical duplicates in the same surroundings can differ qualitatively. (At any rate in microphysically indiscernible surroundings: see Section 6.)

Putting the objection in terms of supervenience has also encouraged a deeper and more important confusion (Rea 1997a: 370, Corcoran 1999: 15f.; see also Shoemaker 1999: 296). There are many different notions of supervenience, the idea goes, and it is only on some of them that Constitutionalism implies that a material object's kind, mental properties, and so on fail to supervene on its microstructure. For instance, Constitutionalism denies that the intrinsic, qualitative properties in question supervene on microstructure in either of the following senses ('weak' and 'strong' supervenience, as the jargon has it):

Necessarily, any two material objects with the same microstructure will be the same with respect to those intrinsic, qualitative properties.

Necessarily, for any material object with a given microstructure and a given set of intrinsic qualitative properties, necessarily any object with the same microstructure will have the same set of intrinsic qualitative properties.

Microphysical supervenience in this sense is therefore 'hostile' to Constitutionalism.

But Constitutionalist can say that the qualitative properties in question supervene on a thing's microstructure in another sense ('coincidents-friendly supervenience', Rea calls it):

Necessarily, any two material objects with the same microstructure will either be the same with respect to those intrinsic, qualitative properties or materially coincide with things that are.

A microphysical duplicate of Person may fail to be a person, or to have any of the mental properties that Person has; but it will always coincide with a person having the same intrinsic mental properties as Person. The right sorts of particles' being arranged in the right way doesn't guarantee that all of the things they compose will have mental

properties, but it does guarantee that they compose at least one thing with mental properties. To put it differently, a thing's intrinsic mental properties weakly (or perhaps strongly) supervene not on its microstructure alone, but on its microstructure together with its kind—its being a person or an organism, for instance. Again, having such and such intrinsic mental properties doesn't weakly supervene on a thing's microstructure, but coinciding with something having those mental properties does. The fact that Constitutionalism allows for the intrinsic mental, biological, and kind properties in question to supervene on microstructure in this sense is supposed to do away with the Indiscernibility Problem, or at least an important aspect of it.

It doesn't. Constitutionalist must deny that a material object's kind, intrinsic mental and biological properties, and so on supervene on its microstructure in the familiar strong or weak sense. You can't rebut an argument by pointing out that it is invalid on one reading of a certain term if it is perfectly valid on another plausible reading. Changing the definition of 'supervenience' merely changes the subject.

In any case, it is clear enough that 'coincidents-friendly supervenience' isn't what those who believe that intrinsic mental properties supervene on the physical have in mind. No one with any sympathy for psychophysical supervenience would accept that things with the same physical properties and the same surroundings (including the same laws of nature) might still differ radically in their intrinsic mental properties; yet that is precisely what coincidents-friendly psychophysical supervenience allows.

Let me illustrate this with what I hope is an uncontentious example. The mass of a material object is determined by the masses of its (non-overlapping) parts: things can't differ in mass unless their parts do (if they have parts, anyway). Coincidents-friendly supervenience fails to capture this familiar idea. It is consistent with the coincidents-friendly supervenience of a thing's mass on the masses of its parts that things composed of the very same parts, or exactly similar ones, may differ radically in mass. For instance, the very elementary particles that compose me may at the same time compose an object with half my mass. The coincidents-friendly supervenience of a thing's mass on the masses of its parts implies only that any particles just like mine in number and mass must compose something with my mass. But they may at the same time compose other objects with any mass you like, as long as any such particles would compose things with those masses. That is absurd: an object's mass at least weakly, if not strongly, supervenes on the masses of its parts. Of course, it is far less clear whether intrinsic mental properties supervene in any sense on physical properties; but the attraction of that view appears to lie in an intuition analogous to what we all believe about mass. Coincidents-friendly supervenience is simply a red herring.

Some defend Constitutionalism by pointing out that it is consistent with the global supervenience of mental properties on microstructure, in the sense that any two worlds

with the same distribution of microphysical properties will have the same distribution of mental properties (Sider, forthcoming). Constitutionlists can allow that any possible world microphysically just like the actual world will contain the same number of thinking beings with the same mental properties as there are in actuality. But this still allows for beings with the same microstructure and surroundings to differ radically in their mental properties. In fact it is even less relevant than coincidents-friendly supervenience, for it doesn't even guarantee that particles arranged just like mine, in identical surroundings, will compose anything with mental properties. For all it says, particles arranged in the same way in identical surroundings may compose thinking beings on some occasions but not on others, if all other worlds with the same microstructure have the same irregular distribution of mental properties. That is, it allows for human animals in the actual world with microstructure and surroundings just like mine to fail even to coincide with thinking beings. This clearly won't satisfy those who believe in psychophysical supervenience.

There are no doubt other sorts of supervenience that would allow Constitutionlists to say the same thing. But they solve no more problems than those we have discussed.

## 5.

So Constitutionlists must deny that intrinsic mental and biological properties supervene on microstructure in the way that many philosophers think they do, and it is no good appealing to weaker notions of supervenience. But putting it that way suggests that we could avoid the Indiscernibility Problem by rejecting those supervenience claims. This is not so. The Indiscernibility Problem needn't involve supervenience at all. What the critics want to know is why Person can think. They doubt whether any satisfactory answer is compatible with the claim that Animal, which has the same microstructure, the same surroundings, and the same evolutionary history as Person, cannot think. Likewise, they want to know why Animal is an animal, and they doubt whether any satisfactory answer is compatible with the claim that Person, despite being made entirely of living tissues arranged just as Animal's are, is not an animal. The real issue is not supervenience but explanation.

Constitutionalism implies that we can't explain why a thing can think or experience, or why it is an organism or is alive, or why it has the identity conditions it has, in terms of the nature and arrangement of its parts, or even that together with its history and surroundings. And nothing else seems adequate to explain it. Yet it seems that there must be an explanation. If the supposed qualitative differences between Person and Animal turned out to follow from some other difference between them that wasn't in question, that would answer the objection. That's how supervenience came into the story: if a thing's intrinsic mental or biological properties supervene on its microstructure

in the strong or weak sense, then its having the microstructure it has entails, and so at least helps to explain, its having the intrinsic mental or biological properties it has.

But we can explain why a thing can think in other ways: for instance by showing that its microstructure is nomologically sufficient for it to think, or that its microstructure reliably but fallibly causes it to have certain mental properties. That would leave open the possibility that two microphysical duplicates might have different intrinsic mental properties. But this would be no comfort to Constitutionalists. For in the first case this could happen only if the laws of nature were different, whereas Constitutionalism says that microphysical duplicates with radically different mental properties are compatible with the actual laws. And in the second case the existence of microphysical duplicates with different mental properties would be a chance event (and presumably highly unlikely), whereas Constitutionalism requires a predictable and systematic mental difference between human people and the things that constitute them.

We can see now more clearly why the so-called coincidents-friendly notion of supervenience is irrelevant to the Indiscernibility Problem. You can't explain why Person is in pain while Animal is not by pointing out that Animal's C-fibres' firing entails that something made up of Animal's parts must be in pain. That is no better than explaining why Alice rather than Fred won the race by pointing out that, given the way the race was run, someone had to win.

## 6.

So much for attempts to dismiss the Indiscernibility Problem. I turn now to attempts to solve it.

Lynne Rudder Baker tries to explain the qualitative differences between coinciding objects by appealing to a difference in their surroundings (1995; 1997: 621). As I understand it, the idea is this. Bronze statues and the lumps of bronze coinciding with them belong to different kinds, with different identity conditions, aesthetic properties, and so on. Their microstructure can't explain this difference, since it is the same in both cases. We must turn to their surroundings. When we consider what a work of art is, that shouldn't surprise us. A statue is what it is because of the way the artist and the art community treat it. Without those surroundings it wouldn't be a statue, or have the identity conditions of statues. The lump of bronze that constitutes the statue, however, would be a lump of bronze in any surroundings. Being a work of art is a relational property; being a lump of bronze is not. We will never understand how the statue differs from the lump until we compare their surroundings. It is only the metaphysical dogma that a thing's kind and other essential properties must be intrinsic and never relational that gives the Indiscernibility Problem its force.

We may doubt whether this sort of thing is any help in other supposed cases of

material coincidence: organisms and masses of matter, say. But it would be interesting enough if it could solve the Indiscernibility Problem even in some cases.

Suppose, then, that a sculptor arranges a lump of bronze into the shape of Margaret Thatcher, and that everyone takes her to have produced thereby a statue of that formidable woman. The result is not merely that a previously existing object gets new properties, such as being Thatcher-shaped and being a statue. Being a statue is supposed to be an essential property of statues, one that gives statues different identity conditions from those of lumps. And obviously a thing can't have different essential properties or identity conditions at different times. So the idea must be that a new material object, with different identity conditions from those of the lump, comes into being as a result of the art community's activities. Had the same lump of bronze been rearranged in the same way in the wrong surroundings--by chance and unobserved in the bowels of a volcano, say--it wouldn't have come to constitute a statue, or anything with statue identity conditions.

I find this incredible. Presumably the physical working of the bronze is inessential to the story. At any rate it can't be sufficient for the bronze to come to make up a statue, else the existence of the statue would supervene on microstructure and the surroundings would be irrelevant. Suppose an artist simply finds a piece of bronze and, without touching or moving it, declares it to be a work of art. The public go along with it, and it is bought and sold several times, all without being disturbed. If Baker's story is right, these activities would bring a new material object into existence, one that wouldn't have existed had no one paid the bronze any heed. That would give us the power to bring concrete material objects into existence without getting our hands dirty, just by speaking in the right way. Gods and magicians would envy us! Even they can't create material objects without creating new matter, or at least rearranging matter that was already there.

But there is a deeper problem that would arise even if the art community really could speak objects into existence. The difference in the way we treat statues and the way we treat their coincident lumps can't explain their other supposed differences, for the simple reason that they have the same surroundings. Both are worked by artists, exhibited in galleries, bought and sold, and so on.

Someone might deny this. 'Christie's sells art, not scrap metal. Critics may admire the statue but not the piece of bronze, or vice versa ("the materials are lovely, but the design is flawed"). The statue and the piece of bronze may have the same microphysical surroundings, but they differ in the way we think of them.'

That may be. But if so, these differences depend on their difference in kind, and so can't explain it. If it is the bronze statue and not the lump of bronze that is beautifully designed or worth millions, that is because it is a statue, not vice versa. If we treat the statue and not the lump as a work of art, that is because it is a statue and not a lump.

Unless this difference in kind were presupposed, we couldn't distinguish one object from the other. The story must begin with the assumption that the statue and the lump differ in kind. It can't explain that difference. It therefore offers no solution to the Indiscernibility Problem.

This may be clearer if we return to the case of Person and Animal. Baker's view, apparently, is that the relevant atoms compose a person as well as an animal because of the way they are arranged, together with the way other people treat them (1995: 495). (She doesn't tell us where the first people come from.) A thing's being a person somehow explains why it isn't an animal, and a thing's being an animal somehow explains why it can't think. But even if this doubtful story were true, it wouldn't explain why Person is a person who can think, while Animal is an animal that can't. If there is any difference in the way we treat Animal and Person--if we speak to Person but not to Animal, say--that can only be because Person is a person and Animal isn't. Their difference in kind must explain their different surroundings, rather than vice versa.

## 7.

Another attempt to solve the problem turns on the idea that coinciding objects differ in what might be called their compositional structure (Sosa 1987, Levey 1997, Rea 1997a, Corcoran 1999; for a related idea see Doepke 1996: 193). I will consider Michael Rea's account, since it is the most explicit; but some of my comments will apply to the others as well.

Rea begins by saying that an object of a given kind exists just in case there is matter arranged in the appropriate way. A human being--that is, her existence--supervenes, in the ordinary sense, on the 'humanwise' arrangement of her matter; a lump of stuff supervenes on the 'lumpwise' arrangement of its matter. He then argues like this:

No one will deny that the stuff filling the region occupied by Socrates is arranged both humanwise and lumpwise. Moreover...the fact that it is so arranged is determined by...the intrinsic properties and relations exemplified by the microparticles in that region. Some of those properties and relations make it the case that the stuff in that region is arranged lumpwise; others make it the case that the stuff in that region is arranged humanwise. Thus, it is quite reasonable to suppose that the properties that supervene on those properties and relations are distributed accordingly. Since the human being in the region supervenes on the humanwise arrangement of the microparticles, it is reasonable to say that his properties are just those that supervene on the human-determining properties and relations exemplified by those particles; and since the lump in the region supervenes on the lumpwise arrangement of the microparticles,...its properties are those that supervene

on the lump-determining properties and relations exemplified by those particles.  
(1997a: 371)

I take it that a lumpwise arrangement of particles consists of those properties of and relations among particles that they exemplify when and only when they compose a lump. I assume that these are what Rea means by 'lump-determining properties and relations'. Likewise, particles are arranged humanwise--i.e., exemplify 'human-determining properties and relations'--just in case they compose a human being. These two arrangements, or sets of properties and relations, are different, since what it takes for particles to make up a lump is different from what it takes for them to make up a human being: particles can be arranged lumpwise without being arranged humanwise. Rea says that Socrates exists because his particles are arranged in one way, while the lump exists because those same particles are arranged in another way (compatible, of course, with the first). That provides a difference between Socrates and the lump that can explain their other differences.

The explanation is this: A human being such as Socrates has just those intrinsic, qualitative properties that supervene on the humanwise arrangement of his particles, while the coinciding lump has just those properties that supervene on their lumpwise arrangement. Hence, Socrates can think and the lump can't because the ability to think supervenes on the humanwise arrangement of the particles but not on their lumpwise arrangement: necessarily any particles arranged humanwise will compose something that can think; not so any particles arranged lumpwise. The other supposed differences between Socrates and his coinciding lump are explained in a similar way.

As far as I can see, this account fails on its own terms. Particles can be arranged humanwise--arranged in such a way as to compose a human being--without thereby composing anything that can think. Consider the particles that compose a human foetus, or a human being in a persistent vegetative state. Even more obviously, particles can be arranged humanwise without thereby composing anything that is in pain, or thinking about Vienna--or, for that matter, anything with black hair or blue eyes. Specific properties like these don't supervene on the humanwise arrangement of particles. But if a human being has just those intrinsic properties that supervene on particles' being arranged humanwise, then no human being thinks about Vienna or has blue eyes. That is false: human beings can have properties that don't supervene on the humanwise arrangement of their particles. But then Rea hasn't explained why Socrates has the properties he has, or why the lump of stuff coinciding with him has the different properties it has. If a thing can have properties that don't supervene on the arrangement of particles corresponding to its kind, then why can't the lump think?

In other words: The 'humanwise arrangement' of particles is just that arrangement

that is minimally sufficient for them to compose a human being. But then any particles arranged humanwise will have the same humanwise arrangement. Although your current particles are arranged differently from mine, both sets of particles are arranged humanwise. Thus, if human beings had only those intrinsic properties that supervene on the humanwise arrangement of their particles, as Rea's proposal has it, all human beings would have the same intrinsic properties. Fortunately they don't.

But never mind that. The general idea behind Rea's account is that human beings and lumps of stuff (or people and animals) have different 'composition conditions'. A human being exists because her particles are arranged humanwise; her coincident lump exists because those particles are arranged lumpwise. We may wonder how this difference could prevent the lump from thinking while enabling the person to do so. That is what Rea's account failed to explain. But even if that problem were solved, the Indiscernibility Problem would remain, for the whole idea presupposes that the coinciding objects differ in kind, and so can't explain why they do. The difference between the humanwise and the lumpwise arrangement of particles isn't a difference between Socrates and the lump, for both objects have their parts arranged in both ways. Socrates' particles are arranged lumpwise as well as humanwise. Why, then, is it the latter that determines his properties, and not the former, or both? The lump's particles are arranged humanwise as well as lumpwise. Why is it only the lumpwise arrangement that determines its properties, rather than one of the many other ways in which its parts are arranged? The reason, or part of it anyway, must be that Socrates is a human being and not a lump, while the lump is a lump rather than a human being. And this difference is left unexplained. At most we have explained certain surprising differences between coinciding objects by appealing to other purported differences that are equally surprising and, I should have thought, equally in need of explanation.

## 8.

Let us consider one more possible defence of Constitutionalism. Sydney Shoemaker characterizes properties in terms of the causal powers they give their bearers (1979). A property, he says, is something that is disposed to combine with certain other properties of anything that has it to produce certain appropriate 'successor states' in that thing. He takes this to imply that properties determine the identity conditions of their bearers.

Although Shoemaker is one of those Constitutionlists who ignore the Indiscernibility Problem, we can see how his idea might be relevant. Consider the question of why people but not the animals coinciding with them have mental properties. It is commonly held that mental states are characterized at least in part by the way they relate causally to other mental states, and to sensory stimulations and behaviour. Shoemaker thinks we can say more than this: mental states must be

disposed to interact with other states of their bearers to cause further states in their bearers (1979: 340, 1999: 299f.). Your wanting to cross the street if the way is clear is the sort of state that must tend to cause you to cross if you believe that the way is clear. It won't cause anyone else to cross, or at least not in the same way. Mental states that relate to one another in this characteristic way must necessarily belong to the same subject. That, in fact, is what it is for them to belong to the same subject. This has implications for the identity conditions of thinking things: some sort of psychological continuity must be at least sufficient, if not necessary, for anything with mental properties to persist through time.

A similar thought suggests that no living thing--no organism--could have psychological identity conditions. Part of what it is for a thing to be alive in the biological sense is for it to be disposed to communicate the biological event that is its life to itself at later times, and to nothing else. That, in part at least, is what the identity of an organism consists in (van Inwagen 1990: 142-158). It is not hard to see that this 'biological continuity' needn't coincide with psychological continuity: if your mental attributes were transferred from one head to another via a 'brain-state transfer machine' (or by transplanting the cerebrum), the resulting being would be psychologically but not biologically continuous with you. You can't move an animal from one head to another by transferring its brain states or transplanting its cerebrum.

Thus, Shoemaker's theory of properties suggests that being an animal and being a thinking thing imply different and incompatible identity conditions. Nothing could be both an animal and a thinking thing. This would explain why no human animal, not even one with the same microstructure, history, and surroundings as a normal human person, could think, and why no person or thinking thing could be biologically alive. Animals can't think because they have the wrong identity conditions.

This is the only account on offer that comes anywhere near explaining the differences between people and human animals that Constitutionalism asserts. Even if it is right, though (and I have serious doubts: see my unpublished), it offers no solution to the Indiscernibility Problem. Like the others it must begin with the assumption that Person is a person (or thinking thing) and not an animal, while Animal is an animal and not a person. Without this starting point the account has nothing to work on. But it offers no explanation of that difference. Shoemaker too must deny that the properties of and relations among a thing's parts, even in conjunction with their surroundings, explain, entail, or even cause its higher-level properties, such as its ability or inability to think, or its being a person or an organism.

## 9.

By now it should be clear that there isn't going to be a solution to the Indiscernibility

Problem, short of giving up Constitutionalism. Any explanation of why Person has a qualitative property that Animal lacks will have to appeal to some other qualitative difference between them that it leaves unexplained. That difference may admit of some further explanation, but that further explanation will have to appeal to some still further qualitative difference; and so on. At no point will any of these differences be explainable in terms of a difference in their internal structure or surroundings, for there is none. The most the Constitutionalist can hope to do is show that this isn't as bad as it looks, or that we have to live with it because the arguments for Constitutionalism are irresistible or the alternatives are worse.

As I see it, the Constitutionalist must say something like this: The differences between Person and Animal all follow from the fact that Person is a person and Animal is an animal. Being a person entails having 'personal' identity conditions (incompatible with those of animals), not being alive in the biological sense, and being able to think and experience. Being an animal entails having 'animal' identity conditions (incompatible with those of people), and being unable to think. It won't be easy to explain how these further differences follow from the difference between being a person and being an animal. Shoemaker's causal theory of properties is the only glimmer of hope here. But if Constitutionalism is true there must be some such account.

What, then, makes Person a person rather than an animal? And what makes Animal an animal rather than a person? We could say that it is because Person has the mental properties and the identity conditions that he has, and Animal has the biological properties and the identity conditions that he has. But that would be saying that a thing has properties x and y because it has property z, and it has z because it has x and y. That does nothing to explain why it has any of those properties. Why does Person have the 'personal' collection of properties rather than the 'animal' collection?

Here there is no explanation of the sort the critics demand. Being a person is a brute or basic property. A thing's having or lacking that property cannot be explained in terms of its having any other property (except perhaps certain mental properties and identity conditions which are themselves brute). A thing's being an animal is likewise a property that it has fundamentally, and not by virtue of having any other property (except perhaps certain brute biological properties and identity conditions). The difference between being a person and being an animal is a brute difference, not requiring any further difference, and thus not explainable in terms of any. That is why a non-living, thinking person and a living, unthinking animal can be identical in every other respect, and why the difference between animals and non-animals, and between people and non-people, is in some cases empirically undetectable.

The most one can say by way of explanation is this: Whenever there is matter arranged in the way that Person's matter is arranged, or your matter or my matter, in the

appropriate surroundings, it makes up a person, and it makes up an animal. That is a necessary truth, or at any rate follows necessarily from the laws of nature. Somehow, being a person entails having certain further properties, and being an animal entails having a different set of further properties, incompatible with the first. Thus, the person and the animal must be numerically different. But there is no point in asking why the person is a person and not an animal, or why the animal is an animal and not a person. The person couldn't have existed without being a person, and the animal couldn't have failed to be an animal. It would be legitimate to ask why something is a person rather than an animal if its belonging to one kind rather than the other were a contingent feature of it. But it isn't. Asking why the person is a person and not an animal is no more intelligible than asking why it is the thing it is and not another thing.

Constitutionalists say that Person can think because he's a person and Animal can't because he isn't, and that's where explanations must stop. Their critics insist that the difference between a thinking person and an unthinking non-person must be explainable in terms of further differences.

Who is right? That is a hard question. Constitutionalists will point out there must be some qualitative properties that things have fundamentally and not by virtue of their having further properties. Likewise, there must be some brute qualitative differences. Their opponents may agree, but will argue that we shouldn't expect being a person or being an animal, or thinking or being alive, to be brute. If any properties are brute, we should expect them to be simple properties. The fundamental properties of physics, such as charge and mass, are a paradigm case. As far as we know, electrons aren't negatively charged by virtue of their having any other properties. Nothing makes an electron negatively charged, or explains why it is, other than its being negatively charged. Electrons and positrons have no internal structure or other features that could even appear to explain their difference in charge. But the apparent fact that only things with an enormously complex internal structure can be alive or think suggests that those properties aren't simple in the way that charge and mass are. People and organisms have just the sort of complex structure and rich variety of properties that could, it seems, explain why they and not other material objects can think or are alive.

As I see it, the critics have a point. If a complex material object can think, we expect it to think by virtue of the sorts of parts it has and the way they interact. Having the right microstructure—in the right surroundings and with the right history and laws of nature, we might add—ought to suffice for a material thing to think if such a thing could ever think. If a complex material object can be alive, we expect it to be alive by virtue of the sorts of parts it has and the way they are arranged. Having the right microstructure, in the right surroundings and with the right history and laws of nature, ought to suffice for a material thing to be alive if such a thing could ever be alive. This is no doubt the

intuition that has led so many philosophers, rightly or wrongly, to think that mental and biological properties supervene on microstructure, or at any rate are nomologically correlated with or caused by it.

Constitutionalists must deny this intuition. On their view, a material object thinks by virtue of its having such and such a microstructure, surroundings, etc., together with its being a person, or its belonging to some other relevant kind. Its internal structure and surroundings alone are insufficient, as the existence of the unthinking human animals or lumps of tissue that constitute us shows. Likewise, a material object is biologically alive by virtue of its having such and such a microstructure, surroundings, etc., together with its being an organism. The former by itself is insufficient, as the existence of the biologically non-living human people that certain animals constitute shows. Many of us find this mysterious and implausible. That is the point of the Indiscernibility Problem. [1]

## Notes

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