Property-Indexing and "Problems" of Identity

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Philosophers have an uncanny ability to come up with problems that do not exist. Much of the history of philosophical inquiry has centered on dragging foolish thinkers out of self-made quandaries. The present paper attempts to accomplish such a task. This paper will examine the problems inherent in "Leibniz's Laws".[1] We will begin by stating these laws, which describe the nature of identity, and then discussing two difficulties in their application. The first law, the principle of the Indiscernibility of Identicals, states:

> For every pair of objects x and y, x is identical with y if and only if every property exemplified by y is also exemplified by x, and every property exemplified by x is also exemplified by y.

The second law, the principle of the Identity of Indiscernibles, is an inference of the first. It states:

> For every pair of identical objects x and y, every property exemplified by y is also exemplified by x, and every property exemplified by x is also exemplified by y.

While Leibniz's Laws may appear unproblematic, they create a number of philosophical problems. Let us consider a few of these problems.

I

Suppose Bobby learns "Leibniz's Laws". Upon reflection, he is disturbed by a counterexample he discovers. "Suppose," Bobby says, "I am sitting down in my chair, and then I stand up. It follows that there is a property held by the sitting object (i.e. the property of being in a seated position) that is not held by the standing object, and there is a property held by the standing object (i.e. the property of being in a standing position) that is not held by the sitting object. According to the principle of the Indiscernibility of Identicals, then, it follows that the sitting object and the standing object are not identical. Hence, I am not the same person I was when I was sitting."

At first glance, Bobby's argument seems to be quite powerful. He has presented us with two objects, x and y. Each object has properties that distinguish it from the other; it does indeed seem to follow that they are not identical. But can it be correct that one loses her identity every time she changes posture? Surely not—the simple testimony of the continuity of experience during such minor changes attests to the fact that there is something wrong with such a conclusion. However, Bobby's premises seem to be quite acceptable. Does this mean, therefore, that the principle of the Indiscernibility of Identicals leads to paradoxical conclusions and must be abandoned? Certainly not. The problem is not with the principle itself; rather, we have simply misunderstood the principle in its entirety.

We must reformulate the principle of the Indiscernibility of Identicals to read:

> For every pair of objects x and y, x is identical with y if and only if every property exemplified by y at any time t is also exemplified by x at t, and every property exemplified by x at any time t is also exemplified by y at t.

And so Bobby's dilemma can be easily resolved: let us say that he is sitting at t_1 and then standing at t_2.

We can then explain the properties of standing and sitting not as properties *simpliciter*, but as *time-indexed properties*: the object that is sitting at t_1 does not have the property of sitting *simpliciter*, but only the property of sitting-at-t_1.[2] Similarly, the object that is standing at t_2 has the property of standing-at-t_2 but also the property of sitting-at-t_1 (i.e., the property of being-a-thing-that-was-sitting-at-t_1.) This revision therefore enables the principle of the Indiscernibility of Identicals to deal with questions of identity over time.

Suppose Bobby now raises another difficulty with the principle of the Identity of Indiscernibles: "Suppose," he says, "that I have two lumps of clay. The first lump is molded in the shape of the Statue of Liberty, and the second is molded in the shape of the Empire State Building. And suppose that I take the first lump and remold it in the shape of the Empire State Building, and then remold the second lump in the shape of the Statue of Liberty. The second lump then has all the same properties that the first lump used to have, and the first lump has all the same properties that the second lump used to have. According to the principle of the Identity of Indiscernibles, the second lump becomes identical with the first lump, and the first lump becomes identical with the second—they somehow switch places!"

Bobby finds this conclusion quite disturbing; we would do well to be equally alarmed if it were not for the fallacy in his reasoning. In the first place, we could point out that although the Statue-of-Liberty-shaped objects constituted by the first and second lumps might indeed be indiscernible to us if we had left during the squishing and re-shaping periods, they would still be made up of different clay molecules and would therefore not have all of the same properties. (We could say, perhaps, that they would not be indiscernible to God or to some other omniscient being.) But even if we look past this deficiency, we can easily overcome his dilemma by reformulating the principle of the Identity of Indiscernibles to read:

> For every pair of identical objects x and y, every property exemplified by y at any time t is also exemplified by x at t, and every property exemplified by x at any time t is also exemplified by y at t.

We can then reintroduce the notion of time-indexed properties and explain that the first lump has the property of being Statue-of-Liberty-shaped-at-t_1, while the second lump has that property at t_2, and that similarly, the second lump has the property of being Empire-State-Building-shaped-at-t_1, while the first lump has this property at t_2. And so disaster is averted once again.

II

Although it seems Bobby's difficulties can be easily overcome, alternative versions of these arguments have been offered to suggest that there are certain fundamental problems with the notion of "trans-world identity;" that is, the idea that an object can have certain properties in the actual world, while having different properties in another "possible world" or "counterfactual situation."

Roderick Chisholm, one such philosopher, asks us to imagine a possible world W^* in which the biblical Adam lives 931 years instead of 930.[3] We then have an object x in the actual world @ which has the property of living 930 years, and an object y in W^* that lives 931 years. These objects have different properties, Chisholm says, so can we call them the same thing without violating the principle of the Indiscernibility of Identicals? Fortunately, Chisholm is able to offer us a simple answer, which follows the same line of response we used to answer to Bobby's first query.

Once again, the response to this apparent dilemma begins with a reformulation of the principle of the

Indiscernibility of Identicals:

> For every pair of objects x and y, x is identical with y if and only if every property exemplified by y at any time t in any world W is also exemplified by x at t in W, and every property exemplified by x at any time t in any world W is also exemplified by y at t in W.

At this point, we can introduce the notion of *world-indexed properties* and solve the problem; again, objects do not hold properties *simpliciter*, but only in certain worlds.[4] It is not appropriate to simply say that since a certain object x in @ lives 930 years and a certain object y in $W*$ lives 931 years, x and y have different properties and hence cannot be identical. Rather, we should be able to see that the object that has the property of living-931-years-in-$W*$ also has the property of living-930-years-in-@, and vice versa. And so if the age of Adam-in-$W*$ is the only property that distinguishes him from Adam-in-@,[5] they are indiscernible: the properties of living-930-years in-@ and living-931-years-in-$W*$, together with all other properties they have, are indeed shared by both objects.

Chisholm's argument does not stop here. He asks us to continue this thought experiment and imagine a progression of possible worlds in which the properties held by the biblical Adam are gradually "given" to the biblical Noah, and Noah's properties are gradually "given" to Adam. After a series of such worlds (the length of the series depends on how much one is willing to allow an object to change from one world to the next), we arrive at a world Wn in which the object in Wn that we identify with Adam is thoroughly indiscernible from Noah, and the object in Wn that we identify with Noah is indiscernible from Adam—they have completely "swapped" properties. Chisholm is disturbed by this possibility: "Should we say," he asks, "of the Adam of Wn that he is identical with the Noah of @ and should we say of the Noah of Wn that he is identical with the Adam of @? In other words, is there an x such that x is Adam in @ and x is Noah in Wn, and is there a y such that y is Noah in @ and y is Adam in Wn?"[6] The answer to these questions must be "no."Otherwise we would encounter a paradox. We can, however, elude the difficulties Chisholm raises by reformulating the principle of the Identity of Indiscernibles:

> For every pair of identical objects x and y, every property exemplified by y at any time t in any world W is also exemplified by x at t in W, and every property exemplified by x at any time t in any world W is also exemplified by y at t in W.

We can then reintroduce the notion of world-indexed properties and point out that the object in @ that we identify as Adam does not have the same properties as the object in Wn that we identify as Noah: the first has, for example, the property of being-named-"Adam"-in-@, while the second has the property of being-named-"Noah"-in-@. The same rejoinder goes for any other properties identified by Adam and Noah in any of the worlds in which they exist, and our commonsense intuitions are protected.

III

At this point, however, one might raise another question: how do we know whether a given object x in a world W is identical with an object y in a world $W*$? In the case of Adam and Noah, we found that appearances can be misleading: the object in Wn that is "superficially" identical to the object in @ that is Adam is actually Noah, while the object in Wn that is actually identical to Adam doesn't share many of his @-characteristics at all. How can we *verify* that these radically dissimilar transworld objects are identical?

Chisholm suggests that the way to deal with this difficulty is to introduce the idea of essential properties: "For every entity x, there are certain properties N and certain properties E such that: x has N in some

possible worlds and *x* has non-*N* in others; but *x* has *E* in every possible world in which *x* exists."[7] He goes on, however, to ask how we might identify such properties: "It seems to me that even if Adam does have such essential properties, there is no procedure at all for finding out what they are. And it also seems to me that there is no way of finding out whether he *does* have any essential properties. Is there really a good reason, then, for supposing that he does?"[8] Since Adam-in-@ is so apparently unlike Adam-in-*Wn*, how can we tell if there are any "essential" properties that both of them have?

This apparent difficulty, however intriguing, is really just a "pseudo-problem": what our discussion has shown is that these essential properties need not be quite as strange or epistemically hidden as Chisholm thinks. If we recognize, as Plantinga[9] points out, that *all world-indexed properties are essential*,[10] then we are in a position to offer Chisholm quick asylum from his epistemic quandary: the way we can identify the object *y* in a given world *W** that is identical with an object *x* in @ is simply by picking out a property *P* that only *x* has in @ (e.g. "being identical with *x*", "being called Saul Kripke and being a Professor Emeritus at Princeton University", "being the object to which I am referring when I say '*x*'", etc.), and then "pointing" to the object in *W** that has the world-indexed property of having-*P*-in-@.

One might ask how to perform this task of "picking out" world-indexed properties and "pointing" to objects in other possible worlds that have them, but this question is equally misleading. As Kripke[11] has argued, a non-actual "possible world" is not investigated through some sort of trans-mundane telescope (this would, of course, make it quite impossible to determine the world-indexed properties of any given object), but it is "*given by the descriptive conditions we associate with it*."[12] And so when I say, for example, "Suppose that the biblical Adam had lived 931 years," I am asking you to imagine a world (or counterfactual situation) *W** in which there is an object *x* such that for every property *P* held by the biblical Adam in @, *x* has the property of having-*P*-in-@, but also has the problem of living-931-years-in-*W**. In imagining such a state of affairs, you have carried out the "picking out" and "pointing" tasks outlined above, and thereby identified an "other-worldly" object that is *essentially* identical to the biblical Adam.

IV

Perhaps the most interesting facet of the present investigation is that it reveals a similarity between the "problems" of identity over time and those of identity across worlds. We have seen, however, that the issues raised in both areas can be easily answered by simply *indexing* the properties we attribute to things. An object holds all of its time-indexed properties (although perhaps not those pertaining to the future) at all times that it exists; similarly, an object holds all of its world-indexed properties in all worlds in which it exists. This recognition enables us to understand the Principles of the Identity of Indiscernibles and the Indiscernibility of Identicals in such a way that they are not too rigid to allow objects to change over time or across worlds, and yet maintain their identity.

Endnotes

1. Samuel Guttenplan, "Leibniz's Law," *A Companion to the Philosophy of Mind*, ed. Samuel Guttenplan (Massachusetts: Blackwell, 1994) 431. Leibniz's Law states: "For any x, any y and any property P, if x=y then Px if and only if Py." I will be examining the laws in their most common formulations, as the Indiscernibility of Identicals and the Identity of Indiscernibles.

2. Of course, there are other properties that things hold at all times that they exist—in some sense, then, they hold these properties *simpliciter*.

3. R. Chisholm, "Identity through Possible Worlds: Some Issues," *The Possible and the Actual*, ed. M.J. Loux (Ithaca, NY: Cornell University Press, 1979) 80 – 87. Leibniz, the inventor of "possible worlds" discourse, also held that an object could only exist in one possible world.

4. It is, of course, true that objects hold some properties in every world in which they exist (e.g. being self-identical, etc.). In some sense, then, they hold *these* properties *simpliciter*.

5. This is, of course, not entirely reasonable to assume. There are any number of properties that will change when one changes the age at which Adam dies (e.g. the year in which he dies, the number of years his lifespan differs from that of Eve, etc.). But we can easily deal with any of these properties in the same way in which we deal with Adam's age.

6. Chisholm 82.

7. Chisholm 84.

8. Chisholm 85.

9. Alvin Platinga, *The Nature of Necessity* (New York: Oxford University Press, 1974) 63. An object has all its world-indexed properties in every world in which it exists. So if we take an object x and a property P and worlds W and W^* such that x has the properties of having-P-in-W and having-non-P-in-W^*, we will find that x also has the properties of having-P-in-W-in-W^* and having-non-P-in-W^*-in-W.

10. At least under Chisholm's definition of "essential properties", which is accepted by most contemporary philosophers. I am inclined to argue for a more "robust" understanding of essence than this—but that is an issue for another paper.

11. Saul A. Kripke, *Naming and Necessity* (Cambridge, MA: Harvard University Press, 1980) 44.

12. Kripke 44.