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Author(s): H. E. Baber

Source: *Philosophy and Phenomenological Research*, Vol. 52, No. 2 (Jun., 1992), pp. 365-382

Published by: International Phenomenological Society

Stable URL: <http://www.jstor.org/stable/2107940>

Accessed: 11-07-2017 15:15 UTC

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Almost Indiscernible Twins¹

H. E. BABER

University of San Diego

Distinct objects may be very similar, indeed, almost indiscernible. Moreover, individuals of most sorts are such that they could have been slightly different from the way they are. It would seem to follow that where a pair of objects are, as it were, almost indiscernible twins, one or both could have been slightly different in such a way that, though distinct, they were absolutely indiscernible and thus constituted a counterexample to Identity of Indiscernibles.

I argue that this apparently intuitive argument against Identity of Indiscernibles is flawed and should not force us to conclude that Identity of Indiscernibles is false.

Identity of Indiscernibles: Formulating the Principle

The version of Identity of Indiscernibles to be defended here is the doctrine that things are identical if they are "indiscernible," that is to say if they share a list of properties which includes all intrinsic and extrinsic properties that are "purely qualitative." The provisos concerning the inclusion of 'extrinsic' as well as 'intrinsic' properties and the exclusion of some properties which are not 'purely qualitative' are crucial if we are to distinguish the principle to be defended from other doctrines with which it might otherwise be confused. As Robert Adams notes:

The Identity of Indiscernibles might be defined, in versions of increasing strength, as the doctrine that no two distinct individuals can share (1) all their properties, or (2) all their suchnesses, or (3) all their nonrelational suchnesses. Leibniz takes no pains to distinguish these three doctrines, because he holds all of them; but it is only the second that concerns us here. The first is utterly trivial. If suchnesses are properties, of course two distinct individuals, Castor and Pollux, cannot have all their properties in common. For Castor must have the properties of being identical with Castor and not being identical with Pollux, which Pollux cannot share.

¹ An earlier version of this paper was read at an NEH Summer Seminar on Topics in the Philosophy of Time directed by George Schlesinger. I am grateful to participants in the seminar for their comments, to the National Endowment for the Humanities for making this seminar possible and, most of all, to Professor Schlesinger for his invaluable guidance, criticism and support in this and other projects.

The third doctrine, rejecting the possibility of individuals differing in relational suchnesses alone, is a most interesting thesis, but much more than needs to be claimed in holding that reality must be purely qualitative. Let us therefore here reserve the title 'Identity of Indiscernibles' for the doctrine that any two distinct individuals must differ in some suchness, *either relational or non-relational*.²

A satisfactory formulation of the Identity of Indiscernibles principle is crucial if we are to understand the nature of the disagreement between those who accept the principle and those who do not. Certain versions of the principle are trivial: they cannot (reasonably) be rejected and hence need not be defended. Further, as Adams suggests, the difference between trivial and non-trivial versions of the principle appears to turn upon a distinction between "thisnesses" and "suchnesses," the latter being understood as properties which are "purely qualitative." An adequate defense of the principle against the objections of Adams and others therefore requires some explanation of the difference between trivial and nontrivial versions of Identity of Indiscernibles and an account of the role of the qualitative/nonqualitative property distinction in marking this difference. In particular, since it will be argued that the list of properties required for indiscernibility must include time- and world-indexed properties, it must be shown why the inclusion of such apparently non-qualitative properties does not trivialize Identity of Indiscernibles.

If Identity of Indiscernibles is to be true for objects of every kind, including spatio-temporal objects which persist through change, then the list of crucial properties which, if shared, are sufficient for identity must include time-indexed properties. Indeed, it is hard to see what can be meant by characterizing a persisting object, subject to change, as having a property simpliciter without indicating the time at which the object has that property, either by attaching a temporal index to the predicate, by means of temporal adverbs or by tense. When a persisting spatio-temporal object is said to have a property, P, it seems reasonable to ask *when* it has P—whether throughout its career or only at some times during its history. We should not be satisfied if told, in response, that the object in question does not have P at all times, or at any particular times during its history, but merely has P simpliciter.³ Furthermore, if we want to discuss transworld identities, as we must in considering some of the alleged counterexamples to Identity of

² Robert Adams. "Primitive Thisness and Primitive Identity," p. 11.

³ Furthermore, for two objects to be qualitatively similar on any reasonable account it is not enough that they have the same properties: they must have the same sequence of properties. A ball which was first red and then white is not qualitatively indistinguishable from a ball which started off white and was subsequently painted red any more than a red and white striped ball is qualitatively indistinguishable from a red and white polka dot ball. Lake spatial patterning, temporal patterning is crucial for qualitative similarity.

Indiscernibles cited by Adams and others, we must talk about properties that objects have “at worlds.”

It may be argued however that time-indexed properties involve ineliminable reference to particulars and thus fail to qualify as “purely qualitative.” Consider time-indexed properties. Presumably, on an absolutist account of time, the temporal reference would be cashed out in terms of absolute moments while, on a relational account, it would be analyzed in terms of relations to some other particular objects. Similarly, world-indexed properties may be held to involve essential reference to possible worlds. This however would seem to undermine the prospects for a plausible but non-trivial formulation of Identity of Indiscernibles along the lines of Adams’ second version of the principle.⁴

Nevertheless while it is hard to see how a plausible version of Identity of Indiscernibles can avoid reference to time- and world-indexed properties, this does not present insurmountable difficulties.

It might be argued, for example, that while some restrictions must be imposed upon the list of properties which are taken to be sufficient for identity in order to avoid rendering Identity of Indiscernibles trivial, it is not at all clear that the list must be restricted to those properties which are purely qualitative. The three versions of Identity of Indiscernibles distinguished by Adams do not exhaust the possibilities and it could perhaps be argued that while the first version is too weak, the second, which restricts the list of crucial properties to suchness or purely qualitative properties, like the third, which includes only non-relational suchnesses, is too strong. If this is correct then a non-trivial version of Identity of Indiscernibles, faithful to the spirit, though not the letter, of Adams’ second version of the principle, might be formulated.

More interestingly however, it is not even clear that those time- and world-indexed properties which would have to be included on the list of properties sufficient for the identity of persisting spatio-temporal objects, do in fact involve ineliminable reference to particulars. Let us consider time-indexed predicates.

A temporal index which attaches to a predicate ascribed to an object may function in either of two different ways: it may date the object’s possession of the assigned property by reference to other events in its history or, alternatively, it may assign a date to the object’s possession of that property within some larger scheme of spatio-temporal coordinates in which the object itself occupies a place. Let us call the first way of indexing a predicate *relative indexing* and the second *absolute indexing*. If I say that my Visa card

⁴ I am grateful to the anonymous referee of this journal for these comments.

expires a year from the date of issue, the indexing is relative; if I say that it expires on August 31, 1991, the indexing is absolute.

Relatively indexed predicates may thus assign properties which are purely qualitative. The property of expiring a year from date of issue, for example, is purely qualitative. The temporal reference in the predicate by which it is designated does not cash out either in terms of absolute moments or relations to other particulars. Instead, the card is characterized in terms of *time units* between date of issue and expiration date and, even if moments are, depending on one's account of time and space, either particulars or constructs out of particulars, time units are not.⁵

The reference to date of issue and expiration date is not to particular events in the life of my Visa card but rather to types of events. Consider my Visa card. It was issued on September 1, 1990 and expires a year from then, on August 31, 1991. Suppose your Visa card was issued on October 1, 1990 and expires on September 30, 1991. Even though your Visa card was not issued on the same date as mine it has something in common with my card, namely the property of expiring a year from date of issue. To say that it has that property is not to say that it expires a year after a particular event, namely the issue of my Visa—in fact it does not. When I say it expires a year from date of issue I am not saying that it bears a certain relation to that or to any other token event as I would be saying if I should say that it expires 13 months after the issue of my Visa card. Similarly, when I say that my Visa card expires a year from date of issue, I am not saying that it bears a certain relation to the particular event of its issuance, or to any object, or to any moment in time. Rather I am ascribing to it the property of having a certain duration and that property is purely qualitative.⁶

⁵ Rick Burmor has suggested that the assignment of units of temporal or spatial measure implicitly involves reference to particulars since it is in fact a matter of asserting that the object measured is related in a certain way to a particular object by means of which the units of measurement are defined, for example the Standard Meter Rod in Paris or the Atomic Clock, wherever it is, which serves as the standard for measuring time.

This is odd. Surely earth days were 24 hours long before there were clocks of any kind and surely they will not cease to be 24 hours long when all clocks cease to exist. Furthermore, there is no reason to think that they would have failed to be 24 hours long even if the clock had never been invented. We could of course take the hard line and say that a thing's being a meter long is a matter of its figuring in a certain way in human practices such as measuring and comparing but we could say the same about a thing's having any property including those which are uncontroversially purely qualitative. If a thing's being a meter long essentially involves its being related in the appropriate way to a linguistic community, to rulers and the Standard Meter then by the same token a thing's being red presumably involves its being related in the appropriate way to a linguistic community and, perhaps, to color wheels and color charts.

⁶ Tom Foster has suggested that even if expiring-a-year-from-date-of-issue is not simply a relation between a credit card and a particular time, it is a disjunctive property, the constituents of which each essentially involve reference to particular times. To say my visa card expires a year from date of issue on this account is to say roughly that it has the

More generally, when I ascribe a relatively time-indexed predicate to an object, I do not say that it bears a relation to any particular, whether to a moment, to another object or to any token event in its history or the history of any other object. Rather I say that its history exhibits a certain sort of pattern.

Now, it is an open question whether it is in principle possible for two objects to be indiscernible with regard to their relatively time-indexed properties but different with respect to their absolutely time-indexed properties. Two butterflies living one hundred years apart, whose brief lives are of exactly the same duration and follow the same pattern may be indiscernible with respect to a great many relatively time-indexed properties while differing as regards absolutely time-indexed properties. Still, unless history repeats itself on a grand scale they will differ with respect to other properties as well. The modern butterfly, for example, unlike his ancestor, may have the property of being born within two miles of a six-lane highway as well as a great many other purely qualitative though relational properties which his Victorian forbear lacks. Similarly, two objects which are indiscernible with regard to relatively space-indexed properties, as, for example, two peas in a pod or two copies of the same newspaper, may differ with respect to absolutely space-indexed properties. Once again however, unless the universe is symmetrical, so that it includes distinct but qualitatively similar spaces, individuals which differ in this way will differ in a variety of other ways as well.

World-indexed properties too may be purely qualitative insofar as such properties may be designated by reference to the qualitative character of the worlds at which they are instantiated, without reference to particular worlds or their constituents. Similarly, unless some numerically distinct worlds are qualitatively indistinguishable, individuals will differ qualitatively at different worlds and objects which are indiscernible with regard to their relatively world-indexed properties will be indiscernible with regard to their absolutely world-indexed properties as well.

property of either being-issued-at-the-Big-Bang-and-expiring-one-year-after-the-Big-Bang or being-issued-the-day-after-the-Big-Bang-and-expiring-a-year-after-that or...being-issued-a-year-before-the-Cosmic-Heat-Death-and-expiring-at-the-End-of-the-World.

This is of course correct to the extent that relations are sets of ordered n -tuples. But this goes for all relations, including those which are uncontroversially "purely qualitative." Being a brother, for example, comes to being-a-brother-of-Cain or being-a-brother-of-Abel...We cannot exclude *all* relations from the list of indiscernibility properties for that would restrict the list to what Adams calls "non-relational suchnesses" and render the principle indefensible. If however we allow in relational properties that can be analyzed in terms of long disjunctions, relatively time-indexed properties come in along with such clearly qualitative relations properties as being-a-brother.

It is moot whether there are qualitatively indiscernible but distinct possible worlds and, arguably, to decide this would be tantamount to ruling for or against Identity of Indiscernibles. Consequently, an account of relatively world-indexed properties cannot assume that distinct possible worlds must differ qualitatively—or that distinct possible worlds may be qualitatively similar—without begging the question.

A non-question-begging account of relatively world-indexed properties analogous to that suggested for relatively time—indexed properties is however problematic because, whereas we have a familiar pre-theoretical scheme for ordering temporal sequences, measuring temporal distance and distinguishing the beginnings and endings of objects' histories without reference to dates or fixed temporal particulars, we have no such scheme for ordering world-sequences or measuring distances between worlds. When it comes to worlds, there do not seem to be any units of measure analogous to minutes or hours, days or years with which to measure the “space” between them; moreover there seems to be nothing analogous to temporal direction, or, for that matter to spatial ordering, amongst worlds.

Nevertheless, whether this reflects a fundamental asymmetry between times and worlds, or the fact that we have no pre-theoretical understanding of worlds at all, we do have an intuitive understanding of modal distance and the limits of possibility. Intuitively, some of a thing's possibilities are more remote than others and some states of affairs involving it are not even within the realm of possibility. Perhaps to the philosophically naive, or cautious, the idea of measuring modal distance and delineating a thing's boundaries in logical space seems odd, in much the way that the custom of measuring the “depth” of events' pastness and futurity must have seemed odd to primitive people on their first encounter with clocks and calendars, or in the way that four-dimensionalistic talk about spatio-temporal objects, their constituent stages and spatio-temporal boundaries still seems peculiar to the uninitiated.

It can be argued that there are no more logical difficulties in “spatializing” modality in this way than there are in “spatializing” time and, indeed that it may be useful to understand spatio-temporal things as five-dimensional objects, as it were, spread across worlds. In this vein, for example, George Schlesinger has proposed that, as we recognize that spatio-temporal objects have temporal parts as well as spatial parts, we should understand the total histories of transworld individuals at the worlds in which they exist as their four-dimensional cosmic parts.

We may say that many full-fledged individuals are five-dimensional; they have four physical dimensions, three in space, one in time and a fifth, logical, conceptual or modal dimension. We

obtain a complete individual by combining all its cosmic chunks, i.e. by adding together all its four-dimensional parts to be found in each possible world containing them.⁷

If spatio-temporal individuals are understood in this way then it should be possible in principle to describe facts about an object's possibilities, the way it is at various worlds, by means of relatively world-indexed predicates. Such predicates would, presumably, invoke distances between things' cosmic parts and their boundaries in logical space, the limits of their possibilities, to "locate" properties within their temporal spread without reference to worlds or other particulars. We do not currently possess predicates suitable for characterizing the transworld geography of objects in this way. It suffices however that it be possible in principle to do so for this is enough to insure that some facts about a thing's possibilities that we might indicate by reference to properties it has at various worlds, can be described without reference to worlds or other particulars.

The principle of Identity of Indiscernibles can be formulated in such a way that the list of indiscernibility properties includes relatively indexed properties but excludes absolutely indexed properties insofar as the latter are not purely qualitative. The principle thus formulated and defended in this essay is neither trivial nor uncontroversial. By restricting the list of indiscernibility properties to those which are purely qualitative, including, as I have suggested, relatively indexed properties, we exclude properties like being-identical-with-Gilman-Hall which would render the principle trivial. It is, indeed, the very version of Identity of Indiscernibles which Adams considers and ultimately rejects, namely the doctrine that no two distinct individuals can share all their "suchnesses" or purely qualitative properties, including, as I have suggested, qualitative relatively indexed properties.

The arguments against Identity of Indiscernibles to be considered purport to show that individuals which are indistinguishable with regard to their purely qualitative properties, including relatively time-indexed properties, may nevertheless be distinct. They rely upon thought experiments designed to elicit our intuitions about scenarios which involve *almost indiscernible twins*, objects which come into being at the same time and are exactly similar in *almost* all respects. Almost identical twins both have a property, P, at a time, t, just in case both have P some n time units from their mutual birthday. Consequently, such individuals share absolutely time indexed properties just in case they share the corresponding relatively time indexed properties. Thus, when arguments invoke similarities and differences in the absolutely time-indexed properties of almost identical twins, we can be sure that they could be reformulated in

⁷ George Schlesinger, "Spatial, Temporal and Cosmic Parts," *The Southern Journal of Philosophy* (1985), Vol. XXIII, No. 2.

such a way that only relatively time-indexed properties figure. We shall, therefore, when convenient assign properties to objects “at t ” and “at t' ” confident that the arguments in which such property ascriptions occur can be reformulated in such a way that only purely qualitative properties play a role in determining the objects’ similarities and differences. Indeed, in the arguments which follow, we might just as well think of “at t ” and “at t' ” as abbreviations for more complicated locutions assigning properties to objects a given number of time units from the beginnings of their histories.

Becoming Indiscernible

Identity of Indiscernibles is not an obvious truism, indeed it is not even clear that it is true. There seem to be counterexamples to the principle, objects which are distinct but indiscernible. Indeed, the most familiar argument against Identity of Indiscernibles consists in little more than the exhortation to imagine two exactly similar objects which are at a distance from one another and, hence, distinct. Adams characterizes this line of argumentation, which he calls “the dispersal argument” and traces to Kant, “the standard argument against the Identity of Indiscernibles.”⁸

The problem with this line of argument, as I have suggested elsewhere⁹ is that in carrying out the suggested thought experiments it is not clear that we have succeeded—or, indeed, that we *can* succeed—in imagining spatially dispersed objects which are indiscernible. Keeping in mind that objects which are intrinsically indistinguishable, may differ with respect to extrinsic properties, it should be clear that counterexamples to Identity of Indiscernibles are not so easy to come by as has often been assumed.

Nevertheless it may be suggested that the possibility of distinct *almost* indiscernible objects itself undermines Identity of Indiscernibles.

Suppose there exist two balls with all qualities in common except one—color, for example. It appears perfectly possible that someone could come along and paint one of the balls the same shade of color as the other. According to the theory in question, however, the “balls” would now be one instead of two. But, it is extremely implausible to maintain that one could destroy a ball simply by painting it a certain color. Therefore, the theory should be rejected.¹⁰

⁸ Robert Adams. “Primitive Thisness and Primitive Identity,” p. 13.

⁹ “Identity of Indiscernibles” read at the APA Central Division Meetings, April, 1989.

¹⁰ Albert Casullo. “The Identity of Indiscernibles” *Philosophy of Science* 49, 4 (December, 1982): pp. 596–97.

Casullo’s purpose is not to attack the principle of Identity of Indiscernibles but rather to defend the view that particulars are complexes of universals against charges that it entails some objectionable version of the doctrine. He cites this argument as a specimen argument against Identity of Indiscernibles noting that however we interpret it, it does not tell against the doctrine he wishes to defend.

In more general terms, the argument above may be reconstructed as follows:

The Naive Transtemporal Argument

- (1) At some time, t , a and b are alike in every respect except a has P but b does not.
- (2) $a \neq b$ [(1), Indiscernibility of Identicals]
- (3) At some later time, t' , all other things remaining the same, a does not have P
- (4) At t' , a and b are indiscernible
- (5) At t' , a and b are distinct but indiscernible [(2), (4)]

Identity of Indiscernibles is taken to be a doctrine which is necessarily true if it is true at all thus the mere possibility of distinct but indiscernible objects is thought to falsify the doctrine. If this is correct then (5), if true, constitutes a counterexample to Identity of Indiscernibles.

Given (1) however (4) must be false. Even though at t' a and b are duplicates they are not indiscernible. At t' , a has the extrinsic property of *having had P* whereas b does not hence they are not indiscernible. Alternatively, we may say that, at all times, including t' , a has the timeless property of *having- P -at- t* whereas b , lacks that property at all times, hence that they are at no time indiscernible.

It is quite true that if two balls are alike in every qualitative respect save color, painting them to match will not make them one: they will not magically coalesce when this last dab of paint is in place. But this is just because painting them does not render them indiscernible either: painting cannot change their *having been* different colors. It is only because we tend to ignore extrinsic properties, most especially past and future properties, that this naive version of the Almost Indiscernible Twins argument against Identity of Indiscernibles seems plausible. Being careful to take past properties into account it should be clear that objects which differ even minimally cannot *become* indiscernible insofar as the past cannot be altered.

The Open Future

Nevertheless, intuitively, the future can be altered and, it may be suggested that because the future is, to this extent, "open" individuals which, at one time, are exactly similar in every qualitative respect, may become dissimilar. Adams, for example, in discussing another version of the Almost Indiscernible Twins Argument (to be considered presently) suggests that his argument depends upon the assumption that there is at least some possible world which is not completely deterministic. It is only because such a

world is possible, he suggests, that there may be individuals which are indiscernible at some times but not at others and which, consequently, can be cited as counterexamples to Identity of Indiscernibles.

Why does some-time-indiscernibility require that the world not be completely deterministic? The reasoning behind this claim seems to be this. Consider a completely deterministic world, *w*, in which, at every time *t*, all propositions concerning states of affairs which obtain at *w* at other times, whether earlier or later than *t*, have a determinate truth value. At *w*, if some object *x*, has a property, *P*, at *t*, speaking timelessly it will be true at every time that *x* exists that *x* has *P* at *t*; alternatively, in such a world, it will be true at every time prior to *t* that *x* exists, that *x* was *going to have P* and at every time after *t* that *x* *used to have P*. Thus, at times prior to *t*, *x* has the property of *being-about-to-have-P*, at times after *t* *x* has the property of *having-had-P* since at every time it exists it has the property of *having-P-at-t*. In such a world there cannot be an object, *y*, which is exactly similar to *x* in every way at every time save for failing to have *P* at *t* because at times prior to *t*, unlike *x*, it will not have the property of *being-about-to-have-P*. Thus, in such a world, if two objects are qualitatively different at any time they must be qualitatively different at every time.

It is only if at least some such future properties are excluded that we can have objects which are qualitatively similar in *every* respect at a given time but which differ in some respects at later times. Suppose there is a world, *w'*, similar to *w* except that in *w'* the future is open, at least to the extent that while, at *w'*, *x* has *P* at *t*, prior to *t* the proposition that *x* has *P* at *t* lacks truth value. In *w'*, there is some property, *P*, such that though *x* has *P* at *t*, it is not the case prior to *t* that *x* has the property of being-about-to-have-*P* or the timeless property of having-*P-at-t*. In *w'*, arguably, there may be an object *y* which is discernible from *x* at *t* in virtue of its failure to have *P* at *t*, but which is indiscernible from *x* prior to *t*. A world which is not completely deterministic is a world like *w'*, in which the future is, in this sense and to this extent, "open" so that some-time-indiscernibility is possible.

Now if at least some "future properties" are excluded from the list of properties which we consider at any time in deciding whether objects are indiscernible at that time, then it would seem that by varying the case of the almost indiscernible balls we can produce a counterexample to identity of Indiscernibles. The revised argument is as follows.

Suppose there exist two balls with all qualities in common except one—color, for example. One ball is red; the other is blue. It appears perfectly possible that in the past they were exactly the same shade of blue but that someone came along and painted one of the balls red so that currently they are discernible with respect to color. Further, assuming that the future is

open, let us say that before they were painted propositions about the future colors of the balls lacked truth value and, hence, that the balls did not then have either the property of being about to be red or being about to be blue. Since they had none of the relevant future properties prior to the paint job to count against their indiscernibility, they were at that time indiscernible. But, they could not have been identical at that time since, so the argument runs, things that are at some time distinct cannot have once been identical: if things are distinct at any time then they must be distinct at every time.¹¹

In more general terms, the argument above may be reconstructed as follows.

The Open Future Argument

- (1) At some time, t , a and b are alike in every respect except that a has P but b does not.
- (2) At t , $a \neq b$. [(1), Indiscernibility of Identicals]
- (3) At some time t' prior to t (all other things remaining the same) a does not have P .
- (4) The future is open with respect to P , that is, at t' , neither a nor b has the property of *being-about-to-have-P*.
- (5) At t' , a and b are indiscernible. [by (1),(3) and (4)]
- (6) If $a \neq b$ at any time then $a \neq b$ at every time.
- (7) At t' , $a \neq b$
- (8) At t' , a and b are distinct but indiscernible [by (5) and (7)]

The crux of this argument, (6), is questionable. The argument requires us to assume that the future is open, at least to the extent that some propositions about future states of affairs lack truth value. But, arguably, what makes (6) intuitively true is our assumption that, like the past, the future is "closed" so that whatever is true (or false) then is, as it were, reflected in truths (and falsehoods) through all time. If this assumption is correct, the rationale for (6) is obvious: if a is distinct from b at any time, t , then, at every time, it is true of a that it is distinct from b at t . But it is not true of b at any time that b is distinct from b at t . So at every time there is something which is true of a that is not true of b , hence, at every time (given Leibniz' Law) a is distinct from b .

¹¹ I do not think that we can appeal to necessity of identity in support of this claim without further argumentation. Necessity of identity says that if a and b are identical at all then they are necessarily identical. It is not however clear that Necessity of Identity implies that if a and b are identical at any time they are identical at every time given the open future. If at t we had "in the future, $a = b$ " Necessity of Identity says we would also have "in the future necessarily $a = b$." Given the open future however it is a moot point whether we have "In the future $a = b$ " in the first place.

If, however, the future is open in the requisite sense this argument in support of (6) is not available and it is not clear whether there is any other compelling reason to accept it.

It may be suggested that (6) follows from transitivity of identity. The argument might run as follows:

Transitivity of Identity Argument

- (1) Suppose, that at t , $a \neq b$ but at t' , $a = b$.
- (2) a at $t' = b$ at t'
- (3) a at $t = a$ at t'
- (4) b at $t = b$ at t'
- (5) a at $t = b$ at t , by two applications of transitivity of identity, given symmetry
- (6) if a and b are distinct at t they cannot be identical at t' , since (5) contradicts the supposition.

This however will not do. The introduction of expressions like “ a at t ” muddies the waters. Either we understand such expressions *in toto* as names of “stages” or “temporal slices” or we should understand “ a ” and “ b ” as names of persisting objects which, in the argument above, occur within the scope of temporal adverbs “at t ” and “at t' .”

If they are to be taken as names for “stages” or “temporal slices” of objects, so that (3) and (4) are understood as expressing identities between stages that occur at different times, then both (3) and (4) are false: the relation between successive stages of the same object (if there are such things) is not identity.

If on the other hand we understand “ a ” and “ b ” as names of persisting objects occurring in identity statements, then either the temporal modifiers qualify the names “ a ” and “ b ” or they attach to the identity predicate.

At first blush it looks as if they attach to the referring expressions, “ a ” and “ b ” indicating the time of reference so that “ a at t ” refers to the object that “ a ” names at t and “ a at t' ” picks out the object that “ a ” names at t' . This use of temporal modifiers would however be pointless unless the names to which the temporal modifiers attached were temporally flexible, that is, unless they picked out different individuals at different times or within the scope of different temporal adverbs. If however “ a ” and “ b ” are temporally flexible, (3) and (4) are questionable. They do not follow from (1)—indeed (1) seems to imply that “ a ” and “ b ” pick out different objects

at t and t' and, hence, that (3) and (4) are false.¹² (5) therefore does not follow from (1) and the argument fails.

It might, on the other hand, be suggested that the temporal adverbs attach to the identity predicate rather than to the names which flank it. The names, on this proposal, are temporally rigid so that each name picks out the same object at every time. On this account there will be many identity (or perhaps identity-like) relations: being-identical-at- t , being-identical-at- t' and so on. If this is so however (3) and (4) are simply gibberish since each contains temporal adverbs indicating different times.

This exhausts the possibilities: the transitivity of identity argument fails and, it is hard to see any other obvious way in which (5) of the Open Future Argument can be supported.

Now it might be suggested that, given the thought experiment to which the argument alludes, the principle invoked in (5) is unnecessary: we can determine that the balls are distinct even prior to the paint job by inspection. When we trace their histories back to the time when they were the same color, running the film in reverse, as it were, we do not see the balls suddenly coalescing. Even before they were painted different colors they occupied different places and, hence, were distinct.

This thought experiment however is nothing more than a version of the Dispersal Argument. Our question is whether the Almost Indiscernible Twins Argument is independent of the Dispersal Argument. If it is not then, depending on whether the Dispersal Argument goes through or not, the Almost Indiscernible Twins Argument is either superfluous or unsound. Our purpose is to see whether there is a version of the Almost Indiscernible Twins Argument that is compelling apart from the merits, if any, of the Dispersal Argument. So far we have failed.

The Transworld Argument

The most plausible version of the Almost Indiscernible Twins Argument, I suggest, involves further complications: it requires us to consider identities “across worlds” as well as identities “through time.” This is the version of the Almost Identical Twins Argument which Adams invokes in “Primitive Thisness and Primitive Identity”:

¹² In “Can the Self Divide?” Perry uses this strategy to deal with the problem posed by branching cases of identity through time which seem to violate transitivity of identity. On his account, ordinary names are temporally flexible in such a way that, were branching to occur, certain names would refer to different objects before and after fission so that identity statements involving them would in fact assert different identities and transitivity of identity would be saved. For a further discussion of Perry’s proposal and some of its shortcomings see my paper “The Lifetime Language” (*Philosophical Studies*, January 1984).

Suppose [at w] I have an almost indiscernible twin. The only qualitative difference between him and me...is that on one night of our lives (when we are 27 years old) the fire-breathing dragon that pursues me in my nightmare has ten horns, whereas the monster in his dream has only seven...Surely I could have existed, and so could my twin, if my monster had had only seven horns, like his. And that could have been even if there were no other difference from the lives we live in w ...In that case we would have been distinct but qualitatively indiscernible.¹³

As Adams admits however the plausibility of this argument rests upon the assumptions that “the mutual distinctness of two individual persons already existing cannot depend on something that has not yet happened”:

Consider the state of w when my twin and I are 22, five years before the distinctive dreams. We are already distinct from each other, though nothing has yet happened to distinguish us qualitatively. I think it follows that our mutual distinctness is independent of the qualitative difference arising from our later dreams.¹⁴

Adams argument seems to be this:

Consider a world, w , in which Rob and Bert are exactly similar except for the fact that on his 27th birthday Rob dreams of a 10-horned monster while Bert dreams of a 7-horned monster, and a world, w' , which is similar to w in every qualitative respect to w except that the person in w' most similar to Rob, namely Rob', dreams of a 7-horned monster on his 27th birthday, just like his twin, Bert'.

- | | |
|-----------------------|---|
| (1) Rob \neq Bert | “uncontroversial...the non-identity is proved by a qualitative difference” Notice, prior to age 27, this is a <i>future</i> difference. |
| (2) Rob = Rob' | Rob <i>could have</i> dreamt of a 7-horned monster and this modal fact, according to Adams, cashes out as a transworld identity between Rob and Rob'. |
| (3) Rob' \neq Bert | 1, 2, by transitivity of identity, given symmetry and propositional logic |
| (4) Bert = Bert' | an assumption which “depends on an intuition of transworld identity” |
| (5) Rob' \neq Bert' | 3, 4, by transitivity of identity, given symmetry and propositional logic |

¹³ Adams, “Primitive Thisness and Primitive Identity,” pp. 17–18.

¹⁴ Op. cit., pp. 18–19.

(6) Identity of Indiscernibles is false (5) is a counterexample to Identity of Indiscernibles

The argument is valid but (2) is in dispute for a variety of reasons and it is also debatable whether, given the assumptions required for the truth of (2), (5) is a counterexample to identity of indiscernibles. Arguably, Rob' and Bert' are discernible.

The most obvious worry regarding (2) is that of whether *de re* possibility cashes out as transworld identity rather than some other kinder and gentler non-transitive counterpart relation. It is argued that if the transworld relation that grounds *de re* possibility is transitive then it follows both that radically different individuals "at" different worlds may be identical, hence the individuals can be radically different from the way they are and that exactly similar individuals in exactly similar worlds may be distinct. The difficulties are familiar. If, in light of such difficulties, we reject transworld identities, we will of course reject Adams' argument with no more ado.

Even if such difficulties are not decisive, the principle of Indiscernibility of Identicals, which, unlike its converse, is not generally disputed, poses further problems.

Consider the situation of individuals at "neighboring" worlds, such as, e.g., Rob and Rob'. Prima facie it would seem that they are discernible and, hence, by the contrapositive of Indiscernibility of Identicals, distinct. Rob dreamt of a 10-horned monster on his 27th birthday whereas Rob' dreamt of a 7-horned monster. Without either some restriction on the list of properties that are to count in making transworld comparisons or, alternatively, some modification to Indiscernibility of Identicals, (2) turns out to be false and the argument fails.

The adjustments required to save Indiscernibility of Identicals are familiar: We can either take properties to be world-indexed (so that a single individual has the distinct yet compatible properties of being-P-in-W and being-not-P-in-W') or we can take the indiscernibility of identicals to require both world and time quantifiers, reading it as follows:

For any object, x , and any object, y , if x is identical with y , then for any property, P , any world, W , and any time, t , x has P in W at t if and only if y has P in W at t .¹⁵

Either of these moves would preserve the truth of (2).

According to the first strategy, the list of properties which count in transworld comparisons includes world-indexed properties. Rob' has the

¹⁵ Michael Loux, "Introduction" to *The Possible and the Actual*, p. 42.

world-indexed property of *dreaming-a-10-horned-monster-in-W-at-t* but Bert' does not; he has the property of *dreaming-a-7-horned-monster-in-W'-at-t*, which Rob' lacks. There is no reason to exclude *these* world-indexed properties from the list which counts for transworld comparisons, particularly since they are cited in support of the transworld identity of Rob and Rob'. If, however, these properties count, then Rob' and Bert', though indistinguishable with respect to their non-modal properties at W' are nevertheless discernible. Since they are not distinct but indiscernible we have no counterexample.

The second proposal yields the same result. There is a property, namely the property of *dreaming-a-10-horned-monster*, which is such that at some world, namely W, Rob' has that property but Bert' does not. Hence, according to the modified principle of Indiscernibility of Identicals, Rob' and Bert' are discernible as well as numerically distinct. Once again, (5) fails as a counterexample.

Of course, on either account, the difference between Rob' and Bert' at W' is a queer one, since it is a purely modal difference. At W', Rob' and Bert' are *actually* the same in every respect even though what is possible for one is not possible for the other. Perhaps, this result is not as counterintuitive as it seems at first blush. W represents only one among many of possibilities for Rob' and Bert'. In any case, once we introduce world-indexed properties or modify Indiscernibility of Identicals in the manner required for (2) it is hard to see how this result can be avoided. The very moves required to make (2) come out true render (5) innocuous.

An Argument from Degrees

Thus far we have not been able to formulate a compelling version of the Almost Indiscernible Twins Argument. It may however be suggested that the arguments considered do not capture our intuitions about the case at all, particularly insofar as they invoke controversial doctrines about transworld identities which, arguably, do not answer to anything in our pre-theoretical grasp of what is or is not possible for a thing.

What makes stories like the Almost Indiscernible Twins case compelling is the trivial nature of the difference between the circumstances represented in W and those represented in W'. Intuitively, a mere three-horn difference in the character of the monster of which one dreams is unimportant: nothing of significance can hang upon it. By contrast, paraphrasing Bishop Butler, whether we are to live in another possible world is the most important question that can possibly be asked. Intuitively, little, inconsequential differences cannot make for big, significant ones—and the difference between identity and distinctness in this case is monumental.

This suggests the following argument against Identity of Indiscernibles:

Let n be the highest degree to which objects can resemble one another. Granted that assigning degrees of resemblance is problematic, since there are countless ways in which objects can differ, let us say that objects which are qualitatively similar in every respect are qualitatively similar to the n^{th} degree. Identity of Indiscernibles is the doctrine that qualitative similarity to the n^{th} degree is sufficient for identity.

(1) If qualitative similarity to the $i-1^{\text{th}}$ degree is not sufficient for identity then similarity to the i^{th} degree is not sufficient for identity

Little differences cannot make big differences: the magnitude of a modification must be proportional to its effect. A little more similarity can't make a big difference.

(2) Qualitative similarity to the $n-1^{\text{th}}$ degree is not sufficient for identity.

Indiscernibility of Identicals says, indeed, that qualitative similarity to any less than the n^{th} degree is sufficient for distinctness, hence, *a fortiori* it is not sufficient for identity.

(3) Qualitative similarity to the n^{th} degree is not sufficient for identity

(1), (2), *modus ponens*

(3) is precisely the denial of Identity of Indiscernibles hence, the argument, if sound, shows that Identity of Indiscernibles is false.

Nevertheless understood in this way the argument against Identity of Indiscernibles is just a sorites argument, akin to those which purport to show that heaps cannot be assembled or disassembled grain by grain and that bald men cannot gradually become hairy and hairy men cannot become bald by losing hairs one by one. There is no consensus about how such arguments are to be handled however most agree that their conclusions are false. In general, sorites arguments are not cited in order to establish their conclusions but rather in order to expose some of the difficulties we encounter in reasoning about ordinary three-dimensional objects which persist through change and in ascribing predicates which are inherently vague or admit of degree. There is no more—or less—reason to think that the current argument undermines Identity of Indiscernibles than there is to think that analogous sorites arguments cast doubt upon our commonsensical views about heaps and bald men. Moreover, the intuition that little differences cannot make a difference when it comes to a thing's identity could be cited with equal justification against Indiscernibility of Identicals, the doctrine that indiscernibility is *necessary* for identity. If we accept this latter principle, which is

uncontroversial, we hold that even the slightest dissimilarity is sufficient to render objects distinct, hence that little differences can and do make a difference to a thing's identity. If we are not persuaded to reject Indiscernibility of Identicals on this account then it is hard to see why we should reject Identity of Indiscernibles in light of similar considerations.

Thus the current argument, like the other *prima facie* plausible arguments against the principle of Identity of Indiscernibles which have been considered, does not stand up well to close scrutiny. To show that familiar arguments against a thesis are questionable is not, of course, to show that the doctrine is true. Nevertheless, in the process of subjecting such arguments to scrutiny we may perhaps gain a better understanding of the nature of the claim under consideration and discover that it may be more plausible than it seemed prior to our investigations. So it is with Identity of Indiscernibles and if it has not been shown to be true we have at least seen that it is not so easy as has been thought to show it to be false.