

Could Columbus have discovered Australia? — And, if so, would it have been Columbus?

Modal statements expressing possibility or necessity are often paraphrased as possible world scenarios; they can be *de dicto*(about a claim) or *de re* (about a particular object¹). For the purpose of this paper, the latter shall be my focus. As an example for a *de re* modal claim might serve

(1) Columbus could have discovered Australia.

(had it not already been known, had he sailed in the right direction etc.). The corresponding possible world paraphrase would be something along the following lines:

(2) There is a possible world ω in which Columbus did discover Australia.

This statement somehow suggests that Columbus exists not only in the actual but also in a possible world distinct from ours. And it is easy to see how he could be said to exist in a further possible world in which he discovered New Zealand.

The point at issue is that *de re* modal claims seem to commit us to some form of transworld identity,² i.e. the assumption that objects exist in different possible worlds. But is this an acceptable commitment? Or, to phrase it in Lewis' words, does "it ever happen that anything exists according to two [...] worlds?" ([6], p. 189)

The remainder will be devoted to answering this question. I shall set out with basic considerations on identity and the nature of possible worlds before I come to introduce (in section 2) Chisholm's paradox which is considered a severe problem for transworld identity claims. I will outline how Lewis' counterpart theory avoids the paradox before I come to sketch a possible actualist realist reply.

1 Identity, Genuine Realism & Actualist Realism

Before we approach the issue of transworld identity, allow me carve out the territory a little. Three questions need to be considered: (1) What is identity?, (2) What is a possible world?, and (3) What is it for an object to exist in a given (actual or possible) world?

¹Note that, in this essay, I regard objects to include individuals like you, me and Columbus

²Where *trans-world*, as Lewis [6] usefully emphasizes, is taken to mean *across* various worlds rather than within one world.

As far as (1) is concerned, things are relatively straightforward. Identity is a relation that holds between objects; most fundamentally between every object and itself. It is transitive, symmetric and reflexive. According to Leibniz's Law, any two objects are identical if and only if they share all their properties. However, it is intuitive to say that I am still Lena Kästner, even if I got a new haircut or changed my shirt. This is, essentialists might say, because neither my hairstyle nor the color of my shirt are *essential* to my being Lena Kästner. Whatever clothes I wear, I remain myself. For those of my properties determined by clothing are merely *accidental*. Similarly, every object can be changed to a certain degree without being changed essentially, i.e. though altered it remains the same object.³

When it comes to answering (2), however, we find ourselves on uneven ground. Out of a variety of conceptions, I shall sketch only two dominant views on what possible worlds are: genuine and actualist realism.⁴ Genuine Realism is famously put forward by David Lewis [7] who takes possible worlds to be concrete other universes⁵, isolated from ours in space and time. Each of these universes contains real objects (i.e. objects as real as you, me and the chair you are sitting) bound to their world. The actual world, our world, is in no way privileged over all the other possible worlds. Our referring to it with the *indexical* "actual" is a linguistic phenomenon comparable to "here" and "now". Despite their isolation in space and time, possible worlds (or more concretely the objects they contain) are related through a *counterpart relation* which lies at the core of Lewis' theory. The relation is based on overall comparative similarity between the related objects.⁶ Depending on what feature, what property, of an object is to be stressed, it can have different counterparts in the same possible world. Take for example Columbus at the actual world α , the man who discovered America in October 1492.⁷ Columbus might have a counterpart in a possible world ω_1 who did discover America (maybe as a result of different weather conditions) already in September but is otherwise completely alike. Moreover it might be the case that there is another navigator at ω_1 who reached America in October 1492 but was neither Italian nor did he sail under the Spanish flag. Still, he might be seen as a counterpart of Columbus at α , though a counterpart with respect to the date of arrival rather than nationality; counterpart relations come, as similarity, with respects.

A different conception of possible worlds is proposed by, e.g., Adams [1], Plantinga [8]

³According to essentialism, objects bear essential properties that serve to identify them.

⁴The distinction made here is due to Divers [3].

⁵The notion of a world should here rather be considered as meaning universe.

⁶It is important to not confuse the counterpart relation with identity; it is significantly weaker. My counterpart in some possible world ω_{9674} could be an elephant; though, I am by no means identical to it.

⁷Although this is historically inaccurate, the example will do for illustration.

and Stalnacker [10]. Each of them proposes a version of actualist realism. According to this view, possible worlds are maximally consistent sets of sentences (stories), possible states of affairs or properties, respectively. Our actual world is privileged in so far as it is the only concrete, actualized universe. On the story-account, for example, α is the only world at which all the sentences it consists in are true—every other world is a slight misdescription of it. Note that names as “Columbus”, no matter in which world they occurs, are taken to have a fixed referent, i.e. Columbus at α ; “Columbus” is what Kripke [5] called a *rigid designator*. Therefore, the same representative (“Columbus”) is used in various worlds to refer to (the actual) Columbus. I will come to examine the consequences of this claim further below.

For now, let us turn to (3), the question of what it means for an object to exist at some world. On the actualist realist’s view, for Columbus to exist at ω simply means for him to occur in the abstract representation that constitutes ω . “Columbus” is, e.g., mentioned⁸ in the story describing ω . Genuine Realism, on the other hand, requires Columbus (more specifically: a counterpart of him) to be a proper part of ω for him to exist at ω .

Now that the basic ideas have been introduced, let us turn to consider the difficulties arising from claims such as (1) (and hence (2)).

2 Trouble with Transworld Identity

Whether or not Columbus could have discovered Australia, depends on whether or not there is a possible world ω in which Columbus did discover Australia. If there is such a world ω distinct from our actual world α then we face the question how Columbus can exist according to both of these worlds. Or, to put it slightly differently, how can we determine if Columbus at α (who discovered America) is indeed identical to Columbus at ω (who discovered Australia)?⁹

If he is, then it seems that certain changes in Columbus’ properties do not affect his identity. His essential properties are not altered across possible worlds.

⁸Mentioned here means mentioned in a positive manner, i.e. an existence claim as opposed to a claim of non-existence.

⁹This is not meant to be an epistemic question.

2.1 Chisholm's Paradox

The above considerations about identity of objects across possible worlds are based on the existence of *essential* properties.¹⁰ Exactly this is challenged by Chisholm's Paradox:

Suppose Columbus does exist at α . Suppose further he exists at a possible world ω_1 where he is only slightly different from Columbus at α , maybe his ship drifted off a tiny little bit from the original route and landed on a different part of America's coast. We would still want to say that Columbus is Columbus. Now suppose that Columbus also exists at ω_2 where he is slightly different from Columbus at ω_1 (possibly, he sailed a little more south). You can continue altering Columbus slightly moving along an arbitrarily long chain of possible worlds. None of the slight modifications he undergoes from one world to the next make Columbus at ω_{n-1} non-identical to Columbus at ω_n . However, once we look back to α , we might find that we are no longer willing to say that Columbus at, say, ω_{54} is identical to Columbus at α ; he is now entirely different. In fact, we might want to say that Columbus at ω_{54} occupies the role of some Dutch sailor who discovered Australia. Multiple small changes add up to a large one, one that would not count as identity-preserving any more—and this works irrespectively of what kind of property is considered (psychological, biological, physical, etc.).

Remember that identity is claimed to be a transitive relation, i.e. if A is identical to B, and B is identical to C, then A is identical to C. But this principle is obviously violated in the above scenario.

So far, it is open to us to reply to Chisholm in claiming the properties having been changed through the sequence of transitions are not essential to Columbus. One can adopt the view that essential properties can never be changed at all, not even slightly. But, since even the most essential traits seem to allow for minor modifications, be it for instance a molecule exchange, this is an implausible view. It remains therefore only to admit that even essential properties can be at least very slightly modified. Once this is established, however, Chisholm's Paradox falls on fertile ground; for no matter how small the modifications are per step, at some point we will end up with a situation where X at α can no longer be seen as occupying the same role as X at ω_n .

On the other hand, an object having an essential property should *per definitionem* never change this far (i.e. change to the result that it loses its essential property), since it is the property by which an object is identified. Therefore, the property we picked out to consider

¹⁰There are, however, anti-essentialists believing in transworld identity; they simply deny that we can "track" things across worlds.

essential, be it Columbus' location of arrival or a character trait, turned out to not to do the trick. This is where the paradox strikes—no essential property can ever be found, even if we allow for only very very small changes and do not claim it to be completely invariant¹¹ (which was already shown to be implausible). Chisholm himself puts it this way:

It seems to me that even if [Columbus] 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? ([2], p. 7)

The hallmarks of essentialism are thus undermined by Chisholm's paradox which thus poses a severe difficulty for transworld-identity. There are, two ways to avoid its uneasy lesson, though.¹² One is to deny that identity holds across possible worlds, the other is to change something about the notion of essential properties. As is obvious from the first section, the former way is open only to the genuine realist, since on the actualist realist account the name of any object has a fixed referent across possible worlds (it is a rigid designator). No matter in which possible world it occurs, it always refers to the very same object at α . And, since every object is identical to itself, it would simply be inconsistent for an actualist realist to deny the existence of trans-world identity. Actualist realists thus have to get around the paradox using some version of the second option.

Let me turn to consider how Lewis, the genuine realist par excellence, avoids the paradox before I sketch a possible actualist realist reply.

2.2 Lewis' Counterpart Solution

The crucial notion in Lewis' counterpart theory is *similarity* rather than identity. Objects are not *identical* across different possible worlds; instead, they have counterparts in possible worlds. The counterpart relation is weaker than identity and it comes in *respects*. Counterparthood is reflexive, but it is neither symmetric nor transitive. Therefore, Lewis does not encounter the paradox Chisholm creates. According to counterpart theory it is not at all a problem for Columbus at α to have a counterpart at ω_{54} (let us call this object D) who occupies a different object's role (e.g., that of a Dutch explorer). However, it would also be possible that D at ω_{54} is not a counterpart of Columbus at α , even if D at ω_{54} is a counterpart of Columbus' counterpart at ω_{53} . Instead, Columbus' counterpart at ω_{54} could

¹¹Note that although Chisholm's scenario has sometimes been interpreted as a version of the Sorites Paradox ([4], [9]), I do not consider it against the background of vagueness here. On the contrary, I assume—for the sake of this discussion—there to be only precisely defined, non-vague properties and traits.

¹²Really there are three, but allowing identity to be intransitive is surely implausible.

be, say, Submuloc who set out from America and discovered Europe (maybe both took roughly the same route only in opposite direction). Even more extremely, Columbus could also have a counterpart at ω_{6974} that is an elephant (maybe they are both the most intelligent mammals at their worlds). Columbus could thus not only have discovered Australia, he could even have had the possibility of having discovered Europe (if there is a possible world in which a counterpart of a counterpart of Columbus discovered Europe).

As this example illustrates, it is not a problem for Lewis that counterparts are a little different but not very different from one world to the next. And even that small differences add up to big differences does not cause a problem for counterparthood is not not an absolute measure; it can easily hold between Columbus at α and the elephant at ω_{6974} .

Lewis' solution is elegant; he avoids the problem by denying the existence of identity across possible worlds. Since Lewis applies his account also to objects at the actual world having counterparts at different times, one might wonder whether that means that I am not identical to myself in two days, whether I myself maybe do not exist in two days where instead my counterpart does. For the purpose of this essay, I will not push counterpart theory this far. Instead, let us turn to consider a possible actualist realist's reply to Chisholm's paradox.

2.3 Another Reply

The actualist realist, as opposed to Lewis, has a serious problem with Chisholm's paradox. Identity appears to hold for each single transition from one possible world to the next, but it does not hold across all of them at once. Since transitivity is one of identity's basic logical properties, it cannot simply be rejected. And a substitution of identity by some weaker relation is not possible since rigid designators refer to an identical object in every possible world. Hence, a solution to the paradox must be found somewhere in the realm of essential properties.

We have already seen how Chisholm's paradox gets going as soon as the slightest changes in essential properties are permitted. And further, we have excluded their denial of this from the space of plausible solutions for they are the means by which objects can be identified. What remains is a modification of exactly *what* changes to (essential) properties are admissible in transition from one possible world to the next. So far, we have considered "slight" changes—changes that of a certain *amount* of a property (be it for instance the exchange of no more than two molecules). Another way to characterize admissible changes could be by way of using certain *ranges* within which changes are allowed without losing

the property under consideration.

For illustration consider a red square.¹³ According to the amount based view, changes in color preserve the redness, say, as long as its CMYK value does not change any more than two along each single axis and not more than three in sum. Starting from bright red with values (0, 100, 100, 4), we might—after a sufficiently long sequence of transitions—end up with values (100, 72, 0, 18) which indicate dark blue. If we define admissible changes in terms of a range within which the CMYK coordinates have to fall, however, we can avoid such a result. As red might count any object whose color is captured with CMYK values ranging from (0, 75, 68, 0) to (43, 100, 100, 0) where intermediates in any dimension count as red. This means the amount of permissible change per dimension and direction (positive or negative) varies with every world transition as a function of the current values. As opposed to the amount based modification rule, the range based rule can be applied transitively, i.e. if we get from α to ω_1 , from there to ω_2 , ... and from ω_6 to ω_7 , then we can also get from α directly to ω_7 by a single admissible, i.e. identity preserving, modification. Thus, Chisholm's paradox would be resolved.

The difficulty of a range based approach is to define such ranges for every (essential) property. Vagueness aside, it is not easy to see how such ranges can be provided for personality traits or consciousness. Further, how do we find the essential properties of an object? It remains unclear what it is about Columbus that can only vary within a certain range without him being somebody else. Note that the above example is a characterization of "redness", i.e. a property whereas Chisholm's paradox concerns what is essential to things (that are, e.g., red). Therefore, what really has to be given a range for, is not the properties that we take to be essential to an object. The paradox requires the principle that where X is a composite object, X 's parts could be rearranged slightly while X still exists. Hence, to avoid it, we really would have to define a range for admissible rearrangement.

3 Wrapping Up

The starting point for this essay have been considerations about *de re* modal claims and their analyses as possible world scenarios. As such, they seem to commit us to the assumption that there is some sort of transworld identity allowing objects to exist across possible worlds. In the course of this essay, I tried to answer the question of whether this can be the case. After introducing two dominant conceptions of possible worlds, I considered a

¹³Again, it is important to note that these considerations are not about vagueness. I am assuming there to be absolutely clear cut boundaries between any two properties of any quality.

paradox arising from the assumption that identity holds across possible worlds. Finally, two solutions to the paradox have been proposed: Lewis' counterpart theory that denies the existence of transworld identity and the attempt to describe variations not effecting changes in essential properties as admissible ranges rather than slight amounts of modifications.

In the light of this discussion, we might answer the headline questions as follows: Columbus could have discovered Australia. And if he did, it depends on our view whether he had still been Columbus.

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