

## Possible Worlds: Two Views

Thomas Kerwin

Two ways of thinking about modal ideas popular today are nominalism and actualism. The nominalist account, as put forward by David Lewis, views possible worlds as concrete particulars, inaccessible but very much like the world we inhabit. Alvin Plantinga gives a different account of what possible worlds are, viewing them as abstract objects of a type called states of affairs.

Both of these theories of modality both stem from a desire to interpret modal claims used in both natural language and philosophical argument as abbreviated talk about different possible worlds. Modal claims can be confusing ones and both *de dicto* and *de re* interpretations of a modal claim can be clarified by appealing to possible worlds. Consider the statement “The shape of a stop sign is necessarily an octagon.”: in the *de dicto* reading, it can be understood as “In all possible worlds, the shape of a stop sign is an octagon.” In the *de re* reading, it can be understood as “The object picked out as the shape of a stop sign is such that it is an octagon in all possible worlds.” With appeal to the ideal of possible worlds, talk about the possible, impossible and necessary becomes easier to formulate into a rigorous logical system by quantifying over possible worlds. Anyone wishing to use this explanation *de re* and *de dicto* modalities and also accepting Quine's principle of ontological commitment must accept the possible worlds as existant objects. Both the nominalist and actualist views of possible worlds accept this, with the nominalists believing them to be concrete particulars and the actualist believing them to be abstracta.

The nominalist version of these possible worlds, as fleshed out by David Lewis,

gives a straightforward account of what exactly possible worlds are. According to Lewis, they are just like the universe we live in. Many other possible worlds may have people that look exactly like us and go on about their daily lives just as we do. These worlds are concrete physical particulars that contain physical objects which are the constituents of these possible worlds. All of these diverse worlds are causally isolated from each other: nothing done in one world can affect another world and ordinary physical objects like people and cars are not able to move between these possible worlds.

Nominalists see their theory as not only a way to make sense of modal notions, but as a opportunity to give a more complete reductionist and nominalist account of properties and propositions. Traditional nominalists have a bit of a challenge with giving a description of what properties are. One attempt is to describe a property, like the property of being red, for example, as the extension of the predicate being red. In other words, the property of being red is identified as a set that contains all the objects that that property is true of.. This explanation of properties leads to some problems when distinguishing between properties that have the same extension but seem to be qualitatively distinct. The property of being a renate (that is, having a liver) and being a cordate (that is, having a heart) seem to be different, but let us assume that it happens to be that everything that is a renate is a cordate and vice versa. In the traditional nominalist view, these two properties would be identical, since their extensions are identical, but this is a problem for any nominalist who believes them to be conceptually different.

A similar problem occurs when dealing with properties that no object that exists in the actual world has. Under the traditional nominalist view, all properties that no object possesses are represented as the same set, the null set. So the properties of being a fire-breathing dragon and being a unicorn would be identical properties, in virtue of having the same extension.

By introducing multiple worlds into this framework, the nominalist has a way to distinguish between these properties. Instead of using the extension of a predicate in the actual world to identify a property, they use the extension of the predicate in all possible worlds. The representation of the property can now be described as a set of ordered pairs of a possible world and the extension of that property in that world. If we can assume that in some possible world there is an organism that has a heart but not a liver, or vice versa, then we can use this description and view the properties of being a renate and a cordate as being distinct properties.

Lewis uses this framework to reduce not only properties, but also propositions into sets dealing with concrete objects. A proposition is understood in this view as a set of worlds in which the proposition is true. The reductive nominalist feels that this is all that is necessary to describe the proposition.

Lewis's account of *de dicto* modality mirrors his account of propositions. A proposition is necessarily true if the set that represents it contains all possible worlds. A proposition is impossible or necessarily false if the set that represents it is the empty set. Contingent propositions are those that do not contain all possible worlds but do contain the actual world. In this view, the actual world does not have a special status, but is just an index that refers to the particular world where the term "actual" is used. In other words, one person in possible world  $W_1$  using the term "actual" refers to  $W_1$  and another person in  $W_2$  using

the term "actual" refers to  $W_2$ . Both are correct in their usage.

To explain *de re* modality, Lewis takes a different approach. If the formula for *de dicto* modality were applied for *de re*, a statement like "X has P contingently" would violate Leibniz's law of the indiscernability of identicals. The same X would at once have a property in one possible world and fail to have it in another. Lewis wishes to avoid these types of problems associated with trans-world individuals, and so develops his counterpart theory to explain *de re* modality.

Lewis's counterpart theory develops the idea that for an object X, there are counterparts to X in other possible worlds. These counterparts are similar to X in many respects, but they exist in different possible worlds and are distinct objects. The counterpart relation allows Lewis to describe *de re* modality in the following way: to say that X necessarily has P is to say that X and all X's counterparts have P. To say that X has P contingently is to say that X has P but at least one of X's counterparts does not have P. The counterpart relation is significantly different from the identity relation: it is not always reflexive. X's counterpart in another world is an object in that world that most closely resembles X. Suppose the X is in  $W_1$  and X's counterpart in world  $W_2$  is Y. Y's counterpart in  $W_1$  might not be X, because there might be another object that is more similar to Y in  $W_1$  than X.

This view of *de re* modality is quite different from our pre-philosophical views about possible worlds. When we consider things that might have happened to us, we feel that things might have been a different way for us, not someone who resembles us. When I make statements about what I might do if I had won the lottery, Lewis contends that I am not really talking about what I might have done, but what my counterpart does in a different world, that counterpart having won the lottery. Since my counterparts are not me, *de re*

statements about contingent properties of me seem to be severely weakened by this account. I exist in only one world, and so there is no other me with a changed properties, just counterparts to me with different properties.

Critics of Lewis's view find serious problems with the result of his reductionist approach to properties and propositions. In Lewis's account, propositions are identified with a set that contains all worlds in which that proposition is true. A problem (according to the actualists) comes when trying to describe necessarily true or false propositions: mathematical truths like " $2 + 2 = 4$ " and "Triangles have three sides". These propositions, understood as the set of worlds where they are true, all have the same value: the set of all possible worlds. Necessarily false propositions raise a similar concern, each of them is simply the empty set, since they are not true in any possible world. Here, with Lewis's account, we must merge all necessarily true propositions together to a single entity. A criticism claims this goes against common sense; when we talk about these propositions, we think about them as expressing wholly different ideas even while holding the same truth value. This is not necessarily an argument against concrete, existent possible worlds, but is a criticism of Lewis's nominalist-reductionist project to do away with as many types of abstract objects as possible in favor of set theory and concrete particulars. An even more basic criticism of this approach is that propositions simply are not just sets and it is a mistake to think about them as purely set entities: sets are not true or false, while propositions are true and false.

An alternative approach of explaining possible worlds comes in the form of actualism, developed in depth by Plantinga. Plantinga seeks to build a framework where we can analyze modal notions without requiring us to accept the existence of infinite numbers of concrete particulars that are wholly unavailable for us to examine. Furthermore, in contrast to

Lewis, he believes that we should not think of the actual world as just another world in the multitude of possible worlds. He believes that our world, the actual world, has a special ontological status.

Plantinga's formulation of possible worlds is based on his idea of states of affairs. States of affairs are abstract objects that describe the way the world is set up. A state of affairs is, for example Caesar crossing the Rubicon in 49 BC, or George Bush being president. These states of affairs are said to obtain if they express true facts about the actual world, and they fail to obtain if they do not. Plantinga account of worlds holds them to be maximally comprehensive states of affairs. These are states of affairs that define the properties for everything that exists in the world. All possible worlds are non-contradictory maximally comprehensive states of affairs; impossible states of affairs would be in the realm of impossible worlds. There is a maximally comprehensive state of affairs for each possible world, but only one of these possible worlds actually obtains. This possible world that obtains is what we call the actual world. Plantinga takes these states of affairs to exist as abstract entities, even if they do not obtain.

Plantinga's framework explains *de dicto* and *de re* modality by using the idea of states of affairs. A *de dicto* claim like "Necessarily,  $2 + 2 = 4$ " is true just in the case that if any possible world obtained, then  $2 + 2 = 4$  would still be true, regardless of which world actually obtained. A contingent *de re* claim is true if the proposition is true in the actual world and there is at least one possible world that, if it were to obtain, then the proposition would be false. An explanation of *de re* modality is similar: an object X has a property necessarily if it has that property in every world where it exists. *de re* and *de dicto* modal statements are understood by counterfactual statements about a possible world obtaining other than the actual world.

With this interpretation of *de re* modality, Plantinga is committed to trans-world individuals, if he claims that any object has contingent properties. That is, having a contingent property means that if some world were the actual world, the object would not have a certain property, but in the actual world, the object does have this property. This, at first glance, seems to violate the indiscernibility of identicals, the same problem that Lewis avoided by denying trans-world individuals altogether. Plantinga explains that in his framework, an object does not have the problematic situation of having P and not P, but has the property of P-in- $W_1$  and lacks P-in- $W_2$ . By indexing the properties of an object according to the world where they would be expressed, he can have a trans-world individual without it having contradictory property attributions.

An immediate criticism of world indexed properties is that an object having only world indexed properties has all of its properties necessarily. Since an object having P-in- $W_1$  in  $W_1$  would still have P-in- $W_1$  in  $W_2$  and in all the worlds that X exists in, X has the property P-in- $W_1$  necessarily. Plantinga does not argue with that, but says that in his framework, an actual object has properties that are not world-index: these are the properties it actually has. It still makes sense to say that X has P contingently (if X has P in the actual world) since the actual world might have been a different one. That is, another possible world might have obtained, but did not.

Plantinga's account of trans-world individuals seems to be more in line with the pre-philosophical view of modality. In this framework, when I talk about what I would do if I had won the lottery, I talk about what I would have done had another possible world obtained, and be the actual world. In contrast to Lewis, I am actually talking about myself in a different situation, not someone who resembles me.

Lewis's account reduces propositions

and properties to sets. The theory requires arithmetic abstracta in the form of set theory, but properties and propositions, two important categories of abstract objects can be expressed using set theory if we accept a multiverse of concrete possible worlds just like this one. However, in his reduction, transworld individuals are lost as are distinctions between different propositions that have the same truth values in all possible worlds. Plantinga, in contrast to Lewis's goal of reducing properties and propositions to sets, tells us we should think of his framework as dealing with possible worlds, *de re* and *de dicto* modality, and properties as interrelated ideas. *de re* and *de dicto* statements are understood as making counterfactual claims about the possible worlds being actual. Descriptions of possible worlds are linked with counterfactual claims about propositions being true or false. Without a reductive program, Plantinga can retain distinctions between different necessary propositions and gives a description of transworld individuals that makes sense and is supported by our everyday notions about modality.