Dorr on Modal Realism

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Philosophy of Time

1. Lewis's modal realism

Modal notions: possibility, necessity, etc. $\Diamond\sim S$; "it could have been the case that snow wasn't white"; $\Box(S \vee \sim S)$: necessarily, *either* snow is white or it isn't.

David Lewis (1968, 1971, 1986, section 1.2) defined possibility and necessity in terms of possible worlds.

Lewis-world: a *maximal spatiotemporally interrelated entity*, in that i) any two of its parts are spatiotemporally related to each other (e.g., are at some spatial or temporal or spatiotemporal distance from each other), and ii) there is no other such entity of which it is a proper part.

Possibly, there exists a blue swan iff: there exists a Lewis-world, w, and there exists a blue swan that is part of w

Necessarily, every swan is a bird iff: for every Lewis-world, w, every swan that is part of w is a bird

Possibly, Ted is six feet tall iff: there exists a Lewis-world, w, and there exists a counterpart of Ted that is part of w and is six feet tall

Necessarily, Ted is human iff: for every Lewis-world, w, every counterpart of Ted that is part of w is human

In general:

1. "Necessarily, A" amounts to A being true in *all* Lewis-worlds; "Possibly, A" amounts to A's being true in *some* Lewis-worlds
2. If A is *qualitative* (has quantifiers but no names), then for A to be true at a Lewis-world is for A to be true when A's quantifiers are restricted to parts of that world
3. If A is *nonqualitative* (has names but—to simplify—no quantifiers) then for A to be true at a Lewis-world is for A to be true of the counterparts of the named entities at that world

2. The problem of advanced modalizing

Lewis's analysis of:

($\Diamond\sim ST$) Possibly, there exist two things that are not spatiotemporally related to each other

is

> For some Lewis-world, w, there exist two parts of w that are not spatiotemporally related to each other

which is false. But Lewis accepts:

($\sim ST$) there exist two things that are not spatiotemporally related to each other

Thus he violates the modal "T" principle that truth implies possibility:

(T) $A \vdash \Diamond A$

(See Divers (1999, 2014); Parsons (2012); Marshall (2016); Hudson (1997, 1999); Noonan (2014).)

3. Dorr's Puzzle 1

Lewis accepts:

(1) Possibly, there exists a blue swan $\leftrightarrow_{\text{df}}$ there exists a Lewis-world, w, and there exists a blue swan that is part of w

But surely "$\leftrightarrow_{\text{df}}$" requires necessary equivalence, so he must accept:

(1′) Necessarily: (possibly, there is a blue swan) if and only if (there exists a Lewis-world, w, and there exists a blue swan that is part of w)

> The symbol '$\leftrightarrow_{\text{df}}$' in (1)… is supposed to indicate the giving of an analysis. Perhaps it may be rendered in English as 'For it to be the case that… is for it to be the case that…'. If we have any grip at all on what it means to give an analysis of something, we know that $\ulcorner \phi \leftrightarrow_{\text{df}} \psi \urcorner$ entails $\Box(\phi$ iff $\psi)$. If this is given up, it becomes entirely unclear how the meaning of (1)… [goes] beyond the meaning of the corresponding material [biconditional]. (Dorr, p. 1)

This is true:

(a) Possibly: there are no blue swans, and possibly: there is a blue swan

This is a logical truth:

> If (there exists a Lewis-world, w, and there exists a blue swan that is part of w), then there exists a blue swan

So this is true ("rule of necessitation"):

(b) Necessarily, if (there exists a Lewis-world, w, and there exists a blue swan that is part of w), then there exists a blue swan

But (1′) and (a) and (b) then imply this absurd conclusion:

> Possibly: there are no blue swans, and there exists a blue swan

(Form of argument: "Possibly, A and B; Necessarily, B if and only if (C and D); necessarily, if D then E; therefore, Possibly, A and E".)

4. Dorr's solution

When we utter (a), we intend the quantifiers to be restricted; but when Lewis gives his analyses, the quantifiers are unrestricted.

What if the quantifiers in (a) are unrestricted? Then it isn't true. Qualitative statements with unrestricted quantifiers aren't contingent. But nonqualitative statements with unrestricted quantifiers *can* be contingent:

> Possibly, there are$_{\text{u}}$ no blue swans that are located on *Earth*
>
> Possibly, there are$_{\text{u}}$ no blue swans that are part of *Cosmo*
>
> There exists a counterpart, x, of Earth such that there are$_{\text{u}}$ no blue swans that are located on x
>
> There exists a counterpart, x, of Cosmo such that there are$_{\text{u}}$ no blue swans that are part of x

5. A different reply

If you stick to the modal language, or stick to the amodal "metalanguage", everything is fine.

E.g., in the problem of advanced modalizing, if $(\sim ST)$ is to imply $(\Diamond \sim ST)$, they must both be in the modal language. But thus understood, $(\sim ST)$ is false, since it means:

> There exist two parts of Cosmo [the Lewis-world of which we are part] that are not spatiotemporally related to each other

And in Dorr's Puzzle 1, we can reject that analysis implies necessary truth.

However, there are obstacles. Suppose we "take propositions seriously". And set aside counterpart theory; assume that objects have contingent properties relative to worlds.

5.1 Problem of propositions

If it's possible that Ted is six feet tall, what proposition is said to be possible? *Ted is six feet tall relative to Cosmo* and *Ted is six feet tall relative to some world* are noncontingent; *Ted is six feet tall* isn't a proposition.

> There is genuine contingency in how things are only if, once values have been assigned to *all* variables, the resulting proposition could still have differed in truth-value. It is not contingent that Blair was Prime Minister in 2000 in @ and that he was not Prime Minister in 2000 in w. What is contingent is simply that Blair was Prime Minister in 2000. Its contingency requires it not to have a variable waiting to be assigned a world. The reply 'But contingency just is variation in truth-value with variation in the value of the world variable' betrays a failure to grasp what contingency is. (Williamson, 2002, p. 239)

5.2 Problem of analysis and identity

$\leftrightarrow_{\text{df}}$ implies propositional identity (understand this in the "higher-order way"):

(1) Possibly, there exists a blue swan $\leftrightarrow_{\text{df}}$ there exists a Lewis-world, w, and there exists a blue swan that is part of w

implies

(1″) Possibly, there exists a blue swan = there exists a Lewis-world, w, and there exists a blue swan that is part of w

But this is true:

Necessarily: (possibly there exists a blue swan) if and only if (possibly, there exists a blue swan)

which together with (1″) implies (1′) by (higher-order) Leibniz's Law:

(1′) Necessarily: (possibly, there is a blue swan) if and only if (there exists a Lewis-world, w, and there exists a blue swan that is part of w)

5.3 A radical view

Necessity and possibility aren't properties of propositions; sentences of the modal language don't express propositions. They express properties (of worlds); necessity and possibility are functions from properties to properties; '$\Box$' and '$\Diamond$' in a perspicuous language are predicate functors.

(Those who assert "actuality-centric" sentences, and use modal operators as sentential operators, pose a challenge for radical interpreters. Perhaps a "relativist" approach is correct, on which their utterances can only be evaluated relative to various possible worlds.)

5.4 Radical solution to the oroblem of advanced modalizing

An utterance by an "enlightened" person of:

($\sim ST$) there exist two things that are not spatiotemporally related to each other

implies nothing by rule T (since modal operators in this context aren't sentential connectives).

Utterances by ordinary speakers of ($\sim ST$) and ($\sim ST$) have no truth values. But they have truth values relative to various Lewis worlds; and the second is true relative to any world that the first is true relative to.

5.5 Radical solution to Dorr's puzzle 1

If we speak a metaphysically perspicuous language, we will treat $\Diamond$, $\Box$ as predicate functors. We will then accept this analog of (1″):

(i) $\Diamond(\lambda w.w$ contains a blue swan$) = \lambda w.\exists v(v$ contains a blue swan$)$

"the possibilification of (being a Lewis world containing a blue swan) = being a Lewis-world such that some Lewis-world contains a blue swan"

And we will say that this property (compare (*)) is possessed by all worlds:

(ii) $\Box\Big(\leftrightarrow\big(\Diamond(\lambda w.w \text{ contains a blue swan}), \Diamond(\lambda w.w \text{ contains a blue swan})\big)\Big)$

This property is then the same as this one:

$$\Box\Big(\leftrightarrow\big(\Diamond(\lambda w.w \text{ contains a blue swan}), \lambda w.\exists v(v \text{ contains a blue swan})\big)\Big)$$

But that's fine: this property is unproblematically had by all worlds.

But now return to the language of QML. (*) corresponds (in a sense, via Lewis's translation scheme) to a property that is had by all worlds. But if we change the second occurrence of 'possibly, there exists a blue swan' to 'there exists a world and there exists a blue swan contained in that world', we get:

> Necessarily: (possibly there exists a blue swan) if and only if (there exists a world containing a blue swan)

And this corresponds to this property, which is *not* had by all worlds:

$$\lambda w.\forall v\big(\exists u(u \text{ contains a blue swan}) \leftrightarrow \exists u\exists x(u \text{ and } x \text{ are parts of } w \text{ and } x \text{ is a blue swan})\big)$$

What's up with that? After all, we accepted the identity (i).

Answer: the translation scheme doesn't treat 'there exists a world containing a blue swan' as expressing the property of being a world that is such that some world contains a blue swan (i.e., the property expressed by the right hand side of (i)). Rather, it treats it as expressing the property of being a world that *contains* a world containing a blue swan.

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