

Impossible worlds semantics

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Two-dimensionalism is one response to the problem of ‘coarse-grained contents.’ A different response (though one which could in principle be combined with two-dimensionalism) is to think of propositions, not as sets of possible worlds, but as sets of worlds which may be possible or impossible. Lets call this impossible worlds semantics (IWS).

1 IMPOSSIBLE WORLDS??

Should we really believe in impossible worlds?

One argument that we should: most theories of what possible worlds are will make it highly plausible that there are also impossible worlds. Examples: worlds as sets of propositions or states of affairs; worlds as maximal properties. Primitivism? Less clear.

A second argument that we should: many of the reasons for introducing possible worlds in the first place seem to require impossible worlds as well.

Example 1: counterfactuals. A standard view of counterfactuals says that ‘If it were that P, it would be that Q’ is true iff all of the nearest worlds in which P is true are also worlds in which Q is true. But this implies that counterpossibles — counterfactuals with an impossible antecedent — are all vacuously true (since there are no P worlds).

But as Daniel and others have argued, this does not seem to be true. Examples:

If intuitionistic logic were the correct logic, then the law of excluded middle would still be unrestrictedly valid. (Brogaard and Salerno (2013))

If Hobbes had (secretly) squared the circle, sick children in the mountains of South America at the time would not have cared. (Nolan (1997))

The first seems false, and the second seems non-vacuously true. Obvious solution: bring impossible worlds into the mix.

Example 2: epistemic possibility. Remember the case of wondering whether a table is made of wood. Natural treatment of the case: I am wondering which of two scenarios is actual, where one of them is an impossible scenario (world).

Example 3?: giving a theory of propositions.

Note: you can believe in impossible worlds, and believe that they play various important theoretical roles, without going in for IWS. Just as in the case of possible worlds.

How might IWS help with the problems we encountered for possible worlds treatments of propositions?

For inquiry and assertion: belief sets and context sets can (and quite often will) include impossible worlds; some of these would be ruled by by coming to believe / asserting a necessary truth.

For belief ascriptions: if propositions are sets of possible and impossible worlds, there is no longer a guarantee that if S has T as a necessary consequence, then if S is true at every world in a subject's belief set, T is as well. (The belief set may include impossible worlds.) Similarly, there is no guarantee that S and the conjunction of the two will express the same proposition. (There may be some impossible worlds where S is true and T is false.)

2 THREE QUESTIONS FOR IWS

Q1. What are impossible worlds?

Options: sets of sentences or sentence-like entities; properties which could not be instantiated; primitivism.

Q2. How do we do compositional semantics?

Option 1: just the same way we do textbook intensional semantics.

Option 2: suppose we think of worlds as sentences (or sentence-like entities) in some language, and call the language the 'world-building language.' Then our compositional theory might consist of a mapping of sentences of the target language (e.g., English) to sentences of the world-building language. Call this the 'mapping' view of semantics. This is what Berto and Jago go for.

Problem for option 2: Lewis on Markerese:

My proposals regarding the nature of meanings will not conform to the expectations of those linguists who conceive of semantic interpretation as the assignment to sentences and their constituents of compounds of 'semantic markers' or the like. ... Semantic markers are symbols: items in the vocabulary of an artificial language we may call Semantic Markerese. Semantic interpretation by means of them amounts merely to a translation algorithm from the object language to the auxiliary language Markerese. But we can know the Markerese translation of an English sentence without knowing the first thing about the meaning of the English sentence: namely, the conditions under which it would be true. Semantics with no treatment of truth conditions is not semantics.

Berto and Jago reply that we can think of the language as Lagadonian language in which every object is a name for itself and every property is a predicate expressing itself. Sentences of this 'language' look a lot like Russellian propositions.

A follow up question: if we have a compositional mapping from sentences to Russellian propositions, an account of worlds in terms of these Russellian propositions, and an account of what it takes for a Russellian proposition to be true at an impossible world (it has to be a member of it), why not just identify propositions with Russellian propositions?

Q3. The granularity question

Rough way to put the question: how fine-grained are impossible worlds?

Better way to put the question: are there any systematic constraints on what can be true at an impossible world? Is everything true at some impossible world or other?

Berto and Jago's answer: Nolan's principle! This says that for every propositions which cannot be true, there is an impossible world where that proposition is true. More specifically, they defend the more general claim that for any disjoint classes of propositions, there is a world where every member of the first class is true and every member of the second class is not.

This is the maximally fine-grained view of impossible worlds. Why go for it?

Berto and Jago argue (in effect) that any other view will reinstate some of the problems from possible worlds semantics. For suppose that for some p and q , there is no world (possible or impossible) where p is true and q is not. Then it will follow from IWS that any subject who believes p will also believe q . But, Berto and Jago seem to think (at at least some points in the book), we can always come up with a subject who seems to believe p but not q .

As they point out, if we start out with the maximally fine-grained view, we can always for various theoretical purposes impose some extra structure. E.g., we might adopt this view of worlds, but deny that just any set of worlds is a proposition. Or we might deny that some worlds can be elements of belief sets or context sets.

3 CHALLENGES FOR IWS

3.1 *Compositionality*

A textbook intensional semantics will say something like this about 'and':

'S1 and S2' is true at w iff 'S1' is true at w and 'S2' is true at w

This is supposed to give the meaning of 'and.' One thought is that the fan of IWS can just say the same thing, except letting the domain of worlds include impossible as well as possible worlds.

But this won't work, since there will be impossible worlds at which the conjuncts are true but the conjunction is not (and vice versa). (Stalnaker (1996) makes a parallel point about negation.)

So the meaning of 'and' looks like it is going to be more complicated, as long as we're building off of the textbook semantics. What should the fan of IWS say?

Berto and Jago go for the mapping view. So their semantics will map conjunctions to the corresponding Russellian proposition, which will have a constituent corresponding to 'and.' This might well be perfectly compositional. We then define the proposition expressed by the conjunction as the set of worlds which contain that Russellian proposition.

3.2 *Can we make the distinctions in content we want to make?*

Lots of people want to distinguish between the propositions expressed by 'Hesperus is Hesperus' and 'Hesperus is Phosphorus.' A textbook intensional semantics will say something like this about names:

The extension of 'Hesperus' at w is Hesperus (if it exists, and nothing otherwise)

The assumption of rigidity makes our sentences come out true at just the same worlds.

Suppose we introduce impossible worlds. We can then consider the thesis that names have the same extension with respect to every impossible as well as every possible world. Call this ‘hyperrigidity.’

Some fans of IWS (e.g. Ripley (2012)) endorse hyperrigidity. He tries to make room for a difference in meaning between our sentences by introducing the relation of schmidentity, which is ‘the relation that holds between two things when they are identical at all possible worlds’ but perhaps not all impossible worlds. Some worries about the generality of this treatment of the case.

Others reject hyperrigidity. (This is my understanding of Priest (2016), though he does not like this characterization.) This looks better for present purposes. But: what is the intension of the name, then? Not obvious what to say, especially if we want sentences like ‘Hesperus is a fried egg’ to come out true in some impossible world.

Suppose instead we go for the mapping view of semantics. Then we make room for these sentences to differ in meaning iff they get mapped to distinct sentences in the world-making language. Does not look easy to do this if we think of the world-making language as Berto and Jago do. (Jago (2014) tries to address this.)

3.3 *Does this preserve what was attractive about the possible worlds picture?*

Advantages: we keep the idea of contents as essentially things that distinguish between alternatives (we just now have more alternatives in the mix). Can also keep something like a textbook semantics (though as we have seen there are complications).

How about the stuff about context sets and belief sets? A little trickier. One perceived advantage of the possible worlds view is that once we add the proposition that Fido barks to the context set, we also add a bunch of other stuff (that Fido made a noise, that Fido exists, etc.). But there are impossible worlds where Fido barks and Fido does not make a noise. We could still stipulate rules which excludes these worlds from the context set. But it does not come for free.

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