

Lecture 6: Modality: Necessity and Possibility

1. Introduction
2. Suspicions Regarding Modal Claims
3. Lewisian Realism
 - ...3.1. Overview and Motivations
 - ...3.2. Problems

Lecture 6: Modality: Necessity and Possibility

1. Introduction

- So far we have focused on the ontological implications of true sentences of the form 'x is F' or 'x bears relation R to y'. We have seen that these kinds of sentences have led people to postulate the existence of various entities that the sentences, or parts of the sentences, supposedly correspond to (e.g. objects, properties, tropes, events, facts,...).
- It turns out that there is an important class of sentences that we have so far pretty much avoided mentioning: modal sentences.
- What is a modal sentence? I can say:
 - (1) 'Nothing travels faster than the speed of light.'
 - (2) 'Stephen owns a Peugeot.'but I could also assert a little more. I could say
 - (3) 'Nothing *can* travel faster than the speed of light.'
 - (4) 'Stephen owns a Peugeot but could have owned a VW.'

Lecture 6: Modality: Necessity and Possibility

1. Introduction

(3) and (4) are modal sentences. They assert something not just about what *is* the case, but also about what *could* or *couldn't* be the case.

- Philosophers distinguish between 4 interdefinable cases of modality:
 - Necessity*: it must/has to be the case that p ($\Box p$).
 - Possibility*: it could/can/might/may be the case that p ($\Diamond p$ or equivalently $\sim\Box\sim p$).
 - Impossibility*: it cannot/could not be the case that p ($\Box\sim p$ or equivalently $\sim\Diamond p$).
 - Contingency*: it may or may not be the case that p ($\Diamond p \& \Diamond\sim p$ or equivalently $\sim\Box p \& \sim\Box\sim p$).
- They also traditionally distinguish between so-called 'de re' and 'de dicto' modal claims:
 - (5) The number of planets is necessarily odd. (de re & true: the number 9 couldn't have been even)
 - (6) Necessarily, the number of planets is odd. (de dicto & false: there could have been more planets)

Lecture 6: Modality: Necessity and Possibility

1. Introduction

Note that there is a certain amount of controversy as to how the distinction between de re and de dicto should be drawn. The standard way of putting things (i.e. Loux's way of putting things) is to draw a distinction between operator scopes:

- in a de dicto sentence, the modal operator attaches to a whole sentence (*dictum*) (e.g. in (6), the whole sentential phrase 'the number of planets is odd' falls under the scope of the operator)
- in a de re sentence, the operator attaches to a predicate, forming a modal predicate that is then attributed to a thing (*res*) (e.g. in (5), only the adjective 'odd' falls under the scope of the operator)

This is unsatisfactory for a number of reasons: (i) some de re sentences (such as 'James is necessarily under 16 feet tall.') end up being logically equivalent to de dicto sentences (here 'necessarily, James is under 16 feet tall'), (ii) some complex modal sentences cannot be classified as either de re or de dicto. Let's stick to a definition by example for now.

Lecture 6: Modality: Necessity and Possibility

1. Introduction

- There is, in addition to the previous distinctions, a further distinction between different 'strengths' of necessity/possibility. Philosophers routinely speak not just of necessities/possibilities simpliciter, but of *logical*, *nomological* or *epistemic* necessities/possibilities. By this, they mean those possibilities that follow from (for necessities) or are compatible with (for possibilities) the laws of logic, the laws of nature or the sum of our knowledge, respectively.
- Modal notions are widely used in everyday discourse but are also employed in many areas of philosophical theorizing. In fact, we will find them in every single topic that we will be covering in the remainder of the course: (i) causation, (ii) reduction / supervenience, (iii) counterfactual conditionals, (iv) dispositions, (v) laws of nature. Modal notions are also central to logic. An intuitive way of understanding the notion of a 'valid argument' is to take it to correspond to an argument such that it isn't possible for its premises to be true while its conclusion false.

Lecture 6: Modality: Necessity and Possibility

1. Introduction

- Now, on the face of it, modal statements *seem* to assert something factual about the world; it seems that they can be claimed to be true or false.
- If indeed this is the case, we might want to enquire as to what in the world *makes* these sentences true or false.
- These two issues - the issue of factualism vs non-factualism and (especially) the truthmaker issue - are the topic of the remainder of this lecture.

Lecture 6: Modality: Necessity and Possibility

2. Suspicions Regarding Modal Claims

▪ Believe it or not, in spite of the ease with which we use modal sentences in everyday talk, there is a long and distinguished history of philosophical suspicion regarding the modal.

There are a number of reasons for this:

- Epistemological concerns. The thought was that whilst we can be justified in believing in the existence of truthmakers for non-modal sentences, we don't seem to have the same grounds for postulating the existence of truthmakers for modal sentences. In other words, the view was that we can see something being the case but that we can't see something necessarily or possibly being the case: the modal outstrips our experience. (Actually the claim should be that truthmakers for *some* modal sentences can't be observed (e.g. 'Necessarily there are no mountains made of Plutonium'). This is because some modal sentences can be made true by the same truthmakers as non-modal sentences: ' $\diamond p$ ' can be made true by the simple fact that p (e.g. I can establish that 'It is possible for me to go jogging in the mornings' is true if I can establish that 'I go jogging in the mornings' is true).

Lecture 6: Modality: Necessity and Possibility

2. Suspicions Regarding Modal Claims

▪ Problems of logical formalisation. Unfortunately, things get a bit technical here so I'll have to give the details a miss. Basically, early attempts to capture the inferential connections between modal sentences failed to exhibit a number of desirable features possessed by other existing logics. This led people to think – somewhat prematurely – that modal talk had no place in serious philosophy. On the list of complaints:

(i) The complaint that modal logic fails to meet an 'extensionality' requirement on logical systems (for instance it fails to meet the requirement that the truth-value of a given sentence would be unaffected by swapping constituent expressions for further expressions referring to the same entities)

(ii) The complaint that there are unresolvable disagreements over the proper axiomatisation of modal logic (this indicated to some that our concept of the modal is ultimately a confused one and that the whole project was a non-starter).

Melia's *Modality* (chapters 2 and 3) provides a reasonably accessible overview of some of the technicalities.

Lecture 6: Modality: Necessity and Possibility

2. Suspicions Regarding Modal Claims

- Interestingly, in many ways, the situation with respect to modal statements paralleled the situation with respect to ethical statements. Notions such as value, duty or obligation were long treated with a certain amount of scepticism, sometimes for strikingly similar reasons. There were complaints about our epistemic access to putative moral facts, as well as uncertainty about the future of attempts to formalise the logic of ethical statements.
- Drawing the parallel with Ethics pays off, I think. There is a well-developed literature on anti-realism with respect to ethical facts, boasting a range of positions that could find natural counterparts in the philosophy of modality. Taking inspiration from metaethics, one could hold, for instance, that:

Lecture 6: Modality: Necessity and Possibility

2. Suspicions Regarding Modal Claims

- Modal sentences are meaningful but don't assert anything factual. This view could be dubbed 'Modal Prescriptivism', after Carnap's *Moral* Prescriptivism. The view would be that, despite their surface form, modal sentences are similar to imperatives, prescribing/proscribing certain beliefs. So, for instance, 'It is necessary that p' would be interpreted as something like 'believe that p, no matter what the apparent counter-evidence!'. Gunnar Bjornsson once proposed something along these lines (see also the Blackburn piece on the reading list for a related view). Of course, a defense of Modal Prescriptivism will require an answer to the notorious kinds of objections faced by its moral counterpart (e.g. Geach's Problem). A good place to get started on Prescriptivism is van Roojen's 'Moral cognitivism vs Non-cognitivism' entry in the *Stanford Encyclopaedia of Philosophy*.
- Modal sentences assert something factual but are systematically false. This view, 'Modal Error Theory', would find its ethical counterpart in the *Moral* Error Theory associated with Mackie.

Lecture 6: Modality: Necessity and Possibility

2. Suspicions Regarding Modal Claims

- Modal Prescriptivism and Modal Error Theory aren't however particularly popular views. The general consensus is that modal sentences both (i) are truth-evaluable and (ii) aren't systematically false.
- Now there are a large number of proposals conforming to this consensus view. We don't however have the time to go over the various options in one single lecture. In what follows I will restrict my attention to just one of these: Lewisian Possible World Realism.
- Why Lewis rather than, say, Plantinga, Stalnaker or Adams? This choice is motivated by the following considerations:
 - Lewis' account is the most reductively ambitious of all the proposals on the market. His picture is the metaphysically best-case scenario. It is therefore worth seeing whether he can pull things off before falling back on other alternatives.
 - We will be doing a lot more Lewis in subsequent lectures. More specifically, we will be taking a look at his hugely influential views on counterfactuals and causation. Lewis' view on possible worlds is the foundation for his work on other topics.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

- Like many others, Lewis holds that modal sentences have truthmakers. But what is distinctive about his view is that the truthmakers for modal sentences are of the very same variety as the truthmakers for non-modal sentences: they are simply ordinary, garden-variety facts. The twist is that they are facts that don't necessarily pertain to the world we live in...
- Yes, Lewis believes in a plurality of worlds in addition to our own actual world: according to him, we inhabit one of many existing universes.
- According to Lewis, worlds – including our own – are maximal aggregates of spatio-temporally connected entities: for each and every object that exists, there is a world corresponding to a sum of that object and every single other object that bears a spatio-temporal relation to it. Because Lewis believes in multiple worlds, he therefore believes that there are objects that exist that are nevertheless not spatio-temporally related to us (e.g. unicorns exist but they are spatiotemporally disconnected from us).

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

- Furthermore, according to Lewis, all worlds are ontologically on par: there is nothing ontologically special about the world we inhabit, i.e. the actual world (the actual world isn't, for instance, 'more real' than alternative worlds). On his view, the expression 'the actual world' is just an indexical expression, like 'I' or 'now' or 'here'. Its referent varies according to the context of utterance: 'the actual world' simply names the world in which the utterer happens to be located. Different worlds are actual worlds for different individuals.
- Back to truthmakers for modal sentences. As I mentioned earlier, Lewis takes these to be ordinary facts, albeit facts that can pertain to other worlds than our own. Here is his proposal:
 - 'It is necessary that the number of planets is odd.' is true iff it is the case that the number of planets is odd in all worlds.
 - 'It is possible that the number of planets is odd' is true iff there is at least one world in which it is the case that the number of planets is odd.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

- Here, modal sentences are treated as implicitly quantifying over worlds (much in the same way that - as we saw in the last lecture - Davidson treated action sentences as implicitly quantifying over events). Necessity operators become universal quantifiers, whilst possibility operators become existential quantifiers.
- For technical reasons that I can't go into, it turns out that this quantificational analysis proved to be a *tremendous* technical breakthrough in modal logic. Not only did it enable increased expressive power for modal logics (earlier modal logics had problems formalising a number of natural language modal sentences) but, amongst many other things, it also provided a principled way of understanding the relationships between competing axiomatisations. This is no place to review the technical benefits of the possible world approach to modality but if you are interested, you can consult chapter 2 of the Melia book cited above.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

▪ We have seen how Lewis deals with so called de dicto modal sentences. How does he deal with de re modality?

▪ Well it turns out that de re modal sentences raise an interesting issue for the Lewisian realist. One straightforward possible world translation of the de re sentence:

(4) 'Stephen owns a Peugeot but could have owned a VW.'

would be:

(4)* 'Stephen owns a Peugeot in the actual world but there exists a possible world in which Stephen owns a VW.'

Now (4)* countenances the existence of transworld individuals, individuals that exist in more than one world. However, a number of people, including Lewis himself, have been unhappy about this. If possible worlds are what Lewis claims they are, each world seems to have its own concrete individuals, with Stephen₁ having his own life, in spatiotemporal isolation from Stephen₂.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

Furthermore, the existence of transworld individuals would obviously falsify the following popular principle (which is the converse of our Identity of Indiscernibles principle from lecture 4):

Indiscernability of Identicals: Necessarily, for any objects x and y, if x is identical with y, then for any property F-ness, Fx iff Fy.

In our example, putative transworld individual Stephen both owns a Peugeot (and not a VW) and owns a VW (and not a Peugeot), violating the above principle. What to do if one wants to hang on to transworld individuals?

(a) Reject Indiscernability of Identicals. This won't be a popular response, although one could alternatively offer a world-restricted version of the principle (e.g. necessarily, for any objects x and y that exist in a possible world w, etc...).

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

(b) Characterise individuals with world-indexed properties. We could say that Stephen owns-a-Peugeot-in- w_1 and owns-a-VW-in- w_2 . On this view, there is no such thing as being red for instance; rather, there is being-red-in- w_1 , being-red-in- w_2 , etc. Lewis argues that this proposal does unacceptable violence to our intuitions about properties. (Alternatively we do things the other way round and claim that objects have parts that exist in different worlds: Stephen-in- w_1 , Stephen-in- w_2 , etc. Here, I guess Lewis would claim that we are doing violence to our intuitions about objects.)

▪ Lewis' response is to do away with transworld individuals altogether. The problem of course is then: how do we interpret (4) in possible world terms? Lewis' idea is to appeal to 'counterparts'. According to Lewis, given two worlds w_1 and w_2 , the counterpart x_2 in w_2 of an object x_1 in w_1 is that object in w_2 that is 'relevantly similar' to x_1 (if there is no relevantly similar object, there is no counterpart). Accordingly, (4) turns into:

(4)** 'Stephen owns a Peugeot in the actual world but there exists a possible world in which Stephen has a counterpart who owns a VW.'

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

▪ Lewis' proposal is controversial however. One famous objection (due to Kripke) is the following...

▪ **Argument against Counterpart Theory from concern.** [1] *We ought to care about what has to, or what might, be the case in the universe we inhabit, [2] It isn't the case that we ought to care about what is the case in universes that our counterparts inhabit. [3] Facts concerning what has to, or what might, be the case in this universe can't be identical with facts concerning what is the case in universes that our counterparts inhabit.*

It isn't clear to me that Lewis has ever provided a satisfactory response to this objection.

The best he can do, I think, is to dig his heels in and deny premise [2].

▪ Note that if it turns out that if the postulation of transworld individuals and the postulation of counterparts are both problematic, Lewis' Possible World Realism is in serious trouble.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

▪ Ok, so Lewis gives us an account of the truth conditions for a wide range of modal sentences, including (let's say) de re modal sentences, without postulating special modal facts. He also provides a quantificational account of modal operators, which is a fantastic piece of technical wizardry... But doesn't this come at too high a cost? Doesn't it fly in the face of our pretheoretic intuitions? Well Lewis argues that in fact, he is just fleshing out a worldview that we have held all along...

▪ **Argument for Lewisian Realism from ordinary language quantification over 'possible ways of being'.** (from Lewis' *Counterfactuals*, p84) [1] There are true sentences that quantify over 'ways of being': e.g. 'There are other ways that things could have been'. [2] If [1] then, barring the possibility of successful paraphrase, 'ways of being' exist. [3] 'ways of being' are, if anything, possible worlds (under a different name). Therefore [4] possible worlds exist.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

▪ Furthermore, Lewis argues, we aren't over with the theoretical advantages of his view. We will see in the following lectures how he argues that his view does away with the need to postulate special kinds of truthmakers for counterfactual conditional sentences and causal sentences. There is however another selling point: according to Lewis, his view enables us to salvage a reduction of properties to sets of objects.

▪ In lecture 3, we saw the following objections to the reduction of properties to sets of objects in the actual world:

- If properties are sets of actual objects then we should treat having a heart and having kidneys as being the same properties (because, in our world, all beings with kidneys happen to also have hearts).
- If properties are sets of actual objects, then I couldn't have been a bank clerk (because being a bank clerk is identified with a set that only includes objects from this world, and my counterparts therefore don't belong to that set)

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.1. Overview and Motivations

- Lewis argues that his possible worlds framework provides a means of constructing a version of OSTRR that avoids this problem. His proposal is that properties are sets of possible objects (whether actual or non-actual). Because of this, he can claim that:
 - Having a heart and having kidneys are different properties: there is a possible world in which some object belongs to one set and not the other.
 - I could have been a bank clerk: one of my counterparts belongs to the set of actual and possible objects named by 'being a bank clerk'.

Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.2. Problems

- In spite of his achievements, things aren't however all rosy for Lewis...
- First of all, with respect to the issue of properties, there seems to be a residual coextensive properties problem. Consider being a triangular polygon and being a trilateral polygon. It seems plausible to claim that these terms name two distinct properties (i.e. being a polygon with three angles and being a polygon with three sides). However, according to Lewis, because all triangular polygons are trilateral polygons in all worlds, we have one property rather than two.
- Secondly, Lewis' claim that we have been possible world realists all along is somewhat iffy. Stalnaker (1976 – see reading list) takes issue with him over the slide from talk of 'possible ways of being' to talk of possible worlds. There is surely a firm distinction to be drawn between the way our world is and our world itself. But if this is the case, the same surely goes for the ways our world could be and putative possible worlds.

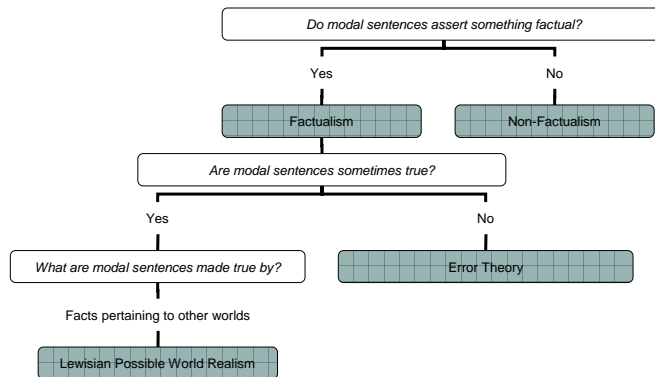
Lecture 6: Modality: Necessity and Possibility

3. Lewisian Realism > 3.2. Problems

▪ Finally, a number of people balk at the idea that Lewis can claim that there exist entities that don't exist in the actual world. Surely, so the complaint goes, it is part of the *meaning* of the verb 'to exist' that things that exist are part of the actual world. But it really isn't clear that this last objection cuts any ice. Ok, for sure it seems wrong to claim that 'There are flying donkeys' or 'Flying donkeys exist'. But it isn't clear that it is because of the *meanings* of 'to be' or 'to exist'. Lewis could claim that the reason why the sentences seem odd is that we have a conversational implicature in place that compels the hearer to interpret the sentence as 'Flying donkeys exist in the actual world'. This implicature could be cancelled by explicitly specifying an alternative world: 'Flying Donkeys exist, but in another possible world'.

Lecture 6: Modality: Necessity and Possibility

Logical map of the views covered in this lecture



Lecture 6: Modality: Necessity and Possibility

Next week... Reduction and Supervenience

- Set reading: Klee, R. (1997) *Introduction to the Philosophy of Science*. Oxford: OUP. Ch 5 'Reductionism, Anitredutionism and Supervenience'.
- Problem: this reading won't be up on the website until tomorrow afternoon. If you can't wait that long, you can read the following pair of short articles instead (both of which are available on the WebCT page):
 - Kim J. (1998) 'Problems of Reduction', in the *Routledge Encyclopaedia of Philosophy*. London & New York: Routledge.
 - Blackburn, S. (1998) 'Supervenience', in the *Routledge Encyclopaedia of Philosophy*. London & New York: Routledge.