

# *A Primer on Modality*

The Necessary and the Possible



# An Analysis of Necessity?

- Two claims:
  - The necessary/contingent distinction is distinct from the essence/accident distinction. (They are not even co-extensive.)
  - Still, Aristotelian Essentialism is partly *defined* in terms of *de re* necessity.
    - Perhaps this is a case explaining the *obscurum per obscurius*?
- Our question:
  - What is necessity?



# Necessity is a Mode of Truth

- Some true propositions:
  - . . .are *necessarily* true: Blue is a colour.
  - . . .are *contingently* true: One word in this **sentence** is blue.
- Some false propositions:
  - . . .are *contingently* false: One word in this **sentence** is red.
  - . . .are *necessarily* false, which is to say *impossible*: The word '**sentence**' is blue but not coloured.



# Some Easy(ish) Connections

- $p$  is necessarily true (or, necessary) *iff*  $p$  is not possibly false (or, it is not possible that not- $p$ )
  - $\Box p \leftrightarrow \sim \Diamond \sim p$
- $p$  is possibly true (or, possible) *iff*  $p$  is not necessarily false (or, it is not necessary that not- $p$ )
  - $\Diamond p \leftrightarrow \sim \Box \sim p$
- $p$  is contingently true (or, contingent) *iff*  $p$  is possible but not necessary
  - $\Diamond p \ \& \ \sim \Box p$



# Grades of Modality

- Here philosophers begin to diverge, but we may think of degrees of modality as given by expanding domains of quantification:
  - Physical possibility:
    - It is possible that a lecturer walk about, but not possible that she levitate and lecture seated in the air. Still, if the laws of nature are contingent, this is metaphysically or logically possible.
  - Metaphysical possibility:
    - It is not possible that the lecturer be a sofa, or that a circle be square. Still, these are not logical impossibilities—they are not contradictions.
  - Logical possibility:
    - Nothing is both a lecturer or not a lecturer, or both circular and not circular.



# Leibnizean Biconditionals

- A proposition is necessary *iff* it is true in all possible worlds.
- A proposition is possible *iff* it is true in at least one possible world.
- A possible world is a complete history of some universe.
  - One possible world, ours, is actual.
  - The others are merely possible worlds — ways things might have been but are not.



# Reductive Definitions?

- The Leibnizean Biconditionals may be offered as reductive definitions of modality—as accounts of modality in terms of truth.
- N.b. that this will be non-circular only if we have available a non-modal definition of a possible world.
- One possibility (Lewis):  $x$  is a possible world *iff* (i)  $x$  is a maximal spatio-temporally interrelated whole; and (ii) anything spatio-temporally related to any part of  $x$  is a part of  $x$ .



# What, then, *is* a possible world?

- A simple thought: a good instance of a possible world is the actual world.
- So, whatever the actual world is, a possible world is the same sort of thing.
- Of course, the actual world is not the only possible world; other worlds could have been.
- Those worlds are, then, just like the actual world—except, of course, not actual.
  - What is it to be non-actual? Well, every world is actual from its own perspective.
    - The word ‘actual’ is simply indexical.



# A Little Argument

1. There are countless ways the world could have been but is not. ( $= \sigma$ )
2. One permissible paraphrase of ( $\sigma$ ) is this: There exist ways the world could have been. ( $= \sigma^*$ )
  - [‘On the face of it, this sentence is an existential quantification.’ — Lewis, 160]
3. If  $\sigma^*$  is a permissible paraphrase of  $\sigma$  and it’s not the case (i) that  $\sigma^*$  leads to trouble while (ii) some other paraphrase of  $\sigma$ ,  $\sigma^{**}$ , does not, then  $\sigma^*$  may be duly accepted.
4. It is not the case that ( $\sigma^*$ ) leads to trouble while some other paraphrase of ( $\sigma$ ) does not.
5. So, there exist ways the world could have been.
  - [‘I therefore believe in the existence of entities that might be called ‘ways things could have been’. I prefer to call them ‘possible worlds’.’ — Lewis, 160]



# Two Concerns

- Actualism
  - What exists is co-extensive with what is actual: there are no mere *possibilia*.
- Circularity
  - A survey of modal space demands truth-makers for *all* possibilities.
    - The account must be both genuinely reductive and materially adequate.
      - The worry is that its being materially adequate challenges its status as genuinely reductive.
    - Any guarantee that there be a truth-making world for each possibility and no truth-making world for any impossibility evidently requires an implicit appeal to the very modal notions targeted for reduction.
      - Without the benefit of reduction, there seems no reason to abandon the attempt to *define* possible worlds in terms of maximally spatio-temporally related wholes.
        - They may instead be taken as (explicable) primitives.



# Actualism and Possibilism

- Actualism =<sub>df</sub> what exists is co-extensive with what is actual
  - ‘Actualism, with respect to possible worlds, is the view that if there are any true statements in which there are said to be nonactual possible worlds, they must be reducible to statements in which the only things there are said to be are things which there are in the actual world and which are not identical with nonactual possibles.’ —Adams (1974, 224)
- Possibilism =<sub>df</sub> what exists is not co-extensive with what is actual: in addition to all the actual things that exist, there exist *possibilia*.



# Possibilia

- What are *possibilia*?
  - Well, as the possibilist sees things, they are simply those things that do not actually exist, but might have existed.
  - They are, e.g., the denizens of all those non-actual but perfectly possible worlds.
  - We repeat: the word ‘actual’ is simply indexical.
    - If you were to ask a merely possible being whether it is something actual or merely possible, it would say—just as you yourself would say—‘Yes, don’t be ridiculous! Of course, I’m actual.’
    - Compare: Q: ‘Are you here now?’
      - A: ‘Well, um, here. Where else would I be just now?’



# The Strongest Argument for Actualism

- The strongest evidence for the indexical analysis of actuality is that it explains why skepticism about our own actuality is absurd. How do we know that we are not the unactualized possible inhabitants of some unactualized possible world? . . . The indexical analysis of actuality explains how we know it: in the same way I know that I am me, that this time is the present, or that I am here. All such sentences as "This is the actual world," "I am actual," "I actually exist," and the like are true on any possible occasion of utterance in any possible world. That is why skepticism about our own actuality is absurd. —Lewis (1970, 186.)



# The Fruits of the Canonical Conception

- Beautiful Clarity
  - Consider: ‘Well, it’s possible that there are purple cows.’
  - This might be taken two ways:
    - $(\exists \phi) \Diamond \phi x$  [=There is something such that it’s possibly a purple cow.]
    - $\Diamond (\exists \phi) \phi x$  [= Possibly, there is a purple cow.]
  - The second, but not the first, way of taking this locution seems compatible with there being possible but non-actual beings.
    - Should we agree that there are such?



# The Barcan Formula (BF)

- (BF), derivable from Simple Quantified Modal Logic, provides a way of connecting these two thoughts:
- BF:  $\forall x \Box \phi \rightarrow \Box \forall x \phi$
- or, equivalently:  $\Diamond \exists x \phi \rightarrow \exists x \Diamond \phi$



# Altogether then. . .

- The Leibnizean Biconditionals may be accepted as correct without being taken as reductive.
- One may speak of possible worlds consistent with a commitment to actualism (. . .properties are actual).
- They are ways things might have been — but are not.

