

Metaphysics of Modality

Lecture 1: Introducing Modality

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dd426

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- The phenomenon of possibility and necessity

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Laws: If some salt were in water, it *would* dissolve

Causation: A causes B iff B *wouldn't* have occurred if A hadn't had occurred

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- **Dispositions**

This mug is fragile/cheap mugs have a
tendency to chip

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Validity is a modal notion

3. Language for modal logic

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4. *De Dicto* and *De Re* modality

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- (1) The number of planets in our solar system is necessarily greater than 5

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(2) There could have been pink swans

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- It's necessary that all robins are birds

- $\Box \forall x (Rx \rightarrow Bx)$

4. *De Dicto* and *De Re* modality

(2) There could have been pink swans

- It's possible that there are pink swans

- $\diamond \exists x (P_x \ \& \ S_x)$

(3) All robins must be birds

- It's necessary that all robins are birds

- $\square \forall x (R_x \rightarrow B_x)$

4. *De Dicto* and *De Re* modality

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- (4) Mark could have had a daughter
- It's possible that Mark has a daughter
 - $\diamond D_m$

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(4) Mark could have had a daughter

- It's possible that Mark has a daughter
- $\Diamond D_m$

(5) Any robin must be bird

- For any robin, it's necessary that it's a bird
- $\forall x(Rx \rightarrow \Box Bx)$

4. *De Dicto* and *De Re* modality

(4) Mark could have had a daughter

- It's possible that Mark has a daughter
- $\diamond D_m$

(5) Any robin must be bird

- For any robin, it's necessary that it's a bird
- $\forall x(Rx \rightarrow \Box Bx)$

A formula with modal operators is *de re* iff it contains a modal operator R which has within its scope either (1) an individual constant, or (2) a free variable, or (3) a variable bound by a quantifier not within R 's scope. All other formulae with modal operators are *de dicto*.

4. *De Dicto* and *De Re* modality

- The Barcan Formula:

$$\diamond \exists x Fx \rightarrow \exists x \diamond Fx$$

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$$\diamond \exists x Fx \rightarrow \exists x \diamond Fx$$

- There could have been an individual that was a child of Wittgenstein (true)

4. *De Dicto* and *De Re* modality

$$\diamond \exists x Fx \rightarrow \exists x \diamond Fx$$

- There could have been an individual that was a child of Wittgenstein (**true**)
- There is an individual that could have been the child of Wittgenstein (**false**)

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- (6) Necessarily, the thing Sophie is thinking about is prime (*de dicto*) **False**

4. *De Dicto* and *De Re* modality



- (6) Necessarily, the thing Sophie is thinking about is prime (*de dicto*) **False**
- (7) The thing Sophie is thinking about is necessarily prime (*de re*) **True**

4. *De Dicto* and *De Re* modality

(1) The number of planets in our solar system is necessarily greater than 5

- Read *de dicto* about the number of planets our solar system happens to have: $\Box \forall x (Nx \rightarrow Gx)$
False

4. *De Dicto* and *De Re* modality

(1) The number of planets in our solar system is necessarily greater than 5

- Read *de re* about the **number** of planets itself:

$\forall x(Nx \rightarrow \Box Gx)$ True

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T	F
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A	$\neg A$
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F	?

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- What logical principles do '□' and '◇' obey?
- Truth tables?

A	$\neg A$
T	F
F	T

A	$\diamond A$
T	T
F	?

A	$\square A$
T	?
F	F

5. Possible Worlds

- What logical principles do '□' and '◇' obey?
- Truth tables?

A	¬A
T	F
F	T

A	◇A
T	T
F	?

A	□A
T	?
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- The modal operators resist a truth-functional analysis.

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$\Diamond p$ is true iff there is some world w , such that p is true at w

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$\Diamond p$ is true iff there is some world w , such that p is true at w

$\Box p$ is true iff for any world w , p is true at w

5. Possible Worlds

✓ Applies to counterfactual discourse:

(8) If Cameron hadn't promised a referendum on the EU, Brexit wouldn't have happened.

- In the world that is closest to (most similar to) our world where Cameron is PM and there are apparent EU issues (etc.), Cameron doesn't promise a referendum and Brexit does not happen.

5. Possible Worlds

✓ Applies to supervenience discourse:

“Among all the worlds, or among all the things in all the worlds...there is no difference of the one sort without difference of the other sort” (Lewis, 1986: 17).

6. The Debate

	Are there modal truths?	If so, should we give a possible world analysis?	If so, should we give a theory of what possible worlds are?	If so, are possible worlds concrete or abstract?
Modalism	✓	✗	-	-
Concrete Realism	✓	✓	✓	Concrete
Abstract Realism/ Actualism (Plantinga, Adams, Stalnaker, Carnap)	✓	✓	✓	Abstract
Conceptual approach (Baldwin, Thomasson, Blackburn)	✓	?	✗	-
Error Theory (Quine)	✗	-	-	-
Fictionalism (Rosen, Yablo, Divers)	?	In a way...	✗	-

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Concrete Realism	✓	✓	✓	Concrete
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- ✓ **Explanatory power:** A theory should be able to analyse many modal claims without much trouble
- ✓ **Epistemology:** A theory shouldn't mystify the fact that we possess a lot of modal knowledge

**Next lecture: David
Lewis's Concrete Modal
Realism**