

Attitude reports: From modal logic to event semantics

Day 2: The Hintikkan turn

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OVA @ Debrecen, 28 July 2026

Truth values

Declarative sentences are objects that can be **true** or **false**.

- | | | | |
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| (1) | a. | Debrecen is in Hungary. | true |
| | b. | London is in France. | false |

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We'll now relate truth values and truth conditions.

Circumstances of evaluation

The truth value of a sentence *depends* on circumstances, for example, time and place.

- (3) a. The Moon is between the Sun and the Earth.
(*time*: false now, true next week)
- b. People drive on the left side of the road.
(*place*: false here, true in England)

And there are expressions that ‘shift’ the circumstances of evaluation of a sentence.

- (4) a. **Next week**, the Moon **will be** between the Sun and the Earth.
- b. **In England**, people drive on the left side of the road.

Alternate worlds

The past, the future or other actual places are not the only things that we talk about though.

You'll often hear (or produce!) statements like:

- (5) a. **In a different world**, I have a house in the countryside and sell bread for a living.
- b. **There is an alternate universe in which** Japan won WWII.
- c. **It can't be otherwise.** Felix is home.

These sentences are true or false from our perspective, but they invite us to imagine **possibilities** different from ours.

Alternate possibilities

We really talk about different possibilities all the time and we barely ever signal it so explicitly. Modal verbs for example...

- (6) a. I **could** have a house in the countryside and sell bread for a living.
- b. Japan **could have** won WWII.
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- (6) a. I **could** have a house in the countryside and sell bread for a living.
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Call these alternate possibilities **worlds**.

Possible worlds

What is a world? A total description of **states of affairs**



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The **actual world**: the true way things are, aka reality™

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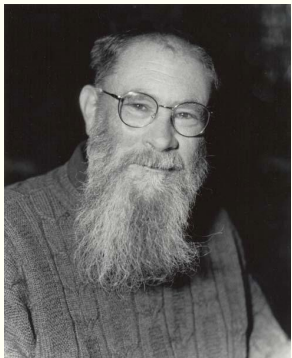


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Every other way of putting things together is a possible world. (Are there **impossible** worlds?)

Lewis, on possible worlds



Read at least the first two paragraphs of Lewis (1986), *On the Plurality of Worlds*.

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Possible worlds now a basic type in our semantics (type s , for 'situation')



Was „können“ und „müssen“ bedeuten können müssen

Angelika Kratzer, Konstanz

ANGELIKA KRATZER

**WHAT 'MUST' AND 'CAN'
MUST AND CAN MEAN¹**

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- (8) a. Colin **must** be home. (The lights are on.) (epistemic)

Sentences and possible worlds

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How can we characterize the semantics of sentences
(‘propositions’) in terms of possible worlds?

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w_1 : the moon is made of brie

w_2 : the moon is made of pálpusztai

w_3 : the moon is made of Lego

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The moon is not made of cheese.

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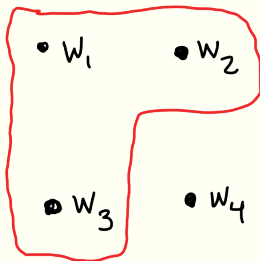
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The moon is made of cheese or it is made of lego.



Beliefs and worlds

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My beliefs, for instance, do not uniquely determine a world. Some things they don't settle:

- ❖ Whether or not it rained in Auckland on March 13, 1937
- ❖ How many toes a vampire bat has
- ❖ Judit Polgár's favorite color

Rather, my beliefs classify a *set* of possible worlds: worlds we could actually be in *given what I believe*

As Hintikka puts it



“My basic assumption (slightly oversimplified) is that an attribution of any propositional attitude to the person in question involves a division of all the possible worlds (more precisely, all the possible worlds which we can distinguish in the part of language we use in making the attribution) into two classes: into those possible worlds which are in accordance with the attitude in question and into those which are incompatible with it.”

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(12) Jaakko believes [that Tom is Dutch].

$$\forall w \in \text{DOX}_j : \text{dutch}'(t)(w) \Leftrightarrow \text{DOX}_j \subseteq \{w : \text{dutch}'(t)(w)\}$$

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(13) Jaakko wants [Tom to be Dutch].

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Substitution revisited

Recall: Frege's puzzle.

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How can we account for the ambiguity we discussed yesterday?

(17) M thinks that Péter is on the roof.

Reading 1: M thinks that **who I think Péter is** is on the roof.

Reading 2: M thinks that **who she thinks Péter is** is on the roof.

Consequences of Hintikka semantics

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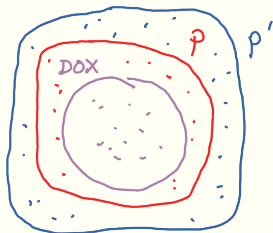
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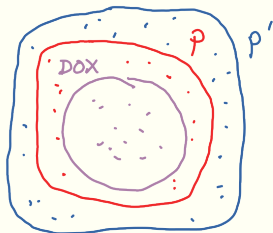
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On your own: try to understand why the conjunction facts are also predicted

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Only satisfied if $\text{BOUL}_j = \emptyset$

Desires, unlike beliefs, can be inconsistent. Does this mean that Hintikka semantics just don't work for *want*?

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- (24) Francesca wants to not eat lángos (because it will hurt her athletic performance).

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