# 24.903 Week #11 - 2022-04-20

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#### 1 Outlook

In the last part of the class (= the last six class meetings), we will explore possible worlds. The main topics will be modality, conditionals, attitudes. If you want to delve deeper, I recommend the best (and only) textbook on these topics: von Fintel & Heim 2020.

#### 2 Why our system uses possible worlds

Let's start by reviewing why possible worlds are already part of our system. We have a compositional semantics that lets us compute for a given context what the truth-conditions of a sentence are and what proposition is expressed by the sentence:

(1) A sentence  $\phi$  used in a context *c* expresses the proposition ' $\lambda w$ .  $\llbracket \phi \rrbracket^{c,w}$ ', a function that maps any possible world *w* to 1 iff  $\llbracket \phi \rrbracket^{c,w} = 1$ .

There are two main uses of this:

- 1. We use possible worlds to model the difference between knowing (i) the meaning of a sentence (really, any linguistic expression), its truth-conditions, and (ii) its actual truth-value. To know the latter, you need to know the relevant facts in the actual world, while the former, purely linguistic knowledge, is independent of those facts.
- 2. The meanings of sentences (= their truth-conditions, = the propositions they express) can be used to model the evolution of a conversation. At any point of a conversation, the set of propositions accepted as true by the participants of the conversation form the "common ground". That set of propositions corresponds to a set of worlds (the "context set"): those worlds that make all the propositions in the common ground true. When a new sentence is uttered and accepted, the

proposition it expresses is added to the common ground and thereby any worlds that do not make the new proposition true are eliminated from the context set.

### 3 Displacement

Hockett 1960 presented a list of "design features of human language", which continues to play a role in current discussions of animal communication and the evolution of language. One of the design features is "displacement": human language is not restricted to discourse about the *actual here and now*.

We use language to speculate about how things might have been different, about what would happen if we don't find dinner soon; we wonder what our friend thinks the world is like; we may want to tell our boss what it would take for us not to resign.

# 4 The basic idea

We will start with some (seemingly) simple examples of expressions that displace the point of evaluation from the actual world:

- (2) a. According to Steph, the team is confident.
  - b. In *A Study in Scarlet*, Holmes meets Watson in a lab.

The basic idea is that the phrases shift the world parameter for the evaluation of their sister (which we call their *prejacent*, adopting a term from our medieval predecessors):



# 5 A closer look

There are two points that make the picture more intricate.

#### 5.1 Anchoring to the actual world

The meanings of the sentences in (2) are in part about the actual world: the truth-conditions on (2a) are about what Steph actually believes (or professes to believe), and the meaning of (2b) is about what the contents of *A Study in Scarlet* actually are. But they are also about other worlds: the world according to Steph's belief system and the world described in *A Study in Scarlet*.

### 5.2 Multiple worlds

It is incorrect to assume that there can be a unique world that is the world according to Steph, because any belief system remains silent on any number of matters (such as whether there is an even number of leaves on the tree outside our classroom), so there will always be a plurality of worlds compatible with any belief system. Similarly, a work of fiction cannot possibly describe every possible detail that would be needed to single out a unique world. So, belief systems and works of fiction as anchors for world-shifting will always determine a set of worlds rather than one unique world.

Because of that the semantics of such world-shifting operators will involve quantification. (2a) says that every world that is compatible with what Steph believes in the actual world is a world in which the team is confident. (2b) says that every world that is compatible with what *A Study in Scarlet* says is a world in which Holmes met Watson in a lab.

# 6 Next week

We will work out a formal compositional system with world-shifting and quantification over worlds. We will then explore the meaning of conditionals and put that system to work.

#### References

- von Fintel, Kai & Irene Heim. 2020. Intensional semantics. https://github.co m/fintelkai/fintel-heim-intensional-notes.
- Hockett, Charles F. 1960. Logical considerations in the study of animal communication. In W.E. Lanyon & W.N. Tavolga (eds.), *Animal sounds and communication*, 392–430. Washington, DC: American Institute of Biological Sciences.