

Reports of what we say, know, or believe

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My lectures were an inquiry into the combinatorics of building blocks languages use to construct reports of what we say, know, or believe. Attitude ascriptions and speech reports were at the center of attention when Alonzo Church and Rudolf Carnap became interested in natural language and began to develop the semantic frameworks we rely on today. We owe to Church the idea to use a λ -calculus to model meaning composition. Carnap gave us an intensional semantics based on possible worlds. Both Church and Carnap were aware of the challenges presented by attitude ascriptions and speech reports for a compositional semantics in the spirit of Frege.

Possible worlds semantics is committed to identifying propositions that are true in the same possible worlds. Assuming that the only possible options are winning, losing, and not competing, 1(a) and (b) – which are variations of examples by John Bigelow – express the same proposition.

- (1) a. Robin won.
 b. Everyone who didn't compete, or lost, did something Robin didn't do.

There are cases like (2) that require such course-grained propositions:

- (2) Loudspeakers announced in the local language that everyone who didn't compete, or lost, did something Robin didn't do – but that was just a complicated way of announcing that Robin won.

Yet (2) also illustrates that the contribution of sentences to semantic composition can't always be a mere course-grained proposition. If it was, (2) would be saying of one and the same course-grained proposition that announcing it was a complicated way of announcing it. Minimally, possible semantic values for sentences must include intensional structures – nested sets of intensions mirroring syntactic structure. (2) says of an intensional structure that it was a complicated way of expressing a particular course-grained proposition.

As Max Cresswell has warned us over the years, if the truth of a speech report can depend on the intensional structure of an embedded sentence, there is the danger of paradox. The danger comes from a strict version of Fregean compositionality that dictates that the semantic value of an expression is a function of the semantic values of its parts and the way they are put together. If semantic values can be intensional structures, then, the semantic value of *say* in configurations like (3) might have to be a function that operates over a set that contains a set that contains a set that contains itself.

(3) Lee says that Robin says that ...

The strict version of Fregean compositionality has no empirical basis. Meaning composition doesn't have to be simple and uniform to explain our ability to compute the meanings of expressions from their parts.

In lecture two I argued that languages allow limited violations of Fregean compositionality in speech reports. Those violations all seem to come from a single conceptual building block *SAY* that may surface as a particle, but may also attach to intransitive verb roots to create verbs of speech. Drawing on work by Guy Deutscher, Travis Major, and Harold Torrence, I gave illustrations of various instantiations of *SAY* from English, Akkadian, and the Kwa language Avatime.

Lectures three, four, and five were dedicated to identifying the building blocks for knowledge ascriptions. I showed that it's the concealed question interpretation illustrated in 4(a) that provides a generalizable recipe for constructing knowledge ascriptions of all kinds, including 4(b) to (d).

- (4)
- a. They know the director of 'Wings of Desire'.
 - b. They know (the fact) that Wim Wenders directed 'Wings of Desire'.
 - c. They know who directed 'Wings of Desire'.
 - d. They know who directed which movies.

Maribel Romero and Ilaria Frana worked out, and defended, individual concept analyses of concealed questions. Individual concepts are commonly taken to be partial functions from worlds to individuals. A person knows such a concept if its value for all of their epistemic alternatives is the same as that for the actual world. I extended the individual concept analysis to cases like 4(b) to (d) by extending the notion of an individual concept to also cover functions from worlds to truth-values, to sets of individuals, or to relations between individuals.

The root of the verb *know* picks out epistemic states – mental states representing the totality of a person's memories and perceptual experiences. Epistemic states can serve as actual anchors for projecting epistemic possibilities: We can think of my epistemic possibilities as the set of possible worlds where I am in the exact same epistemic state I am actually in. This way of projecting epistemic modal domains comes from David Lewis and leads to a 'knowledge first' account of knowledge ascriptions: Knowledge and belief can be independent of each other. Lectures three and four showed that projecting epistemic domains in this way also leads to novel solutions for three puzzles that are distinctive of epistemic modals. The first is why I can point at a young woman in the distance and truthfully say that this might be Greta Thunberg, even though that woman is not, hence cannot be, Greta Thunberg. The second puzzle was discovered by Seth Yalcin. Yalcin wondered why we can't consistently assume that it isn't raining but might be. Even if it isn't actually raining, isn't there still a merely possible world where it is? The third puzzle was brought into the discussion by Lauri Karttunen, who asked

himself why my saying that it's raining makes a stronger claim than my saying that it must be raining. How can this be if *must* is an epistemic necessity modal?

Lecture five derived the meanings of knowledge ascriptions from three principal building blocks: a verb root, an all-purpose necessity modal, and a simple or complex individual concept. For an individual concept to be able to combine with a modal, though, it has to be shifted into a proposition by an operation that delivers the set of worlds where the concept has the same value as in the actual world. This operation is known to play the key role in the interpretation of questions. Zhiguo Xie showed that the Austronesian language Acehnese has a visible reflex of that operation in all types of knowledge ascriptions.

The sixth and final lecture began by emphasizing some differences between knowledge and belief ascriptions. I then went on to show that belief and knowledge ascriptions also have an important property in common: By their very nature, they are De Re about actual individuals or situations, possibly the actual world as a whole. This has consequences. If I know that I am cold, I know something about a physical state of mine. If I know that I know that I am cold, I know something about a mental state of mine. In line with Timothy Williamson, then, my account does not validate positive introspection: Knowing that I am cold does not imply knowing that I know that I am cold. Nor does my account validate negative introspection: If I don't know something, it certainly doesn't follow that I know that I don't know. Relying on work by Keir Moulton, Jeffrey Runner, and Amy Rose Deal, I ended the lecture, and the series as a whole, with examples from English and the Sahaptian language Nez Perce, documenting how the grammars of natural languages have found clever ways to syntactically single out the Res of attitude ascriptions.