

Reports of what we say, know, or believe

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Précis of John Locke Lectures 2022

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 possible worlds semantics. 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: 1(a) and (b), due to Bigelow (1978), 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, sentences must also make available 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.

If the truth of a speech report can depend on the intensional structure of an embedded sentence, there is the danger of paradox (Cresswell 1985). The danger comes from a strict version of Fregean compositionality that dictates that the intension of an expression is a function of the intensions of its parts and the way they are arranged. In (3), then, the intension of *say* would 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 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. I gave illustrations from English, Akkadian (Deutscher 2002), and the Kwa language Avatime (Major & Torrence 2021).

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.

A natural analysis of concealed questions is in terms of individual concepts (Romero 2006, Frana 2017), that is, 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 anchors for projecting epistemic modal domains. Given my current epistemic state, we can think of my epistemic alternatives as the set of worlds where I am in the exact same epistemic state I am actually in. This way of construing epistemic modal domains comes from Lewis (1996) and leads to a 'knowledge first' account of knowledge ascriptions. Lectures three and four showed that it also leads to a unified account of three superficially unrelated properties of epistemic modals: the epistemic De Re (Aloni 2001, Ninan 2018), Yalcin's Puzzle (Yalcin 2007), and Karttunen's Puzzle (von Fintel & Gillies 2010).

Lecture five derived the meanings of knowledge ascriptions from three principal building blocks: a verb root, an epistemic modal, and an 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. I showed that the Austronesian language Acehnese (Xie 2018) and the Caucasian language Adyghe (Caponigro & Polinsky 2011) have visible reflexes of such an operation.

The sixth and final lecture began by emphasizing differences between knowledge and belief ascriptions. My account of knowledge ascriptions is a ‘knowledge first’ account. I made no attempt to connect knowledge and belief in one direction or the other. Yet I did bring out an important property that belief and knowledge ascriptions have in common. I showed that they are always 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 Williamson (2000), then, my account does not validate positive or negative introspection. I ended the lecture with examples from English (Moulton & Runner 2017) and the Sahaptian language Nez Perce (Deal 2018), which documented how the grammars of natural languages have found clever ways to syntactically single out the Res of attitude ascriptions.

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