NASSLLI-18
Philosophy of Language
Lecture 3
Indexicals, Common Ground, and
Conversational Update

Rich Thomason

Indexicals

- Indexicals are words that get their direction from pointing, location in space and time, or salience in the context of utterance.

- Examples are 'here', 'now', 'that', some uses of personal pronouns (but all uses of 'I'), and 'that cat'.

- Indexicals are cases of *context dependence.*

- Since indexicals are regularly recycled with different meanings, they challenge ideas about meaning based on content words and sentences containing only content words.

- What *is* the meaning of 'I'?

- It can't be 'The person who is producing this utterance': for instance, 'I am always able to produce an utterance' would be an analytic truth.

- But (a puzzle): whenever it's uttered, 'I am able to produce an utterance' is true.

- A related puzzle: As you're driving along, 'We are here' is always true. But so is 'If we'd started later, we might not have been here'.

Early Theories

- Russell took 'this' to be the fundamental "egocentric word," and explained it by invoking a causal relation between the referent of 'this' and the speaker.

- Hans Reichenbach took the linguistic token of an utterance to be fundamental: 'I', for instance, can be characterized as the token's author. (There is self-reference here, but it is not vicious.)

- But surely there's no causal relation of the sort Russell's theory would need. And we do not always interpret with respect to an existing utterance token: if you had said 'I am not in Pittsbugth' a few minutes ago, you'd have been wrong.

The Interpretation of Free Variables

- Philosophers as diverse as Peter Strawson and Yehoshua Bar-Hillel seem to have been hung up on the idea that, because of indexicals, you can't say that a sentence is true or false.

- John Lemmon got this right when in 1966 he wrote:

  It is as though one were to say that we cannot speak of a gate as having a definite colour, because the same gate may have different colours at different times. The proper consequence ... is that, if we wish to speak of sentences as true or false, then this talk should be relative to context of utterance, just as talk of the colour of a gate is relative to date.

- If you think of it as Lemmon does, then in 1936 Tarski showed how to manage indexicals in a semantic theory when he showed out how to incorporate free variables in the satisfaction conditions for First-Order Logic.

- *Note:* Free variables are used by mathematicians just like demonstrative pronouns.

- How does Tarski handle free variables?

- He relativizes the satisfaction relation to a variable assignment g: $\mathrm{M}, g \models \phi$.

- A variable assignment is like a hand with infinitely many fingers.

- So: utterance contexts (for the purpose of indexicals) are like variable assignments.

- If we model context this way, we avoid having to give an analysis of how indexicals secure their reference.

- Which is probably a good thing, since indexicals may not secure a reference in any readily characterizable way.

Hans Kamp's Theory

- The modern theory of indexicals emerged from this idea with Hans Kamp's 1971 paper on 'now' and tense logic.

- Which has an additional wrinkle—a solution to the 'We are here' problem.

- Remember the parameter 't' in tense logic, which varies in the satisfaction condition for tenses: $M, t \models [\text{Fut}] \phi$.

- To interpret 'not' we add a context, a parameter t': satisfaction now has two time parameters: $M, t', t \models [\text{Fut}]\phi$ iff for some s, $t < s$, $M, t', s \models \phi$.

- Kamp's idea: start only from initial positions M, t', t where $t = t'$. A formula is valid if it is true at all initial positions.

- This is the origin of a new category: contingent *a priori* truths.

- The theory can be generalized to other indexicals; David Kaplan did this.

Context Sensitivity

- This is a more general phenomenon.

- Many instances are of potential philosophical importance: for instance, context sensitivity of attitudes like knowledge and many modals.

- In these cases the linguistic evidence is equivocal.

- Maybe there is a general rule here: the more important the philosophical problem, the harder it is to resolve it using solid linguistic evidence.

Common Ground
and Conversational Update

Conversational Structure

- We keep track of a lot more in conversation than the reference of indexicals.

- And as we do this, we need to separate what is public and belongs to the conversation, and what is private and may not be available to other participants.

- A classic example from a 1981 paper by Herbert Clark and Catherine Marshall illustrates the point. It's simplified and adapted here.

[You read in the paper, which as far as you know, your friend hasn't seen, that *Monkey Business* is playing at the Roxie. Later you ask:]
#'Have you seen the movie playing at the Roxie?'

[You read the same item in the paper, and see your friend reading it, but she didn't see you. You had thought *A Day at the Races* was going to be playing, and she knows this. Later you ask:]
#'Have you seen the movie playing at the Roxie?'

[You read the item in the paper together. Later you ask:]
'Have you seen the movie playing at the Roxie?'
'#' marks utterances that are poorly planned.

A New, but Related Topic:
Compare the Following Directions

Go straight two blocks.
Turn right.
Go past the police station.
It's on the corner.

\# It's on a corner.
You get to the corner by walking past a police station.
You will see the police station ahead after you have
    made a right turn.
Begin by going straight two blocks.

Orderly Conversation

- Part of what makes a conversation orderly is making sure that when a contribution is make, the information is available that is required by a contribution or that helps to make sense of it.

      Jack left.
      And Jill left after Jack did.

      Jill left after Jack did.
\# And Jack left.

- But this is complicated by the fact that we often can and in fact must expect our conversational partners to fill in the required information.

  # I have a sister.
     My sister owns a dog.
     The dog has a vet.
     I have to take the dog to the vet.

     I have to take my sister's dog to the vet.

- This is the problem of accommodation.

Methodological Problems?

- This illustrates the fact that if there are pragmatic rules, including rules for orderly conversation, they are defaults that can have exceptions and can conflict.

- This would make pragmatic rules much more like ethical and legal rules than like syntactic and semantic rules.

- Rules that can have exceptions raise a methodological problem—how do you test them against a body of linguistic evidence?

- On the other hand, if there aren't pragmatic rules, there is no such thing as pragmatics.

Common Ground and Mutual Attitudes

- However you deal with the problem of pragmatic rules, it looks as if common ground will be an ingredient.

- Clark&Marshall's examples illustrate an important feature of conversational common ground: it is *mutual.*

- Those examples are framed in terms of knowledge.

- Let P be the proposition that *Monkey Business* is playing at the Roxie.

- If S knows P, this does not make P part of S's view of the common ground.

- If S knows P and S knows that H knows P, this doesn't make P part of S's view of the common ground.

- More elaborate examples lead to the idea that S must know that P is *mutually known*: that $[\{S,H\}^*]P$, where $\{S, H\}^*$ is any nonempty string over the alphabet $\{S, H\}$.

- Mutual attitudes have been invoked elsewhere in theories of group activity—for instance, in game theory.

A Personal Opinion

- Neither knowledge nor belief is the right mutual attitude for common ground.

- Instead, it is *supposition for the sake of the conversation.*

- In practical, trusting conversations mutual supposition for the sake of the conversation will amount to mutual belief.

How is Mutuality Achieved?

- Thus divides into two parts: Initialization and Maintenance.

- Initialization depends on expectations about what others will believe (or suppose).

- This is possible if (1) we attach features to beliefs, including information about how they were acquired, (2) we can judge quickly whether someone else would have been in similar belief acquisition circumstances, and (3) we can construct *ad hoc* attitudes from features.

- If a mutual attitude is initialized, it can be maintained if the rules of update are mutual and update triggers are mutually salient.

- Conversations exhibit mechanisms for mutuality checking. This may account for much of the redundancy in conversations.

Pragmatic Entailment

- The notion of common ground, or something like it, occurred to many people in the late 1970s and early 1980s.

- In Lecture 1, I mentioned that Robert Stalnaker was one of these—in fact, he seems to be responsible for the term 'common ground'.

- In Stalnaker's earliest use of an evolving body of conversational assumptioms, he is concerned to defend his claim that there is no semantic difference between indicative and subjunctive conditionals.

- There is a compelling objection to this claim: semantics determines entailment profiles, and the entailments licensed by subjunctive and indicative conditionals differ.

  > The butler or the gardener did it.
  > So if the butler didn't do it, the gardener did.

  > The butler or the gardener did it.
  > ? So if the butler hadn't done it, the gardener would have.

- Stalnaker addresses this problem by invoking a notion of *pragmatic entailment* (this is an early formulation of dynamic entailment).

- The idea is that indicative conditionals are sensitive to the common ground, in a way that subjunctives are not: the available worlds for interpreting the antecedent are restricted to the common ground.

- (Remember: conditionals involve selecting the closest world satisfying the antecedent from a set of available possibilities.)

- If an utterance changes the common ground, it also changes the interpretation of indicative conditionals.

- This, according to Stalnaker, is what validates the indicative butler-gardener inference: once 'The butler or the gardener did it' has been asserted, the closest indicative world in which the butler didn't do it must be one in which the gardener did it.

- Note that this depends on an account of assertion as an operator on common ground.

One Role of Pragmatics

- Stalnaker's defense of a unified semantics for conditionals makes use of pragmatics to save a semantic theory.

- So, Stalnaker's idea is a more formal instance of Grice's project: in seeking to use cooperative conversation and conversational implicature to save classical logic (including Russell's theory of descriptions) from apparent counterexamples, Grice was seeking to use pragmatic theory to make a simpler semantic theory tenable.

- It can be a delicate matter to sort out when this tactic works and when it doesn't.

Scorekeeping and Ingredients of Context

- In "Scorekeeping in a Language Game," David Lewis introduces the notion of *conversational score*: dimensions along which participants track the conversational state.

- Without mentioning dynamic systems or dynamic semantics, Lewis develops the same theme:
    1. The conversational state can affect the interpretation of conversational turns by affecting the semantic interpretation of sentences.
    2. Utterances can change the conversational state.

- Lewis' examples of score components: Presupposition, Permissibility, Definite Descriptions, Coming and Going, Vagueness, Relative Modality, Performatives, Planning.

- Lewis' "Presupposition" is the same as "common ground."

- His list of conversational state dimensions is diverse and open-ended.

- In fact, it would be helpful to have workable and generally agreed-on methods for deciding what should be a component of conversational state.

- But we don't have these methods. Part of the problem is diversity, part has to do with equivocal evidence for context sensitivity.

Pragmatics/Metapragmatics

- With a data type for the score component and a well formulated update rule, the phenomenon can be absorbed into dynamic semantics. This is what happens, for instance, with common ground and with underspecified definites like 'the cat'.

- Think about how this works with common ground.

- Part of the conversational state is a set of worlds W representing the possibilities that are conversationally open.

- Stalnaker's rule for assertion of a sentence with intension X is that in the resulting state $W := W \cap X$.

- How W is initialized is not part of the pragmatic theory—it would be a matter of "metapragmatics."

But There Are Two Closely Related Problems

- When plausible update rules can be formulated with precision, they don't correspond to normal, regular updates.

- Plausible rules for pragmatic unacceptabiliy have many normal, more or less regular exceptions.

Update

- Mutually understood update of the common ground is not just a matter of adding literal asserted content.

- Mutually understood pragmatic encrichment content is also added.

    1. Some contestants dropped out.
       [Some contestants didn't drop out.]

    2. She took out her key and unlocked the door.
       [She unlocked the door with her key.]

- Stalnaker's rule provides a clear criterion for what is *not* added after an assertion. If our revised rule is that the understood content of the asserted sentence is added and its conversational implicatures, we have no clear criterion.

- It is tempting to propose a usage rule to the effect that a sentence that conventionally presupposes content P should not be asserted unless P is already part of the common ground.

- Lauri Karttunen and Stan Peters, for instance, made this proposal.

- Later, Lauri noticed this counterexample when his daughter was graduating from MIT:

  > We regret that parents cannot accompany their children to the commencement exercises.

- This is the problem of *accommodation*; a notion that was introduced in David Lewis' "Scorekeeping" paper.

- Accommodation is a matter of adding to the previous common ground to match the communicative intentions of the speaker.

- Conversational implicature is a matter of adding to the subsequent common ground to match the communicative intentions of the speaker.

- So there is not much difference between the two of them; it would be economical to treat them as either very similar or identical.

- The difficulty is finding a good methodology for separating what is a matter of more or less exceptionless convention from what is a matter of general-purpose cooperative reasoning.