Foundations of Language Interaction

HANDOUT SIX

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1 Introduction

Today's topics are ACCOMMODATION and GRICEAN REASONING in utterance interpretation. The goal is to show how theories of the SEMANTICS–PRAGMATICS INTERFACE in linguistics may benefit from formal models of interpretation.

2 Recognizing Assumptions in Plans

We begin by contrasting three scenarios involving plan-recognition for real-world action. The scenarios take place in the following setting.

(1) Picture a corridor with a door at one end. (Either corridor near the elevator on the third floor of Core where my office is will do.) The door has a metal frame but the panels are glass; you can see through the door. The door is sometimes locked—always at night. John is approaching the door from the outside, while Mary walks down the corridor on the insider of the door.

Here are the different scenarios.

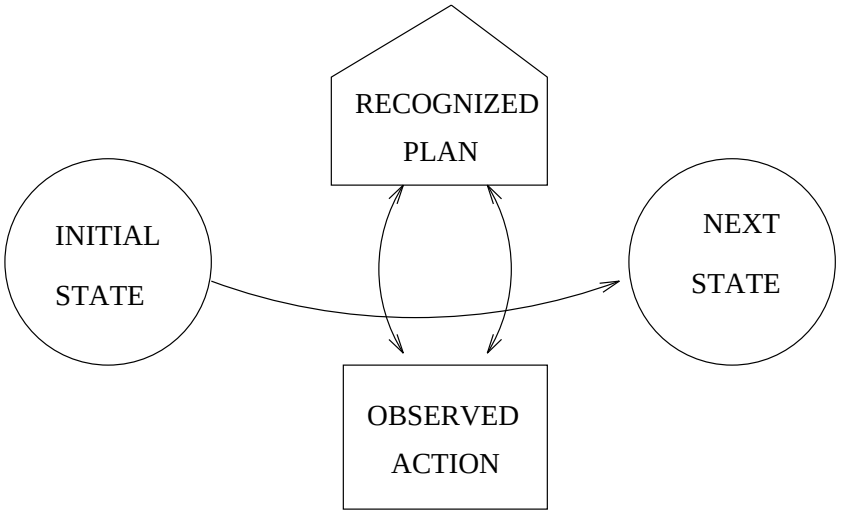
(2) Mary watches John pull the handle and open the door.

(3) Mary watches John pull the handle. John makes a puzzled face and nothing happens.

(4) Mary watches John pull the handle. John is looking at Mary expectantly; nothing else is happening with the door.

From our point of view, these scenarios all unfold by the same process, which is very similar to conversational process. I abstract it in the following picture.

(5)



These categories apply to the three scenarios as follows.

(6) a INITIAL STATE. The door is unlocked; John believes the door is unlocked; John wants to go through the door.
b OBSERVED ACTION. Pulling the handle.
c RECOGNIZED PLAN. Pull the handle when the door is unlocked to open the door and go through.
d NEXT STATE. John no longer has goal of opening the door; John will go through it and Mary knows this.

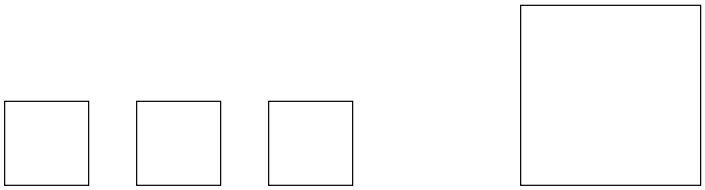
(7) a INITIAL STATE. The door is locked but John believes the door is unlocked; John wants to go through the door.
b OBSERVED ACTION. Pulling the handle.
c RECOGNIZED PLAN. Pull the handle when the door is unlocked to open the door and go through.
d NEXT STATE. John still has the goal of opening the door and going through it; John is debugging his intention and trying to find another that will work in the current circumstances.

(8) a INITIAL STATE. John and Mary both know that the door is locked, but John and Mary share an assumption that each will come to the other's assistance.
b OBSERVED ACTION. Pulling the handle.
c RECOGNIZED PLAN. Pull the handle when the door is unlocked to open the door and go through.
d NEXT STATE. John still has the goal of opening the door and going through it; and Mary has recognized this goal from John's action. Mary, if she's as cooperative as expected, now plans to help with this goal by opening the door from the inside.

THE OBSERVED ACTION AND THE RECOGNIZED PLAN ARE THE SAME IN ALL CASES. The difference depends on the initial state, which determines the effects that the plan causes and the reactions that the agents have to the plan. This difference thereby percolates into the next state.
EXAMPLE (4) AS ANALYZED IN (8) IS AN EXAMPLE OF ACCOMMODATION. ACCOMMODATION [Lewis, 1979] describes a process by which participants in a collaborative relationship can collude with one another with the effect that a flawed intention manages to contribute to the goal for which it is exhibited despite its flaws. Accommodation in pragmatics is tricky because—unlike in example (4) where you could watch Mary open the door—you can't watch the steps that conversational participants take to accommodate one another. Accommodation just looks like a mysterious exception to the ordinary rules of conversation [Thomason, 1990].

3 Presupposed Standards for Vague Predicates

Now let's consider a similar case that's an explicit example of language use. The physical context is as in (9).

(9) 

The utterance is (10).

(10) I want the large square.

The point of this example is to show how the intention behind (10) can be recognized in the context provided by (9), even if we assume that:

(11) a Vague adjectives presuppose a standard of comparison.
b The context does not inherently supply a standard of comparison.

In context, then, (10) is associated with a flawed communicative intention—a plan whose presuppositions are not met. Nevertheless, simply by being recognized, (10) can achieve all the intentions we would normally associate with it; and it can, in addition, update the context to include a standard of comparison for large squares—by accommodation.
By (11), the formal presuppositions of (10) are given in (12).

(12) `square X` $\wedge$ `size X S` $\wedge$ `standard size i+D` $\wedge$ `in S i+D`

In words, `X` is a square, the size of `X` is `S`, the interval `i+D` lower bounded by the value `D` and without an upper bound provides the standard for large size in the context, and `S` lies within the interval `i+D`.
To link up explicitly with what we have done before, these presuppositions arise as part of a communicative intention such as that represented in (13).

(13)
```
(find "i want the large square"
 (know self
  (k self (want X) ::
   k self (k all (square X)) ::
   k self (k all (size X S)) ::
   k self (k all (standard size i+D)) ::
   k self (k all (in S i+D)) ::
   nil)
  (step (want X ::
         k all (square X) ::
         k all (size X S) ::
         k all (standard size i+D) ::
         k all (in S i+D) ::
         nil)
   agent "i want the large square"
   (finish all (k all (want X))))))
```

The presupposition shows up in the intention as the condition required for the utterance to achieve its effect. The speaker intends all to recognize the specific intention matching (13) that is behind utterance (10). For the presupposition that means that the speaker and the hearer are coordinating on the instance of the presupposition that figures in this intention. Specifically, we will want the instances in (14).

(14) a X is square number 4 from (9).
b S is the size of square number 1 from (9), say one inch square.
c D is an arbitrary (or underspecified) representation of a "vague" standard that must lie somewhere between the size of squares 1 through 3 from (9) (at half an inch square, say) and the size of square number 4 from (9).

By the way, this way of looking at things involves a rational pragmatic reconstruction of the theory of presupposition as anaphora [Kripke, 1991, van der Sandt, 1992]—and we'll see that it also builds in Beaver's observation that all accommodation occurs at top level [Beaver, 2001].

4 Recognizing the Plan

Let's consider the hearer's inference in recognizing the plan in (13) as instantiated in (14). The hearer is tracking the speaker's deliberation, and knows:

(15) a The speaker is acting as though a certain context obtains. This pretend context is different from the actual context only in certain potentially predictable ways; in particular, the pretend context may supply standards for vague predicates that the actual context does not.
b In this pretend context, the instance of (13) intended by the speaker applies.
c In this pretend context, the instance of (13) intended by the speaker can be recognized as intended.

Here are the steps of inference that the hearer can make:

(16) a By (15a) and (15b), the hearer can infer that X is one of the four squares of (9), and that S is the size of X.
b By (15a) and (15b), the hearer can infer that the pretend context specifies a standard of size smaller than the size S of X.
c At this point, there remain two qualitatively different standards (less than half inch square; or between half inch square and one inch square). But (15c) eliminates the smaller standard, since it provides no way to recognize which of the four squares is X: the presupposition of the plan can be satisfied in the pretend context with any of the four possible squares. On the other hand, (15c) confirms the larger standard, since the presupposition now has only the resolution where X is square number 4.

At this point, it's up to the hearer how to respond to the recognized plan. The following strategy is sensible.

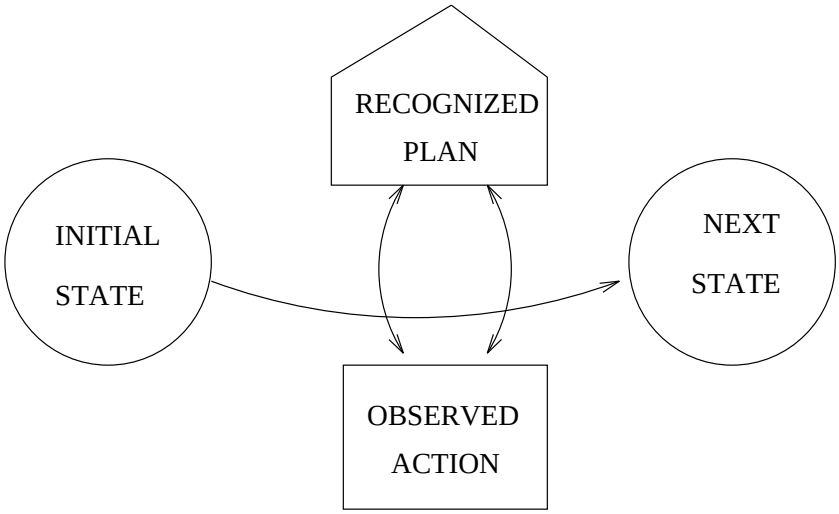
(17) a First, update the representation of the actual context, to provide a standard for size somewhere vaguely between half inch square and one inch square. This is a step of accommodation.

b The remainder of the response is exactly the response that the hearer would have taken to the recognized plan in the accommodated context. For example, if the hearer would have handed the large square to the speaker at this juncture if both had already agreed that this was the large square, the hearer now hands the large square to the speaker.

Note however that this kind of strategy probably diverges from actual practice in face-to-face conversation, where more work would be expected of conversational participants over and above (17) in order to seek and provide evidence of mutual understanding—to ACKNOWLEDGE and GROUND the accommodated context change [Clark and Schaefer, 1989, Brennan, 1990].

5 Summary

Let's return to the big picture.



(18)

As in examples (6), (7) and (8), our discussion contrasts two parallel instances of (18) at issue with utterance (10)

(19) a INITIAL STATE. The square is definitely large and John wants it.
b OBSERVED ACTION. I want the large square.
c RECOGNIZED PLAN. Identify that square with reference to a standard of size and establish getting that square as a shared goal.
d NEXT STATE. Mary and John are committed to the new shared goal and Mary is going to give John the square.

(20) a INITIAL STATE. John wants the square but there's no context for whether that square is large.
b OBSERVED ACTION. I want the large square.
c RECOGNIZED PLAN. Identify that square with reference to a standard of size and establish getting that square as a shared goal.
d NEXT STATE. The context provides a standard of size by which the square is large. Mary and John are committed to the new shared goal and Mary is going to give John the square.

Apparently, this story offers a clear distinction among

(21) a LINGUISTIC KNOWLEDGE which outlines the form that recognized intentions must have.
   b COMMUNICATION KNOWLEDGE which determines which candidate intentions are plausible in context.
   c COOPERATIVE REASONING which describes how we move from one state of the conversation to the next based on the intentions we recognize.

And yet—plenty of play remains in the theory for competing explanations of the same pragmatic competence. Is this the usual case of a theory that has to be judged based on its overall coherence? Or is this something more pernicious and murky that is peculiar to pragmatics?

References

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