

# *Might Made Right*

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Workshop on The (In)determinacy of Meaning  
DGfS – Cologne – Feb 24, 2005

# The Plan

- ▶ A Context-Dependent Semantics for *Might*
- ▶ The Relativist Challenge
- ▶ A Vague Response
- ▶ The Future (*optional*)

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## Part I

# A Context-Dependent Semantics for “Might”

# Outline of Part 1

- ▶ The Standard Theory (Kratzer)
- ▶ The Extended Standard Theory
  - ▶ Hacking, Teller, DeRose
  - ▶ Distributed Group Knowledge
  - ▶ Bodies of Evidence

Note: Today, we will condense this section.

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# The Basic Idea

- ▶ The person approaching wears a hat.
- ▶ Fred wears a hat.
- ▶ Martin wears a hat.
- ▶ George doesn't wear a hat.
- ▶ Therefore, the person approaching *might* be Fred.

## Semantics – informal

- ▶ Epistemic *might*  $\phi$  expresses that its complement  $\phi$  is compatible with a set of propositions, representing “what is known”. The set of propositions – the *conversational background* for the modal – is supplied by the context, explicitly or implicitly.
- ▶ Each of the propositions in the epistemic conversational background corresponds to a set of worlds where it is true.
- ▶ If we take the intersection of all the propositions in the conversational background, we get the set of worlds compatible with “what is known”.
- ▶ *might*  $\phi$  then says that at least one of those worlds is a  $\phi$ -world.

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## Semantics – formal

$$\llbracket \text{might } \phi \rrbracket^{c,i} = 1 \text{ iff } \exists w' \in f_c(i) : \llbracket \phi \rrbracket^{c, \langle w', t_i \rangle} = 1.$$

$c$ : the context of utterance

$i$ : the index of evaluation (a world-time pair)

$f_c(i)$ : the set of worlds compatible with what is known in  $i$

# What is known by Whom?

Kratzer 1986:

*Suppose a man is approaching both of us. You are standing over there. I am further away. I can only see the bare outlines of the man, in view of my evidence, the person approaching may be Fred. You know better. In view of your evidence, it cannot possibly be Fred, it must be Martin. If this is so, my utterance of (1) and your utterance of (2) are both true.*

(1) *The person approaching might be Fred.*

(2) *The person approaching cannot be Fred.*

*Had I uttered (2) and you (1), both our utterances would have been false.*

# What We Know

## (3) DEROSE'S CANCER TEST CASE 1B

Bill: "I've heard that John may have cancer. Is that possible?"

Jane: "I don't know whether John might have cancer; only the doctors know. I'll find that out tomorrow when the results of the test are revealed."

⇒ what we know (group knowledge)

# Distributed Knowledge

- ▶ What a group  $G$  knows distributively is the knowledge that results when all the individual bodies of knowledge are pooled.
- ▶ Formally, we take the big intersection of the sets of worlds describing what the individual members of  $G$  know.

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## Our Semantics for *Might*

$$(4) \quad \llbracket \text{might } \phi \rrbracket^{c,i} = 1 \text{ iff } \exists w' \in \bigcap_{x \in G_c} f_x(w) : \llbracket \phi \rrbracket^{c, \langle w', t_i \rangle} = 1$$

**Note:** Our semantics covers a range of meanings depending on the extent of the relevant group  $G_c$ . An extreme case is the solipsistic reading where  $G_c = \{s_c\}$ , where  $s_c$  is the speaker of the context.

## Part II

# The Relativist Challenge

# Outline of Part 2

- ▶ Hawthorne's Puzzle
- ▶ The CIA Theory
- ▶ Problems

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# Wrong!

Hawthorne:

*[A]s far as I can tell, ordinary people evaluate present tense claims of epistemic modality as true or false by testing the claim against their own perspective. So, for example suppose Angela doesn't know whether Bill is alive or dead. Angela says **Bill might be dead**. Cornelius knows Bill is alive. There is a tendency for Cornelius to say Angela is wrong. Yet, given Angela's perspective, wasn't it correct to say what she did? After all, when I say **It might be that P and it might be that not P**, knowing that Cornelius knows whether P, I do not naturally think that Cornelius knows that I said something false. There is a real puzzle here, I think, but this is not the place to pursue it further.*

# MacFarlane

- (5)
- a. Sally: Joe might be in Boston.
  - b. George: He can't be in Boston. I saw him in the hall five minutes ago.
  - c.
    - (i) Sally: Oh, then I guess I was wrong.
    - (ii) Sally: Oh, OK. So he can't be in Boston. Nonetheless, when I said "Joe might be in Boston," what I said was true, and I stand by that claim.

# MacFarlane's Eavesdropper

- (6) *Jane, a stranger, is hiding in the bushes . . .*
- a. Sally: Joe might be in Boston.
  - b. George: Oh, really? I didn't know that.
  - c. (i) Jane (*sotto voce*): Sally is wrong. I saw Joe just a few minutes ago.
  - (ii) Jane (*sotto voce*): Joe can't be in Boston. I saw him just a few minutes ago. Nonetheless, what Sally said is true.

# Assessment-Relativity

## (7) ASSESSMENT-RELATIVE MEANING FOR ‘MIGHT’

$$\llbracket \text{might } \phi \rrbracket^{c,i,a} = 1 \text{ iff } \exists w' \in f_a : \llbracket \phi \rrbracket^{c,\langle w',t_i \rangle,a} = 1.$$

where  $f_a$  is the set of worlds compatible with what the assessor knows at the time of the assessment.

**Note:** we are glossing over details of implementation that differ among the various relativist proposals. But (7) is the core of the relativist idea.

# What Was Sally Wrong About?

- ▶ Does Sally's "I was wrong" really assess the truth-value of her *might*-statement?
- ▶ An obvious alternative diagnosis might be that Sally is admitting that she was wrong to consider it possible that Joe was in Boston, i.e. that her cognitive state wasn't what it should have been – which would still leave her original statement as a true description of her cognitive state as it was.
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## Three Troublesome Examples

- (8) a. Kai: I am looking for my keys.  
b. Thony: Might they be in your desk?
- (9) Joe might be in Boston and he might be in New York. I just don't know.
- (10) There are many places the keys might be.

## Part III

### A Vague Response

# The Idea

- ▶ Our claim: the relativists' data, in as much as we trust them, can be explained within an only slightly revised extended standard theory.
- ▶ The crucial case we need to explain is MacFarlane's eavesdropper case, that is we need to explain the appropriateness (let alone truth) of the eavesdropper Jane's assessment "Sally is wrong".
- ▶ Why not say that Jane is part of the group about whose knowledge Sally's *might*-statement made a claim?
- ▶ Why not, indeed.
- ▶ Well, because the speaker didn't even know that Jane was hiding in the bushes and doesn't even know Jane, who is a stranger to her and George (although obviously not to Joe)?

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# Indeterminacy of the Context

- ▶ When a speaker makes a context-dependent claim, it is an idealization to assume that there is determinately one and only one context.
- ▶ The speaker (and the hearer) may not in fact know precisely what the context is.
- ▶ A speaker who says “We are having a good time” about a large party that she is part of, may not know precisely who is at the party. Nevertheless, her “we” refers to the group of people at the party.
- ▶ A speaker who doesn't know what context will be brought to bear on her utterance runs risks and has responsibilities.

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# Modeling Indeterminacy

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# Differences

- ▶ What distinguishes items like epistemic modals from items like the indexical “I” is that all of the admissible contexts will have the speaker be the referent of “I”, while admissible contexts may vary quite a bit as to the value of the group  $G$  parameter.
- ▶ We propose that  $G$  is to be seen as encompassing everyone involved in the same “investigation” as the speaker.
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# Limits to Speaker Responsibility

- ▶ The speaker's responsibility should not reach beyond a reasonable cloud of contexts:

(11) *Detective Parker is reading court transcripts from the 1920s where Capone is on the stand being asked about where some money is in relation to a particular safe . . .*

Capone: The money might be in the safe.

Parker: ??Al was wrong/That's false. The safe was opened in 1956 and found to be empty.

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# Summary

- ▶ The  $G$  parameter of epistemic modals can reach beyond the public participants in the conversation and can include other people involved in the same “investigation”.
- ▶ This directly makes space for the eavesdropper case.
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## Part IV

# The Future

# Assertability of *Might*

- ▶ An “objective”, non-solipsistic analysis of (many) *might*-statements entails that often speakers who assert these statements cannot possibly know whether they are true, since that depends on what other people know.

- ▶ So, when Thony says:

(12) The keys *might* be in your desk.

his statement depends on what I know, something he can't fully know.

- ▶ This is a problem if for a speaker to assert a sentence correctly, they should believe that the sentence is true. Thony can't really be in such a position.
- ▶ Our guess: the proper view is that non-solipsistic *might*-statements are more like conjectures and as such are not subject to the belief-condition.

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# Embedding

- ▶ **Embedding of epistemic modals raises many interesting issues.**
- ▶ We suspect that the relativistic analyses have not much to offer here.
- ▶ We do anticipate that the behavior of the  $G$ -parameter is peculiar in that it does not behave like a run-of-the-mill indexical.
- ▶ In fact, one possibility is that instead of the *we*-type meaning we've been assuming, the  $G$ -parameter behaves more like the “generic pronoun” *one* discussed by Moltmann and Safir, among others.

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# Look at Other Putative CIA Applications

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- ▶ We will explore whether a “cloud of contexts” approach could be extended to these other problems as well.

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# What We Have Done

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