Disagreement Over *Might*-Claims: A Fully General Pragmatic Approach*

Deniz Rudin—UC Santa Cruz
drudin@ucsc.edu

CUSP 9, *21 Oct 2016*

1 Two Disagreements

Consider the following disagreement between **A**ndrea and **B**ertrand:

(1) **A**: Paul was at the party last night.
B: {You're wrong, No way, That's false}, he was in Barbados.

What's going on here?

- ▷ When **A** asserts p, she is presenting herself as if it is true given her knowledge
- ▷ When **B** rejects p, he is presenting himself as if $\neg p$ is true given his knowledge

Let's look at another disagreement between **A**ndrea and **B**ertrand:

(2) **A**: Paul might have been at the party last night.
B: {You're wrong, No way, That's false}, he was in Barbados.

What's going on here?

- ▷ When **A** asserts *might-p*, she is presenting herself as if it is true given her knowledge
- ▷ When **B** rejects *might-p*, he is presenting himself as if ¬*might-p* is true given his knowledge

These disagreements can be informally described in exactly the same way. It would be odd, then, if the pragmatic machinery that cashes out the informal description of the disagreement in (1) failed to cover the disagreement in (2) as well. One might take such a failure to represent an inadequacy in our machinery for explaining the disagreement patterns of declarative sentences asserted in conversations, not as an indication that there's something special about disagreement over *might*-claims.

I propose the following desiderata for any formal pragmatics of assertion and disagreement with declarative sentences:

*Thanks to Pranav Anand, Donka Farkas, Dan Lassiter, Phil Crone and Karl DeVries for helpful discussion, and to audiences at UCSC's S-Circle and Stanford's SemPrag for letting me talk at them about this.

(3) DESIDERATA: A UNIFORM TREATMENT OF DECLARATIVE SENTENCES
All declarative sentences, whether modalized or unmodalized, should be treated as equivalent in the following ways:
- ▷ All declarative sentences denote the same kind of formal object.
- ▷ All declarative sentences are subject to the same licensing conditions for assertion and disagreement.
- ▷ All declarative sentences are subject to the same update condition that determines their effect on the conversational context.

The standard pragmatics of assertion and disagreement with declarative sentences accounts straightforwardly for (1), but has difficulty accounting for (2). Approaches to solving this problem have generally proceeded by violating the desiderata in (3).

In this talk, I show how to solve the problem by tinkering (conservatively) with the formal machinery with which assertion and disagreement are modeled. The resulting system has the following properties:

i. It's isomorphic to the standard model in its treatment of unmodalized declaratives
ii. It derives the observed disagreement behavior of *might*-claims from their standard semantics
iii. It satisfies the desiderata in (3), i.e. it treats *might*-claims like they're normal declarative sentences

The talk will follow this structure:

§2 substantiates the claims of the last few paragraphs: it introduces the standard model of assertion and disagreement, explains the problem it runs into with *might*-claims, and shows how previous solutions to this problem violate the desiderata in (3)

§3 puts forward my proposal: it presents a tweak to the standard model, explains how it unifies the disagreement behavior of *might*-claims with the disagreement behavior of other declarative sentences, and outlines the resulting update potential for *might*-claims

§4 concludes

2 The Problem

The standard model of assertion and disagreement with declarative sentences was proposed by Stalnaker (1978).[1]

Before I present Stalnaker's system, a point of terminology:

[1] This model has been extended in significant ways in recent work by Gunlogson (2001, 2008) and Farkas & Bruce (2010). I ignore these extensions here because they are orthogonal to the treatment of declarative sentences (with falling intonation), but the proposal made here could be easily combined with such proposals.

(4) INFORMATION STATES
An agent's information state is the set of all worlds compatible with that agent's knowledge—her epistemic modal base. For an agent A, I^A is A's information state.

(5) **Standard Stalnakerian Pragmatics (SSP):**
for any proposition p and agent A
   a. COMMON GROUND (CG):
   the set of all propositions presupposed by all conversational participants
   b. CONTEXT SET (CS):
   the set of all worlds that are compatible with all propositions in CG ($\bigcap$CG)
   c. LICENSING CONDITION:
   A can (sincerely) assert p iff $I^A \subseteq p$
   d. REJECTION CONDITION:
   A can (sincerely) reject an assertion of p iff $p \cap I^A = \varnothing$
   e. UPDATE CONDITION:
   when p is added to CG, CS is intersected with p

To assert p, on this view, is to propose that it be added to the Common Ground.

- ▷ When **A** asserts a sentence, that puts into play the proposition expressed by that sentence: set of all worlds in which that sentence is true. In doing so, she presents herself as though her information state is a subset of that proposition (i.e. as though her knowledge entails it)
- ▷ When **B** rejects **A**'s assertion, he presents himself as though his information state is incompatible with that proposition (i.e. as though his knowledge rules it out)

It's clear how this accounts for the disagreement in (1). Whence the problem with (2)?

I'll assume the simplest version of Kratzer's (1977, 1981, 1991, 2012) seminal semantics for modality for expositional expedience; the same problem arises for her more complex ordering semantics for modals, as well as for probabilist semantics for modals (Swanson 2006, 2015, Moss 2015, Lassiter 2011, 2014, 2016).

(6) $[\![\textit{might-}p]\!]^w = 1$ iff $\exists w' \in$ EPIST-WORLDS$_w$ s.t. $[\![p]\!]^{w'} = 1$
Where EPIST-WORLDS$_w$ is the grand intersection of all propositions known in w.

I'll call this the SIMPLE QUANTIFICATIONAL SEMANTICS for *might*. In words: *might-p* is true iff p is a possibility given what is known. But known by who? Intuitively, we might answer that question: known to the speaker. After all, speakers seem to assert *might*-claims on the basis of their own information. But how would this interact with the pragmatics of assertion and disagreement given in (5)?

- ▷ The set of all worlds where *might-p* is true = the set of all worlds in which p is compatible with *the speaker's knowledge*

- ▷ If the speaker has asserted *might-p* sincerely, then it should be automatically true! We can rest assured that we are in a world where p is compatible with the speaker's knowledge
- ▷ So: the only interpretation of **B**'s rejection in (2) should be that he is accusing **A** of having misrepresented *her own* knowledge

This is clearly not what **B** means in (2). There are various proposals currently in the literature for how to solve this problem. I gloss three of them here:

- ▷ Stephenson (2007): *might*-claims take covert pronominals as arguments, which determine whose information state their truth is to be assessed relative to
  - these covert pronominals are always interpreted as referring to a 'judge' parameter
  - a pragmatics of judge choice is stipulated such that interlocutors always take themselves to be the judge
  - *unless* the *might*-claim is embedded under a verb like *think*, in which case the subject is always taken to be the judge

Violation of our guiding desiderata: ad hoc stipulations about judge choice serve to capture generalizations about *might*-claims that fall out automatically from the pragmatics of assertion and disagreement for all other declarative sentences.

- ▷ von Fintel & Gillies (2011): *might*-claims are radically ambiguous in a way not resolved by context
  - assertions of *might*-claims introduce a set of propositions, one for each potentially salient information state
  - speakers can assert a *might*-claim if they know at least one of those propositions is true
  - speakers can disagree with *might-p* if the strongest proposition in the set that they have reliable knowledge of contains no p-worlds

Violation of our guiding desiderata: disagreement over *might*-claims is captured by stipulating a *might*-specific pragmatics of assertion and disagreement.[2]

- ▷ Veltman (1996): *might*-claims are defined syncategorematically as a special update operation
  - p denotes a set of worlds; *might-p* does not
  - instead, *might-p* is defined as an update operation that checks whether the context is compatible with p—if yes, the context is unchanged; if no, anomaly results

Violation of our guiding desiderata: *might*-claims neither denote the same object nor update the context in the same way as other declaratives.

[2] von Fintel & Gillies's (2011) account also makes empirically incorrect predictions about when *agreement* with *might*-claims will be possible. See Rudin (in prep) for details.

I propose, in contrast to these approaches, that disagreement over *might*-claims requires no special explanation. We shouldn't try to stipulate the discourse behavior of *might*-claims into their semantics, or give them a special pragmatics. The solution to this problem should come from the pragmatics of assertion and disagreement with declarative sentences itself.

3 The Solution

I propose in this section a tiny tweak on the Standard Stalnakerian Pragmatics in (5). I present a different formalization of the exact same idea that doesn't have any problem generating disagreement over *might*-claims.

- ▷ Standard pragmatics of assertion: assertion puts into play a proposition; the assertor presents herself as if she knows that proposition to be true
- ▷ My tweak: assertion puts into play a set of information states; the assertor presents herself as if she possesses one of them

This is simply a twist of the camera lens; the scene hasn't changed, the angle hasn't changed, only what's in focus has changed.

- ▷ The classical system: an assertor presents herself as though her information state is a member of some set of information states defined by the content of the assertion
- ▷ My proposal: let's focus on that set of information states, instead of the proposition expressed by the sentence

(7) REVISED STALNAKERIAN PRAGMATICS (RSP): the basic idea
Uttering a declarative sentence S in conversation puts into play a set of information states: the set of all information states whose possessors would know S to be true.

3.1 RSP: Deriving Sets of States

For an unmodalized declarative sentence, an agent knows that sentence to be true iff their information state contains only worlds in which it is true. It's quite simple to go from the proposition p expressed by an unmodalized declarative sentence to the set of all information states that contain only p-worlds:

(8) Proposition expressed by *John is dead*: $\lambda w.dead'(j)(w)$

(9) Meta-intensionalizer:[3] $\lambda p.\lambda i.\forall w \in i,\, p(w) = 1$

[3]The variables p and i both range over elements of type $\langle s,t\rangle$. Both propositions and information states are sets of worlds. For the sake of readability I've used p to represent out the proposition supplied to the meta-intensionalizer, and i to represent the information states that the meta-intensionalizer returns a set of.

(10) Meta-intensionalized *John is dead*: $\lambda i.\forall w \in i, dead'(j)(w) = 1$[4]

The 'meta-intensionalization' operator in (9) takes a proposition and returns the set of all information states in which that proposition is true. This will work for deriving the set of all information states whose possessors would know an unmodalized declarative sentence to be true, but it won't work for *might*-claims:

- ▷ Given an epistemic modal base e, *might-p* is true iff e has at least one p-world in it
- ▷ An information state is just some agent's epistemic modal base
- ▷ So the set of all information states whose possessors would know *might-p* to be true is the set of all information states containing at least one p-world!

This set can be derived by applying an *existential* meta-intensionalizer to a *might*-claim's prejacent. I'll just call this meta-intensionalizer *might*.

(11) $[\![might]\!] = \lambda p.\lambda i.\exists w \in i, p(w) = 1$

(12) *John might be dead*: $\lambda i.\exists w \in i, dead'(j)(w) = 1$

Note that this isn't a new theory of *might*—it's just a formal tool for deriving the set of all information states whose possessors would know *might-p* to be true, given Kratzer's simple quantificational semantics in (6).

3.2 RSP: Licensing and Update

Given that assertions put into play sets of information states, not sets of worlds, we'll need to revise the basic definitions of the SSP to refer to such sets. This is straightforward:

(13) **Revised Stalnakerian Pragmatics (RSP):**
for any set of information states P and agent A

a. COMMON GROUND (CG):
the set of all Ps presupposed by all conversational participants

b. CONTEXT SET (CS):
the largest set of worlds that is a member of all Ps in CG

c. LICENSING CONDITION:
A can (sincerely) assert P iff $I^A \in P$

d. REJECTION CONDITION:
A can (sincerely) reject an assertion of P iff there is no way to restrict I^A s.t. $I^A \in P$

[4]This meta-intensionalizer applied to any proposition p will return the downward closure of p. This is exactly what (non-inquisitive) declarative sentences denote in Inquisitive Semantics (Ciardelli et al. 2013). The notion of a context and the notion of update in Inquisitive Semantics are different than those notions in the system proposed here; for a discussion of those differences and an argument that the system proposed here outperforms Inquisitive Semantics with respect to the discourse behavior of *might*-claims, see Rudin (in prep).

e. UPDATE CONDITION:
when P is added to CG, CS is restricted in the most conservative possible way such that the result is a member of P

To assert P is to propose that P be added to the Common Ground.

First, let's walk through how the RSP is isomorphic to the SSP for a language that contains only unmodalized declaratives:

- ▷ For any unmodalized declarative sentence S expressing a proposition p, to utter S in conversation is to assert P, the set of all states containing only p-worlds
- ▷ When a speaker asserts P, they are representing themselves as having an information state containing only p-worlds; when a speaker rejects an assertion of P they are representing themselves as having an information state containing no p-worlds
- ▷ If P is added to CG, CS is restricted in the most conservative possible way such that the result will have only p-worlds in it
- ▷ That is to say, it will be intersected with p: this operation removes all non-p-worlds from CS, and leaves it otherwise untouched

This all works out exactly as in the SSP: we derive intersection with the proposition expressed by the asserted sentence as a special case of the more general Update Condition in (13e).

Now let's walk through how the RSP predicts disagreement over *might*-claims, and what update potential it assigns to them:

- ▷ For a sentence S that expresses the proposition *might-p*, to utter S in conversation is to assert MP, the set of all states containing at least one p-world
- ▷ When a speaker asserts MP, they are representing themselves as having an information state compatible with p; when a speaker rejects an assertion of MP they are representing themselves as having an information state containing no p-worlds
- ▷ If MP is added to CG, CS is restricted in the most conservative possible way such that the result will have at least one p-world in it
- ▷ That is to say, it will be left untouched if it already has at least one p-world in it; otherwise there will be no possible way to satisfy the update condition and anomaly will result

Note that this is *exactly* the update potential for *might-p* that Veltman (1996) stipulates in his Update Semantics—but we've derived it from Kratzer's simple quantificational semantics, in a system where *might-p* is a perfectly normal declarative sentence.[5]

[5] Veltman's (1996) update potential for *might* has a problem with informativity: it's impossible for a *might*-claim to communicate new information! This seems wrong:

(1) **A**: Paul might come to the party.
B: I didn't know that!

This is an inevitable consequence of Veltman's semantics, but it's not an inevitable consequence for the RSP. The RSP is a recipe for deriving sets of information states from the truth conditions of a sentence,

4 Conclusion

I've presented here a conservative revision of the Standard Stalnakerian Pragmatics of assertion and disagreement with declarative sentences. The Revised Stalnakerian Pragmatics has the following properties:

i. It's isomorphic to the standard model in its treatment of unmodalized declaratives
ii. It derives the observed disagreement behavior of *might*-claims from their standard semantics
iii. It satisfies the desiderata in (3), i.e. it treats *might*-claims like they're normal declarative sentences

This Revised Stalnakerian Pragmatics cashes out the empirical observation with which this talk began: that disagreement over *might*-claims works exactly like disagreement over all other declarative sentences.

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and deriving update potentials from those sets of information states. The RSP as applied to Kratzer's simple quantificational semantics produces a trivial update potential for *might-p*, but if applied to Kratzer's stronger ordering semantics for *might* it does not. For further discussion and a full walkthrough of how to implement the ordering semantics in the RSP, see Rudin (in prep).

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