

Epistemic Modals: Relativism vs. Cloudy Contextualism

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There's widespread agreement nowadays that the standard contextualist account of epistemic modals faces a serious problem, and there's even agreement about what that problem is.¹ There's not much agreement, however, about what the solution is, or what a better account would look like. I'm going to spend my time today comparing two recent proposals: the *relativist* proposal I develop in my paper "Epistemic Modals are Assessment-Sensitive" and the *cloudy contextualism* developed by Kai von Fintel and Thony Gillies in their paper "'Might' Made Right."²

I'll begin by describing the problem with standard contextualism, then sketch the solutions offered by relativism and cloudy contextualism. Both views seem to solve the problem. Do we have reason to favor one solution over the other? Two kinds of reasons might be relevant. First, one view might be more empirically adequate than the other. In exploring this kind of reason, I'll look at some objections von Fintel and Gillies have raised to the empirical adequacy of relativism, and argue that they are unpersuasive. Then I'll counter with some objections to the adequacy of cloudy contextualism. Second, even if both views did an equally good job explaining the

¹I think, in light of my work with Niko Kolodny (Kolodny and MacFarlane, forthcoming), that the same issues will arise also for deontic modals, but I'll just discuss epistemic modals here.

²"Cloudy contextualism" is my word for the theory, not theirs.

phenomena, one might prefer one for systematic reasons; in this vein, von Fintel and Gillies say that cloudy contextualism is “less radical” than relativism. This kind of consideration is harder to assess, but I’ll point out some important ways in which relativism is less radical than cloudy contextualism.

A good deal of the action in the semantics of modals lies in explaining what happens when epistemic modals are embedded in other constructions, particularly quantifiers, conditionals, tenses, alethic modals, and phrases like “as far as he knows.” It seems to me that many forms of (standard and cloudy) contextualism make incorrect predictions about embedded modals. For example, the version of contextualism von Fintel and Gillies sketch in their paper, according to which the modal base is determined by what is known by members of the contextually relevant group *at the world and time of evaluation*, predicts true readings of sentences such as these:

- (1) It isn’t now possible that the the earth was formed in 4000 years. But this was possible in 500 B.C.
- (2) It isn’t possible that Sam was the killer, because this photo proves he was elsewhere at the time of the murder. But if I hadn’t opened this drawer and found the photo, it would still be possible that Sam was the killer.

And Seth Yalcin has argued recently that such views cannot explain the asymmetry between

- (3) If she’s cheating on me and I don’t know it, then I’m a cuckold,
which seems perfectly true, and
- (4) If she’s cheating on me and might not be cheating on me, then I’m a cuckold,

which seems unintelligible in much the same way as an indicative with a known-false antecedent. I’m not going to get into these issues here, though, because these disputes about how the compositional semantics works are orthogonal to the decision between relativism and various forms of contextualism. One can give a contextualist semantics where the modal base does not vary as a function of the time and world of evaluation; conversely, one can give a relativist semantics where it does.

I'll focus here, then, on what von Fintel and Gillies call *bare epistemic modals*—that is, on sentences in which the modal is not embedded or modified. And I'll describe the views only enough to determine what they say about the truth of these bare epistemic modal sentences, ignoring details that are necessary for a compositional semantics. This will help us focus on one important set of issues without getting distracted.

1 Standard contextualism

At this level of description, here is what standard contextualist views say about utterances of sentences containing bare epistemic modals:

- S1 Such utterances are typically assertions of a single proposition.
- S2 What proposition this is depends on what is known by a relevant group. *might P* expresses the proposition that *P* is true at some of the worlds left open by the group's knowledge, and *must P* expresses the proposition that *P* is true at all such worlds.³

For notational convenience, we'll use ' $open_G(P)$ ' to denote the proposition that *P* is true at some of the worlds left open by the group *G*'s knowledge. Then where *G* is the relevant group, *might P* expresses $open_G(P)$ and *must P* expresses $\neg open_G(\neg P)$.
- S3 The composition of this group is determined by features of the context of use—the concrete situation in which the utterance is made.⁴
- S4 It is appropriate for a speaker to make the assertion only if she has good grounds for taking its content to be true.

³Just how what is known by the group depends on what is known by its members is a question that distinguishes different versions of standard contextualism. We abstract from that here, though we will assume what von Fintel and Gillies (forthcoming) call *Aggregation*: the bigger the group, the more the group knows.

⁴Such features may include speaker intentions. Just how the context determines the group differs from one version of standard contextualism to another.

S5 It is appropriate for hearers to reject the assertion if they have good grounds for taking its content to be false.

S6 The speaker ought to retract the assertion if she has good grounds for thinking that its content is false. She can stand by the assertion if she has good grounds for thinking that its content is true.

2 The Problem

The problem with this view can be illustrated most easily with an example:⁵

- (5) a. *George*: Joe might be in Boston.
- b. *Sally*: No/that's wrong/that's false, he can't be in Boston. I just saw him down the hall.
- c. *George*: Oh really? Then I guess I was wrong.

This seems a perfectly natural exchange, and it does not seem to involve any kind of linguistic error on the part of George or Sally. What must the standard contextualist say to make sense of it? The contextualist must explain

WARRANT how George might reasonably have thought himself warranted in making his first claim,

REJECTION how Sally might reasonably have thought herself warranted in rejecting his claim as incorrect, and

RETRACTION why George should have conceded this and retracted his original claim in response.

According to S1, George's initial speech act is the assertion of a single proposition, and by S4 he is warranted if he has good reason to think this proposition is true. Suppose, as seems realistic, his reason was simply that he didn't know anything that would rule out Joe's being in Boston. The contextualist can explain this by taking the contextually relevant group (in S2) to be just Joe himself, and taking George to have asserted, in effect, that for all

⁵This one comes from my early draft "Epistemic Modals and Relative Truth."

he knows Joe might be in Boston. But then the contextualist can't explain REJECTION, because *this* proposition is one that Sally is in no position to reject. Nor can she explain RETRACTION, since this proposition is one George should still regard as true after hearing Sally's response. (Note that, because of S_3 , we have to keep the relevant group fixed in considering these reactions to George's original claim; it is the context of George's original claim, not the context in which these reactions occur, that determines the relevant group.)

There are a number of maneuvers available to the contextualist here, but none of them is adequate to evade the difficulty. One move is to claim that the group contextually relevant in George's first assertion is a group containing Sally. This allows us to explain REJECTION and RETRACTION, but makes it more difficult to explain WARRANT. If George knows Sally, then he may reasonably believe that Sally doesn't know any more about Joe's whereabouts than he does. So in that case, we might be able to explain WARRANT. The problem is that the dialogue seems just as natural if Sally is a complete stranger in the coffee line, or an eavesdropper who jumps out of the woodwork. George certainly isn't warranted in thinking that nobody within earshot knows more about Joe's whereabouts than he is.

At this point the contextualist could simply concede that George's original assertion was unwarranted. But that would amount to an imputation of massive error to speakers, since speakers quite typically make epistemic possibility claims on the basis of nothing more than their own ignorance. Moreover, once we took REJECTION and RETRACTION to be a basis for expanding the contextually relevant group, it is difficult to see what could stop the group from expanding indefinitely. In general, REJECTION and RETRACTION give reason to expand the relevant group, while WARRANT gives reason to contract it, and there seems to be no stable equilibrium point.

Another strategy the contextualist could pursue is to question our interpretation of REJECTION and RETRACTION, taking them to target not the epistemic possibility claim as a whole (*Joe might be in Boston*), but only its prejacent (*Joe is in Boston*) (von Fintel and Gillies, 2008; Portner, 2009). This is certainly a possibility one must consider, and I do consider it in MacFarlane (forthcoming), but in the end I don't think it's plausible. A few reasons:

- (a) The dialogues remain natural when the dialogue is modified to make

explicit which proposition Sally rejects:

Sally: What you said—that Joe might be in Boston—is false.
I just saw him down the hall.

(b) This strategy doesn't really help with RETRACTION. It doesn't make sense for George to say that he was wrong if it is only the prejacent that was false. He didn't assert the prejacent. Compare:

- (6) a. *A:* It's rumored that you're leaving California.
b. *B:* That's false. [Here, it's clearly the embedded proposition that's targeted; B is not denying that there's a rumor.]
c. *A:* *Oh, really? Then I was wrong. [It would be completely unnatural for A to retract in this case.]

(c) If “that's wrong” can target the prejacent of a “might” claim, we'd expect that it could also target the prejacent of other epistemic modal claims. But this seems not to be the case in general:⁶

- (7) a. *A:* It's unlikely that Joe is in Boston.
b. *B:* That's wrong. I just saw him down the hall.

In their critique of relativist accounts, von Fintel and Gillies wrote:

Before resorting to the CIA's extraordinary measures, we would like to see it carefully argued that flexibility in the target of denials and acceptances does not explain what needs explaining.
(von Fintel and Gillies, 2008, p. 83)

⁶On Portner's view, when one asserts *might* ϕ , the content of *might* ϕ is added to the common ground, and the content of ϕ is added to the “common propositional space,” which is “the set of propositions in which participants in the conversation are mutually interested” (Portner, 2009, p. 175). This is supposed to explain why the content of ϕ is a potential target for rejection. But it is unclear how Portner could resist telling a similar story about “unlikely;” after all, by noting that it's unlikely that P , one does bring P into the conversation as a proposition of interest. Why should P not then be available as a target of rejection?

But now (von Fintel and Gillies, forthcoming) they seem to have come around to agreeing with the relativist that it does not. There is a genuine problem here for standard contextualism, one that can't be explained away.

3 Two solutions

Relativism and cloudy contextualism are both proposed as solutions to this problem. Let us compare them—considering them at the same level of description we used in setting out cloudy contextualism, and abstracting from details of the compositional semantics.

3.1 Relativism

Here is what relativism says about utterances of “Joe might be in Boston” and other bare epistemic modals:

- R1 Such utterances are typically assertions of a single proposition.
- R2 This proposition has truth values only relative to an information state (in the simplest case, a set of open worlds). The proposition expressed by *might P* is true relative to an information state iff *P* is true at some of the worlds in that state, and the proposition expressed by *must P* is true relative to an information state iff *P* is true at all worlds in that state.
- R3 Which information state relevant for the correctness of the utterance is determined by features of the context of assessment—the concrete situation from which the utterance is being assessed. Hence, the utterance may count as correct as assessed from some contexts, incorrect as assessed from others (this is the relativism).
- R4 It is appropriate for a speaker to make the assertion only if she has good grounds for taking its content to be true (as assessed from the context she occupies).

R5 It is appropriate for hearers to reject the assertion if they have good grounds for taking its content to be false (as assessed from the contexts they occupy).

R6 The speaker ought to retract the assertion if she has good grounds for thinking that its content is false (as assessed from the context she occupies). She can stand by the assertion if she has good grounds for thinking that its content is true (as assessed from the context she occupies).

R1 is the same as S1, and R4–R6 are just relativized versions of S4–S6. (In fact, they differ from S4–S6 only in the special case of assessment-sensitive contents.) The key departures from standard contextualism are R2 and R3. R2 rejects the contextualist’s assumption that the content asserted is a proposition about some group’s information. According to R2, the content is independent of any particular group’s information, but its truth is relative to an information state. R3 rejects the contextualist’s assumption that the correctness of an assertion depends on features of the context of use (for example, on which group is contextually relevant, and what members of this group know). According to R3, an assertion of proposition with a bare epistemic modal can be counted correct or incorrect, accurate or inaccurate, only relative to a context of assessment, which fixes the relevant information state.

How does relativism help with The Problem?

- WARRANT: The proposition George asserts, the proposition *that Joe might be in Boston*, is true relative to the information relevant at his context (which we can here take to be the information he possesses). So, the assertion is correct, as assessed by him at the moment of he makes it, and S4 counts it as warranted.
- REJECTION: The proposition George asserted is false relative to Sally’s information. S5 therefore licenses her to reject it.
- RETRACTION: The proposition George asserted is false relative to the information George has *after* he learns from Sally that Joe is not in

Boston. S6 says that he should retract his assertion once he has good grounds for thinking its false (as assessed from the context he now occupies).

3.2 Cloudy contextualism

Now let's look at cloudy contextualism. As I understand the view, it says the following about utterances of sentences containing bare epistemic modals:

- C1 Such utterances are not assertions of a single proposition. They are *sui generis* speech acts that “put in play” a cloud of propositions.
- C2 A proposition is in this cloud iff it is the semantic value of the sentence uttered at one of the contexts in the set C of admissible contexts. Relative to a single such context, where G is the contextually relevant group, *might* P expresses the proposition $open_G(P)$, and *must* P expresses the proposition $\neg open_G(\neg P)$.
- C3 The set of admissible contexts C is determined by features of the concrete situation in which the utterance is made. Each context corresponds to a choice of a relevant group; the set contains multiple contexts when it is not fully determinate which group is relevant. Candidates for relevant groups include: the speaker, the speaker's overt audience; the speaker and the audience; and all those who “are engaged (in some sense) in the same investigation as the overt partners in the conversation” (von Fintel and Gillies, forthcoming, p. 26).
- C4 It is appropriate for a speaker to make the speech act only if she is in a position to assert *at least one* of the propositions in the cloud—that is, only if she has good grounds for taking one such proposition to be true.⁷
- C5 It is appropriate for hearers to reject the speech act if they have good grounds for taking P^+ to be false, where P^+ is the strongest proposition

⁷This is *Assert* from von Fintel and Gillies (forthcoming, p. 16). “Suppose an utterance of *might*(B)(ϕ) by S puts in play the propositions P_1, P_2, \dots . Then S must have been in a position to flat out assert one of the P_i 's.”

in the cloud that they have good grounds for assigning a truth value to.⁸

- C6 The speaker is allowed to stick to her guns (not retract her original speech act) provided that she has good grounds for taking *at least one* of the propositions in the cloud to be true.⁹ If she does this, the cloud retroactively shrinks to exclude the propositions proven false. However, she can also sensibly retract her original speech act on the basis of the falsity of any of the propositions in the cloud.¹⁰

How does cloudy contextualism help with The Problem?

- WARRANT: According to C4, George is warranted in uttering “Joe might be in Boston” if he is in a position to assert *at least one* of the propositions in the cloud of propositions this utterance “puts in play.” He meets this condition, since this cloud includes the proposition

*open*_{George} (*Joe is in Boston*),

and George is in a position to assert *this*.

- REJECTION: According to C5, Sally is entitled to reject George’s utterance if the strongest proposition in the cloud that Sally has good grounds for assigning a truth value is one she takes to be false. Suppose for simplicity that the cloud of propositions “put in play” consists of

P_G *open*_{George} (*Joe is in Boston*)
P_S *open*_{Sally} (*Joe is in Boston*)
P_{GS} *open*_{George,Sally} (*Joe is in Boston*)

⁸This is *Confirm/Deny* from von Fintel and Gillies (forthcoming, p. 17): “Suppose an utterance of *might(B)(ϕ)* by *S* puts in play the propositions *P₁, P₂, ...*. Then a hearer *H* can confirm (deny) the BEM if the strongest *P_i* that *H* reasonably has an opinion about is such that *H* thinks it is true (false).”

⁹See von Fintel and Gillies (2008, p. 20): “Here, Alex is sticking to her guns, defending her BEM on the basis of a weaker reading than the *A + B*-reading. Once she does this, there is no basis for a continued dispute and the only avenue open to Billy at this point is to back off.”

¹⁰von Fintel and Gillies (2008, p. 25): “Note that when Investigator #1 retracts in this way, she retracts the strong reading floated.”

Since Sally knows that she knows that Joe isn't in Boston, she has conclusive grounds for rejecting P_S and P_{GS} . She may also have (somewhat weaker) grounds for accepting P_G , but since P_{GS} is stronger than P_G , she is entitled to reject George's utterance.¹¹

- RETRACTION: According to C6 George can retract his speech act given grounds for falsity of any of the propositions in the cloud. Having learned from Sally that P_S (and hence P_{GS}) is false, he can retract. Note, however, that according to cloudy contextualism, George is not obliged to retract. He can also stand his ground, retroactively shrinking the cloud of propositions in play to just P_G .

3.3 Points of agreement

Before we move on to a critical evaluation of these two strategies for solving The Problem, it is useful to emphasize some points of agreement.

The two approaches agree that George is entitled to make his original speech act if his information is consistent with Joe being in Boston. They agree that Sally is entitled to reject George's utterance on the basis of her information that Joe is not in Boston. And they agree that it is appropriate for Joe to retract his original speech act in light of the information he has gotten from Sally. These were the judgements that standard contextualism could not well explain.

The two approaches can also agree that it is useful for expressions of epistemic possibility to work this way. The point of epistemic modals is not to keep track of who knows what (we have explicit knowledge attributions for that), but to keep a running tally of open and closed possibilities to guide inquiry. This goal can be best achieved if epistemic possibility claims are both easy to make and easy to reject.

Finally, the two approaches agree that our account of the speech act effected using a bare epistemic modal should derive from a general account of the truth conditions of epistemic modals, one that explains their behavior

¹¹It's a little unclear what von Fintel and Gillies take to be rejected here. It sounds odd to reject an utterance or a sentence. But "proposition" won't work for them here. Is it George's speech act that is being rejected?

in embedded contexts as well. Contrast, here, approaches that take “might” to be a kind of force indicator, which is semantically inert, and which must therefore tell a complicated story about how “might” functions when embedded.

This is quite a bit of common ground. Let us now look at the reasons one might have for preferring one strategy over the other.

4 Empirical adequacy: relativism

von Fintel and Gillies (2008) argue that the relativist account yields bad predictions, and so is to be rejected on straightforward empirical grounds. Let me go through the criticisms one by one and briefly explain why I find none of them compelling.

4.1 Doubts about the data

First, von Fintel and Gillies question the robustness of the data about properties for assertion, rejection, and retraction that is supposed to motivate the relativist account. They note that

...not all *mights* are retracted or rejected in the face of new evidence. Speakers can quite often *resist* the invitation to retract even if they have become better informed. Billy is looking for her keys. Alex is trying to help.

- (8) a. Alex: The keys might be in the drawer.
- b. Billy: (*Looks in the drawer, agitated.*) They’re not. Why did you say that?
- c. Alex: Look, I didn’t say they *were* in the drawer. I said they *might* be there—and they might have been. Sheesh.

This criticism is misleading in at least two ways. The first is that it encourages the reader to confuse two questions that must, on any view, be kept apart:

(i) Was the assertion made responsibly?

(ii) Must the speaker retract the assertion?

Billy's question "Why did you say that?" would naturally get Alex to address the first of these questions. Even on the relativist account, Alex ought to resist the implicit challenge here; after all, she had excellent grounds for making her assertion. But everyone should concede that one can be obligated to retract an assertion that was responsibly made—think of cases where one's evidence has been shown to be misleading. So, even though we have a strong intuition that Alex is being unfairly criticized here, it is entirely irrelevant to the question whether she should retract her assertion.

Let's try to do better:

- (9) a. Alex: The keys might be in the drawer.
b. Billy: (*Looks in the drawer, agitated.*) They're not. Do you still stand by your claim?
c. Alex: ? Yes, even though the keys can't be in the drawer, what I said was perfectly true. I said they *might* be there—and, at the time, they might have been.

Now that we've separated retraction from responsibility, the intuition that Alex's response is correct is, I think, much cloudier. It relies heavily on the propriety of rephrasing the content of the earlier assertion as "they might have been there," which presupposes that epistemic modals are affected by embeddings under tense. This is a thorny issue, and I'm not at all sure that von Stechow and Gillies are right about this, but since I'm abstracting from this issue here, I'll pass on.

The second thing that is misleading about the criticism is that it assumes relativists must say that *all* statements made using the words "The keys might be in the drawer" must be retracted in light of new evidence. But the relativist need not say that the only proposition these words can be used to assert is the assessment-sensitive proposition *that the keys might be in the drawer*. It is open to the relativist to say that sometimes, all a speaker means to assert in using these words is the assessment-invariant proposition *that as far as I know now the keys might be in the drawer* (where the information state is bound by "as far as I know").

This move may seem unprincipled. But I think it's just realistic. We are lazy and flexible in our use of tools quite generally, and sentences are tools for making assertions and other speech acts. Here, as elsewhere, we use the tool that will get the job done with the minimum of work. Suppose I want to assert that it's around 3:10 PM. I could say, "It's around 3:10 PM." But I'm lazy, and I know that given the context it will be obvious to you both that I'm talking about the afternoon and that I'm not claiming that it's *exactly* 3:10. So I just say, "It's 3:10." There's nothing mysterious about what's happening here, and only an excessively formalistic cast of mind would think that there *have* to be hidden syntactic hooks corresponding to the unpronounced "about" and "PM."

Given that we often omit wordy qualifications, when we can reasonably expect our audience to discern our intentions, I see no difficulty in saying that Alex can use the sentence "The keys might be in the drawer" to assert that, as far as she knows at present time, they might be in the drawer. When Alex refuses to retract her assertion, what she is doing is explaining to her challenger that she had only asserted *this* proposition, and not the proposition *that the keys might be in the drawer*. If we put the dialogue this way, it seems very natural:

- (10) a. Alex: The keys might be in the drawer.
- b. Billy: (*Looks in the drawer, agitated.*) They're not. Do you still stand by your claim?
- c. Alex: Yes, all I was asserting was that as far as I knew then, they might have been in the drawer. And that is certainly true.

What the relativist needs is not that *every* use of "The keys might be in the drawer" give rise to the distinctive patterns of assertion, rejection, and retraction that generate The Problem, but that *some* do. And this von Fintel and Gillies concede, since they recognize The Problem themselves. They differ from the relativist only in what they say about the other cases, the cases that do not give rise to The Problem.

Here there is an interesting difference. On the relativist account, there's normally going to be a (non-relative) fact of the matter as to whether Alex asserted the assessment-sensitive proposition *that the keys might be in the*

drawer, or the assessment-invariant proposition *that as far as she knew then, the keys might be in the drawer*. Only in the latter case will she be entitled to stand her ground (not retract) after learning that the keys are in the drawer. If Alex asserted the assessment-sensitive proposition, she can't choose retroactively to stand by the assessment-invariant one; after all, you can't stand by something you never asserted.

On the cloudy contextualist account, by contrast—as I understand it—Alex can decide *later* whether she wants to be held to the stronger claim whose truth depends on what Billy knows, or the weaker claim whose truth depends only on what she knows. (In the latter case the cloud of contexts contracts retroactively.)

This does seem to me to be a significant difference. On the relativist account, the significance of the speech act is determined by facts about the context of use; while on the cloudy contextualist account, it is a “work in progress,” up for continuous renegotiation.

The relativist can take a similar line on von Fintel and Gillies' “mastermind” examples:

Part of what's right about the canon—and part of what's wrong with the CIA—is that it can be perfectly sensible to assert *might ϕ* even when you know that ϕ is false. Pascal and Mordecai are (still) playing Mastermind. After some rounds where Mordecai gives Pascal hints about the solution, Pascal asks whether they might be two reds. Mordecai answers:

(11) That's right. There might be.

He can answer this way even if he knows there aren't two reds. As far as the norms of assertion go, it's as if he had uttered an explicit claim about Pascal's evidence.

Cloudy contextualism handles this case by invoking C₄—Mordecai is entitled to say “There might be two reds” just in case he is in a position to flat-out assert any one of the propositions in the cloud this puts in play. Since one of those propositions is the proposition *that Pascal's evidence does not rule out two reds*, he is entitled.

The relativist handles this case differently, by noting that it is possible for Mordecai to use the words “There might be two reds” to assert that proposition *that as far as Pascal knows now, there might be two reds*. So, while the relativist does deny that one can be entitled to assert *that it might be that P* even when you (know that you) know that *P* is false, he can explain the evidence by saying that the proposition being asserted in this case is a somewhat different one.

4.2 Time lag

von Fintel and Gillies object that according to the relativist account, it should become easier to reject an epistemic modal claim the farther back in time this claim gets—since knowledge accumulates, and it is the assessor’s knowledge that is relevant to rejection or acceptance. They find this implausible:

[C]onsider the case of Detective Parker. He has been going over some old transcripts from Al Capone’s court case in the 1920s—Capone is being asked about where some money is in relation to a particular safe:

- (12) a. Capone: The loot might be in the safe.
b. Parker: ??Al was wrong/What Al said is false. The safe was cracked by Geraldo in the 80s and there was nothing inside.

While I agree that it would be strange for Parker to say this, I think that is because it is unclear what purpose he would have in doing so. This diagnosis is supported by the fact that (12b’), below, sounds even more odd:¹²

- (12) b’. Parker: ??Al was right/What Al said is true. He had no idea where the loot was.

If we suppose that the reason Parker is reviewing these transcripts is that he wants to find the stash of loot Capone was searching for—so that it is a live question for him where the loot is—then I think (12b) sounds entirely natural.

¹²I owe this example to Fabrizio Cariani.

4.3 Tense

von Fintel and Gillies object that the relativist theory makes epistemic modals insensitive to the time of evaluation, and hence to temporal embeddings. As I've said above, this question is orthogonal to the question of relativism or contextualism, since a relativist theory *could* give a role to the time of evaluation, and a contextualist theory *could* make epistemic modals insensitive to it. But let's look briefly at the sort of example von Fintel and Gillies use to argue that the information state against which an occurrence of epistemic modal is to be evaluated should depend on the time of evaluation:

Sophie is looking for some ice cream and checks the freezer. There is none in there. Asked why she opened the freezer, she replies:

- (13) a. There might have been ice cream in the freezer.
b. PAST(*might*(ice cream in freezer))

It is possible for Sophie to have said something true, even though at the time of utterance she knows (and so do we) that there is no ice cream in the freezer.

Here it is important to notice that this example is of a special kind: the tensed epistemic modal occurs in a "becauseal" context. Sophie is being asked to explain her action. She can do this by stating her reasons—or at any rate, what she took to be her reasons—for acting as she did. In this case, she looked in the freezer because she believed that there might have been ice cream there. So she could have answered the question by saying: "I believed there might have been ice cream in the freezer." But because it is obvious that what is wanted is a rationalization of her action, not some other kind of explanation, she need not explicitly say "I believed"; instead, she can just give the *content* of her belief: "There might have been ice cream in the freezer."

We can see the same kind of thing in becauseal contexts that don't involve epistemic modals at all:

- (14) a. *Ted*: Why did you give up your career and follow Lisa to Europe?
b. *Sam*: She loved me!

Sam's reply is felicitous even if it is common ground between Ted and Sam that Lisa did not love Sam. We understand Sam to be rationalizing his behavior by giving the content of the belief that led him to act as he did. (I assume nobody would suggest mucking with the semantics of "She loved me" to explain these facts.)

So let's try taking the example of Sophie out of its becausal context. Imagine Sophie saying:

- (15) Yesterday there might have been ice cream in the freezer, but today there can't be (I just checked).

If von Fintel and Gillies are right, we should expect (16) to be ambiguous between a *present-uncertainty-about-the-past* reading and a *past-uncertainty-about-the-past* reading. But I can only hear the *present-uncertainty-about-the-past* reading. The following just seems bizarre:

- (16) Yesterday there might have been ice cream in the freezer, but today there can't be (I just checked). And I know that the contents of the freezer have not been disturbed for the last 48 hours.

4.4 Gibbarding

von Fintel and Gillies charge that the relativist cannot explain some fairly standard cases of "uptake"—"more or less plain vanilla information exchange between speaker and hearer" (von Fintel and Gillies, 2008, p. 88). Here's their example (a variant of Gibbard's "sly Pete" case). Jack, who sees that *R* is not the turncoat, reports to the Boss:

- (17) It must be that either *P* is the turncoat or *Q* is the turncoat.

Zack, who sees that *P* is not the turncoat, reports:

- (18) It must be that either *Q* is the turncoat or *R* is the turncoat.

The Boss now has enough information to conclude that *Q* is the turncoat. However, von Fintel and Gillies charge, the relativist cannot explain this. Since the Boss has no information about which of *P*, *Q*, and *R* is the turncoat, he should regard both Jack's and Zack's report as false. And "[i]t is a bad

idea for The Boss to conclude something he thinks is false on the basis of reports he thinks are false” (89).

But in fact, the relativist can explain the Boss’s inference quite easily. The Boss knows that Jack was in a position to assert (17) and that Zack was in a position to assert (18). It follows, given the relativist semantics, that Jack must know that *R* is not the turncoat, and Zack must know that *P* is not the turncoat. Since knowledge is factive, it follows that neither *R* nor *P* is the turncoat, so The Boss can conclude that *Q* is the turncoat. (Having concluded this, the Boss can now properly assess both (17) and (18) as true.)

von Fintel and Gillies anticipate this response in a footnote:

That is not to say that the CIA has nothing to say about these cases. They might, for example, argue that The Boss can do some metalinguistic reasoning about Jack’s and Zack’s truth predicates to arrive at the proper conclusion. Our point is that the CIA has to posit some additional mechanism to do the relevant work here and say why that mechanism is operative here (where we see natural information uptake instead of disagreement) and why that mechanism is not operative in the CIA’s motivating cases (where we, purportedly at least, see disagreement instead of uptake).
(n. 11)

But the “additional mechanism” needed here is nothing special. It’s just that the information one obtains from someone’s assertion generally goes beyond (and sometimes doesn’t even include) the content of that assertion. If Joe says, in a squeaky voice, that he has a gun, then I learn that he has a squeaky voice, and (if I take him to be sincere) that he thinks he has a gun, and (if I take him to be undeluded) that he does have a gun.

As von Fintel and Gillies (forthcoming, p. 21) emphasize themselves, in some cases “what becomes common ground is not something any of the group members flat out asserted, but is something much stronger.” So they seem to accept the general point. Their claim (in the passage quoted above) that this “mechanism” is not operative in the original motivating cases is simply false. In fact, the mechanism is crucial to the relativist’s explanation of those cases. When Sally says “Joe can’t be in Boston” (5b), George learns

that she takes herself to be in a position to assert this. Unless he suspects that she might be misled or deluded in this belief, George will take her to know that Joe isn't in Boston, and he will thus come to know himself that Joe isn't in Boston. This is precisely why he will retract his original claim.

4.5 Might and/or

This criticism has two parts:

- (a) The relativist account doesn't deal properly with conjunctive might claims with incompatible conjuncts, and
- (b) hence not with disjunctive might claims, either, since these *entail* conjunctive might claims.

What is the problem with conjunctive might claims supposed to be? Here's a variant on a case due to Teller (1972). Grandma says:

- (19) It might be a boy, and it might be a girl. Should I buy blue or pink?

Suppose you know (from ultrasound) that the child will be a girl. Then, as von Fintel and Gillies say, "the proper response is not to tell her that she is wrong, but what color to buy" (von Fintel and Gillies, 2008, 92 n. 13). But according to the relativist account, you should take Grandma to have spoken falsely, since the first conjunct of her claim is false, relative to your information.

Here I just want to bite the bullet. Grandma committed herself to the proposition that it might be a boy. If (as we know) it can't be a boy, then technically she did say something false.¹³ But that is compatible with what von Fintel and Gillies say is the proper response to Grandma.

What about the disjunctive case? von Fintel and Gillies (2008, p. 91) rightly note that "George's reply [in the following dialogue] is absurd:"

- (20) a. Sally: Joe might be in Boston or he might be in New York.
b. George: ??Nah/That's false. He's in New York.

¹³Note, further, that in light of C5, cloudy contextualism will also predict that in many cases Grandma's claim can be rejected.

But von Fintel and Gillies think the relativist is committed to the propriety of George's response, because they take Sally's disjunctive *might* claim to *entail* each of its disjuncts.

I do not accept this entailment claim or the non-Boolean account or "or" it requires. There's a simple Gricean explanation of the felt entailment. Suppose Sally were in a position to rule out Joe's being in Boston. Then she would be in a position to assert something stronger than (20a), namely

(21) Joe might be in New York.

The same goes, *mutatis mutandis*, for the other disjunct. So in uttering (20a) she is implicating that she can't rule out either Joe's being in Boston or his being in New York, and hence that Joe might be in Boston and that Joe might be in New York.¹⁴ This accounts for the felt entailment. If this analysis is correct, then George's response (20b) is inappropriate in precisely the same way as Luke's response below:

- (22) a. Maria: Cal has won all of its games this year.
b. Luke: ??Nah/That's false. Cal hasn't played any games yet.

Luke can fairly accuse Maria of having spoken misleadingly, but not of having said something false.¹⁵

4.6 Presupposition failure failures

von Fintel and Gillies (2008, p. 93) argue that

... *might* can embed under *realize* even when both speaker and assessor think the complement of the *might*-claim is false. The CIA's prediction is that we should have presupposition failure in these cases (or, failing that, accommodation). But that is not at all what we see.

For example:

¹⁴Perhaps this last "hence" isn't so obvious—especially for the relativist.

¹⁵Examples (28), (29) and (30) from von Fintel and Gillies (2008) can be handled in the same way.

Blofeld and Number 2 are at SPECTRE headquarters plotting Bond's demise. Bond planted a bug and some misleading evidence pointing to his being in Zürich and slipped out. Now he and Leiter are listening in from London. As they listen, Leiter is getting a bit worried: Blofeld hasn't yet found the misleading evidence that points to Bond's being in Zürich. Leiter turns to Bond and says:

- (23) If Blofeld realizes you might be in Zürich, you can breathe easy—he'll send his henchmen to Zürich to find you.

And he might continue:

- (24) If he doesn't realize soon that you might be in Zürich, we better get you out of here.

von Fintel and Gillies claim that (23) and (24) are perfectly felicitous, but should be cases of presupposition failure on the relativist account, since the relativist must take the complement of "realize" to be false.

I agree that if (23-24) are to be felicitous, their complements must be true. For this reason, if they are felicitous, it should always be possible to rephrase them as follows:

- (25) You might be in Zürich. If Blofeld realizes this, you can breathe easy—he'll send his henchmen to Zürich to find you.
- (26) You might be in Zürich. But if he doesn't realize this soon, we better get you out of here.

But once we rephrase the examples this way, we can see that they are no more troublesome to the relativist than the "mastermind" case we already considered in section 4.1. The relativist just needs to be able to say that by using the sentence "You might be in Zürich," Leiter can assert the proposition that, for all Blofeld knows, Bond might be in Zürich. I see no reason to deny this. The only thing new about these cases in the propositional anaphora. And once we've seen how to handle these cases, we can see how to handle the original cases, (23) and (24).

5 Empirical adequacy: cloudy contextualism

Cloudy contextualism seeks to explain the data that motivate relativism by deploying two principles, C₄ (*Assert*), which says when issuing an epistemic modal claim is warranted, and C₅ (*Confirm/Deny*), which says when confirming or denying such a claim is warranted.

However, C₄ and C₅ are inconsistent with this highly plausible principle:

RATIFICATION A speaker is warranted in issuing an epistemic modal claim iff she would be warranted in confirming such a claim, were she to hear herself utter it.

It would be very odd if a speaker could be warranted in asserting something that she would be warranted in denying if she heard herself say it. Yet that is what C₄ and C₅ predict.

For concreteness, consider the mastermind case, in which Pascal asks whether there might be two reds, and Mordecai answers:

(27) That's right. There might be.

According to cloudy contextualism, Mordecai is “issuing” (27) against a cloud of contexts that includes, as sets of relevant knowers, {Mordecai, Pascal}, {Pascal}, and {Mordecai}. Mordecai's speech act is warranted, according to C₄, because Mordecai is in a position to assert

(28) *open*_{Pascal}(There are two reds).

But according to C₅, Mordecai can immediately deny the epistemic modal claim he hears himself issue, since the strongest proposition in the cloud about which he reasonably has an opinion, namely

(29) *open*_{Mordecai, Pascal}(There are two reds)

is one he takes to be false.

This seems to me to be the wrong thing to say. If Mordecai is warranted in making the claim, he should be able to stand by it (pending new information). If he or another onlooker were to reject it on the basis of their knowledge of Mordecai's board position, he would be guilty of *misunderstanding* the force of his original speech act.

The cloudy contextualist could regain RATIFICATION by modifying C₄:

C4' It is appropriate for a speaker to make the speech act only if she has grounds for taking P^+ to be true, where P^+ is the strongest proposition in the cloud that she has good grounds for assigning a truth value to.

This modified principle would still predict that Sally is warranted in her original claim in (5b). But it would require the cloudy contextualist to say something different about the mastermind case. The obvious thing to say would be that in the mastermind case, the cloud of propositions includes only (28) and determinately excludes propositions the speakers knows to be false. This seems plausible to me—it is very similar to what I have suggested that the relativist say about the case—but it shows that the mastermind case does not, after all, motivate talk of “clouds.”

6 Systematic considerations

Even if both views are empirically adequate, it may be that there are larger, systematic reasons for preferring one of them. For example, it may be that one view requires new machinery, adding to the complexity of the theory, while the other simply reuses familiar old machinery that we need anyway. Or it may be that one is significantly simpler in its explanations of the phenomena.

In praise of cloudy contextualism, von Fintel and Gillies say that it “involves no innovations in the semantics of epistemic modals” and “[makes] do with a standard context-dependent semantics” (von Fintel and Gillies, 2008, p. 27). The implication here is that the relativist account employs a non-standard semantics, and is thus less conservative. But this, I think, is a bit misleading.

It's true that I advocate a slightly nonstandard compositional semantics—what Yalcin has called “domain semantics.” But, as I mentioned in the introduction, the issue about domain semantics is largely orthogonal to the issue between relativism and cloudy contextualism. A relativist could simply use the same semantics that von Fintel and Gillies do, taking the contextually relevant group to be fixed by features of the assessment situation rather than the speech situation. And, conversely, domain semantics could be combined

with standard or cloudy contextualism. Certainly the fact that one's indices include an "epistemic state" parameter does not by itself make one a relativist.

The essential differences between relativism, standard contextualism, and cloudy contextualism come in what I've called the *postsemantics*, not the compositional semantics proper. All three views agree that epistemic modals quantify over a set of open possibilities, and that what this set is gets fixed contextually if it is not explicitly specified or constrained linguistically (say, by the antecedent of a conditional). They just disagree about how this contextual fixing works. According to standard contextualism, the set of possibilities is determined by what the speaker (and perhaps a contextually relevant group) knows. According to relativism, it is determined by facts about the context of assessment—in most cases, by what the assessor knows. According to cloudy contextualism, the set is left indeterminate; though it is given a value by each admissible context, there is a cloud of such contexts, all on an equal footing.

Here both relativism and cloudy contextualism depart from standard contextualism. But is it clear which departure is more radical? Relativism keeps many features of the standard view that cloudy contextualism has to give up. Relativism keeps the idea that there is (generally) a single context relevant for fixing the modal base; cloudy contextualism gives this up. And relativism keeps the idea that in uttering epistemic modal sentences we are typically making assertions; cloudy contextualism takes us to be making *sui generis* speech acts of another kind.

Moreover, the additional pragmatic principles cloudy contextualism needs in order to solve The Problem—*Assert* and *Confirm/Deny*, C4 and C5 above—are not general pragmatic principles applicable to any sort of discourse. *Confirm/Deny*, for example, is explicitly stated as a principle about sentences of the form *might(B)ϕ*:

Suppose an utterance of *might(B)(ϕ)* by *S* puts in play the propositions P_1, P_2, \dots . Then a hearer *H* can confirm (deny) the BEM if the strongest P_i that *H* reasonably has an opinion about is such that *H* thinks it is true (false). (16)

This doesn't seem to be an instance of any more general pragmatic princi-

ple; indeed, if you substitute *must* for *might*, you get something quite implausible. (Epistemic necessity claims are stronger when the relevant group is smaller, so the principle would license hearers in rejecting “must” claims on the basis of an individual’s ignorance, even when the speaker has knowledge.) If accounting for the data is going to require a whole bunch of *ad hoc* seeming pragmatic rules, that seems to count strongly against the simplicity of cloudy contextualism.

It is true that the relativist takes on a burden that the cloudy contextualist does not—that of making sense of a truth predicate that is relativized to contexts of assessment. But that task, I have argued elsewhere, can be discharged in a satisfactory way by displaying the implications of various possible patterns of assessment-relative truth for language use. When we understand what an assessment-sensitive semantic theory predicts about what ought to be asserted and retracted, by whom, in what conditions, then we understand the theory well enough. But explaining this in detail is a task for another occasion. Here I only want to cast doubt on the assumption that cloudy contextualism is a simpler, more conservative, or more theoretically elegant way of systematizing the body of empirical facts that cloudy contextualists and relativists agree on.

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