Epistemic Modals and Credal Disagreement

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1 Introduction

This paper is about certain problems associated with contextualist treatments of epistemic possibility modals. In the right context, the modal expressions in (1)-(3) can be interpreted as having a so-called 'epistemic' reading.

(1) Harry might be in the office.

(2) It's possible that Mary will be late.

(3) It may rain tomorrow.

A natural way of making sense of the relevant reading is to treat the sentences as expressing that a certain proposition, for instance, the proposition that Harry is in the office, is compatible with, say, a body of knowledge or evidence.[1] According to a contextualist view, the relevant body of knowledge or evidence is determined by the context of utterance. When they receive an epistemic interpretation, sentences like (1)-(3) express different propositions in different contexts, depending on what is known or what evidence is available.

[1] A standard approach is to treat the modals in question as quantifiers over a contextually restricted set of possible worlds. This allows us to implement the idea that the relevant sentences are true just in case the embedded proposition is compatible with a body of knowledge or evidence. In the case of epistemic modals, the relevant worlds are the worlds that are compatible with the relevant knowledge or evidence. For some important work on modality within the possible worlds framework, see Kratzer (1977, 1981, 1991b). See Portner (2009) for an introduction to this kind of framework and linguistic theories of modality in general.

A simple and straightforward version of contextualism would be the view that what is relevant is what is known by the speaker at the time of the utterance. For instance, let us suppose that Mary uttered (1). In that case, (1) expresses the proposition that it is compatible with what Mary knows that Harry is in the office. For the purpose of the following discussion, I will assume that we are working with this kind of simple contextualist view.[2]

In the recent literature on epistemic modals, it has been argued that considerations involving disagreement, as well as related considerations involving correction and retraction, present a problem for this kind of contextualist treatment of epistemic possibility modals. This has been taken to motivate a departure from a contextualist semantics for epistemic modals.[3]

I will propose that there is a different way to account for these cases. This proposal has two main components. The first idea is that what is at issue does not have to be a difference in outright beliefs, but rather a difference in credences or degrees of belief. The second idea is that it is not necessarily the propositions expressed by the relevant sentences that are relevant. In many cases, it is the embedded propositions that are relevant and most of the discussion will focus on cases like that. However, it is not a part of the proposal that it is always the embedded propositions that are relevant and when we look at epistemic modals that occur inside the scope of other operators we are going to see that there are cases in which other propositions are relevant.

[2]This is not the only version of contextualism and it is probably not even the most plausible. It could be that what matters is the combined knowledge of all the conversational participants or perhaps even what the conversational participants could come to know through some further, but presumably limited, investigation. See e.g. Hacking (1967) and DeRose (1991) for relevant discussion. It is could also be that is not knowledge, but some other epistemic notion that is relevant. See e.g. Dougherty and Rysiew (2009), Dever (2011), and Hawthorne (2012) for relevant discussion. However, for the purpose of the present discussion, these complications do not matter and I will stick with a simple version of contextualism.

[3]See e.g. Egan, Hawthorne, and Weatherson (2005), Egan (2007), Stephenson (2007), and MacFarlane (2011) who have argued that we should adopt a relativist semantics for epistemic modals, as opposed to a contextualist semantics. However, considerations involving disagreement can also be used to motivate a non-truth conditional approach. See e.g. Price (1983). For various attempts to defend a more traditional contextualist approach, see e.g. Papafragou (2006), Hawthorne (2007), Wright (2007), Schaffer (2011), von Fintel and Gillies (2008, 2011), and Dowell (2011). For present purposes, it does not matter what we take the main alternative to contextualism to be.

My goal is to argue that these ideas provide the basis of a plausible account of the otherwise puzzling cases of disagreement and retraction involving epistemic modals like 'might'. Moreover, I will argue that this sort of account is compatible with a traditional contextualist semantics for epistemic modals.

In §2 I introduce the cases of disagreement, correction, and retraction that are central to the discussion. In §3 I propose that, in the cases introduced in §2, the disagreement is a matter of the speakers having different credences in the embedded proposition, rather than different beliefs involving the proposition expressed. In §4 I extend this proposal to cases involving correction and retraction and discuss the idea that sentences containing epistemic modals can be used to perform multiple speech acts. In §5 I consider and reply to some possible objections to the proposal.

2 The Data

2.1 Disagreement

In this paper, I am going to focus on three kinds of data that are supposed to undermine contextualism.[4] One worry concerning contextualist treatments of epistemic modals is that they cannot handle disagreement in a satisfactory manner. Such worries have been raised by, among others, Stephenson (2007) and MacFarlane (2011). In order to illustrate the problem, von Fintel and Gillies (2008, p. 79) use an example from Kratzer (1991a).

> 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 might 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 [(4)] and *your* utterance of [(5)] will both be true.
>
> (4) The person approaching might be Fred.
>
> (5) The person approaching cannot be Fred.

[4]It is beyond the scope of this paper to attempt to solve all the problems involving contextualist treatments of epistemic modals. For instance, Yalcin (2007, 2011) has identified interesting problems involving embedded epistemic modals that I will not attempt to address.

> Had *I* uttered [(5)] and *you* [(4)], both our utterances would be false. (Kratzer, 1991a, p. 654, original emphasis)

What von Fintel and Gillies observe, is that there appears to be a sense in which the speaker of (4) and the speaker of (5) disagree. However, it is not clear that this is something we predict if we adopt a simple version of contextualism that takes what is relevant to be what is known by the speaker. In that case, (4) would be true as uttered by the first speaker just in case it is compatible with what the first speaker knows that the person is Fred. On the other hand, (5) would be true as uttered by the second speaker just in case it is not compatible with what second speaker knows that the person is Fred. But then (4) and (5) would express compatible propositions. There does not appear to be a proposition such that the first speaker believes that proposition and the second speaker believes its negation.

2.2 Correction and Retraction

Contextualism is also supposed to have problems with cases of correction or denial. In a dialogue between speakers who have access to different information, it often seems appropriate for the more well-informed party to correct the other speaker. Contextualism also seems to face problems involving retraction. It often seems appropriate for the less well-informed party to retract her original claim. For instance, let us suppose that Mary and John are trying to find out where Harry is and that they have so far been unable to find him. John does not know that Mary has just been looking for Harry in the office and that he was not there.

(6) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

c. John: Okay, then I guess I was wrong.

Mary seems to right to correct John in the dialogue above. Indeed, her response seems perfectly natural. But if we assume a contextualist treatment of 'might' according to which the relevant information is what is known by the speaker, it is not clear that we can make sense of this. In that case, it would be wrong for Mary to deny John's claim. If the contextualist treatment is correct, (6a) is true as uttered by John since it is compatible with what he knows that Harry is

in the office. Of course, it is not compatible with what Mary knows that Harry is in the office, but this does not solve the problem as far as the contextualists are concerned, since they take that to be perfectly compatible with the truth of what John said.

As MacFarlane (2011) has emphasised, it also seems quite natural for a speaker in John's situation to retract his original claim when confronted with Mary's response. Contextualism seems to be ill-suited to explain this. If contextualism were correct, the proposition expressed by (6a) would be true and there would apparently be no reason for John to retract it in the face of Mary's response.

2.3 More Retraction Data

The opponents of contextualism also tend to emphasise that it appears to be strange for him to stand by his original claim and refuse to retract it. However, it is worth noting that while it seems appropriate for John to retract his claim, it is not clear that retraction is mandatory in cases like this. As von Fintel and Gillies (2008, p. 81) point out, it sometimes sounds appropriate for the speaker to stand by her initial claim. For instance, Alex's response in (7c) sounds quite appropriate and natural.

(7) a. Alex: They 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 is perhaps more in line with what we should expect if contextualism turned out to be correct. On this view, (7a) is predicted to be true as uttered by Alex and it makes sense that she is in a position to defend her claim in some way.[5] What matters for our purposes is that an explicit retraction is not always called for. Indeed, it looks like the speaker has a choice in the cases under discussion. She can either retract or she can stand by her original claim. One way or

[5]It is worth noting that Alex' attempt to stand her ground raises difficult problems concerning the interaction between tense and modals. These problems remain even if we adopt a contextualist treatment.

another, this is presumably something that we want a plausible account of the data to capture.

Interestingly, there are also cases involving epistemic modals in which it sounds less natural for a speaker to retract her original claim. For instance, consider the following dialogue between Mary and John:[6]

(8) a. John: Harry might be coming to the party, but it would be very surprising if he did.

b. Mary: Actually, he won't be coming to the party. I just talked to him a minute ago.

c. John: Okay, then I guess I was wrong.

There is nothing odd about John's original utterance in (8a), but the retraction in (8c) is somewhat odd. At the very least, it comes across as being extremely concessive. Insofar as there is a genuine difference here, this is something that calls for some kind of explanation.

3 Credal Disagreement

In this section, I will focus on the disagreement data. When considering how contextualism can handle disagreement, there are two assumptions that can make the task appear more difficult than it has to be. The first assumption is that the disagreement has to concern the propositions expressed by the relevant sentences. The second assumption is that the speakers must have incompatible beliefs in order to disagree. I will argue that if we reject these assumptions, there is an interesting and promising way of making sense of disagreement that is compatible with a simple contextualist account.

Let us start with the first assumption. It is natural to focus on the proposition expressed. However, there is another salient proposition, namely the proposition associated with the embedded sentence. Let us call this the 'embedded proposition'. This is a point that has been emphasised by, among others, von Fintel and Gillies (2008). In the case of (1), this would be the proposition that Harry is in the office.

[6] See e.g. von Fintel and Gillies (2008, p. 92) and Schaffer (2011, p. 214) for a discussion of similar cases.

(1) Harry might be in the office.

I want to take this idea on board and propose that, in the cases introduced in §2, the disagreement is about embedded proposition, rather than the proposition expressed. On the face of it, this might look like an implausible suggestion. After all, it does not have to be the case that anyone believes that proposition. For instance, let us consider the following situation described by MacFarlane.

> A conversation might center, for a time, on the question whether Joe might be in Boston. The issue is not whether Joe *is* in Boston; everyone present acknowledges that he might be in Berkeley, and so no one thinks that there are going to be grounds for asserting that he *is* in Boston. The point of the conversation is to settle whether he *might be* in Boston. Reasons are offered on both sides, disputes are resolved, and perhaps a consensus is reached. (MacFarlane, 2011, p. 148, original emphasis)

In this conversation, nobody would think that they are going to establish that Joe is in Boston since they cannot rule out that he is in Berkeley. There is no reason to think that anyone believes that Joe is in Boston. But we could still find apparent disagreement between the participants as they debate Joe's whereabouts.

This leads us to the second assumption. I am assuming that the parties do not have to be expressing their disagreement in order to disagree. Whether they disagree depends on their mental states. The question is what the relevant mental states are. Insofar as the disagreement cannot be understood in terms of what the parties believe, a natural thought is that it has something to do with the credences or degrees of belief that the parties have in the embedded proposition. The idea is that if two parties have different credences in a proposition, there is a sense in which their doxastic states are incompatible and this is sufficient for them to disagree. Let us call this kind of disagreement 'credal disagreement'. This is captured by the following sufficient condition for disagreement.[7]

[7]The idea that two parties can disagree in virtue of having conflicting credences is not uncontroversial. See e.g. Cappelen and Hawthorne (2011b) who seem reluctant to talk about disagreement when it comes to credences. They note that it is more natural to talk about disagreement as applying to beliefs rather than weighted credences, but beyond that they do

Credal Disagreement

Two parties disagree if there is a proposition such that they have different credences or degrees of belief in that proposition.

In order to illustrate the idea, let us consider a situation in which two detectives are investigating a murder. The only suspect is Harry, but the detectives have not made up their minds as to whether he is the murderer or not. They have not formed the outright belief that he is the murder, but they have not formed the outright belief that he is not the murderer either. However, the first detective has a higher credence in the proposition that Harry is the murder than the second detective. If we represent credences numerically, we can represent the first detective as having a credence of 0.7 in the proposition that Harry is the murder, while the second detective has a credence of 0.6 in the proposition that Harry is the murderer.[8] This difference will most likely be reflected in their behaviour in various ways. For instance, the detectives might differ with respect to the bets they are willing to make. In a case like this, it is natural to regard the difference in credences as sufficient for the detectives to disagree.[9]

An immediate worry with this view is that it predicts too much disagreement. If a small difference in credences entail that we disagree, that might be seen as problematic. While I recognise that someone might be worried about this, it is not clear that this is an unacceptable consequence. It is true that insofar as the differences in credences are too small to be noticed, we are not likely to think that the parties disagree. However, that is something we might be able

not offer any further arguments. However, in ordinary speech it is rare to find speakers talking explicitly about their credences, so it is not clear that this is a major concern.

It is also worth noting that I am not alone in thinking that there are genuine cases of credal disagreement. In the literature on so-called 'peer disagreement' in epistemology, it is common to talk about cases of disagreement involving conflicting credences. See e.g. Jehle and Fitelson (2009, p. 280) and Goldman (2010, p. 190), who are explicit about thinking about disagreement in his way.

[8]I am assuming that having a relatively high credence, such as 0.7, is compatible with not having an outright belief in the relevant proposition. For the purpose of the following discussion, I am also assuming that credences are precise, though as far as I can see, nothing here turns on whether we allow credences to be imprecise. See e.g. Joyce (2010) for a recent defence of imprecise credences.

[9]In a realistic scenario, it will be hard to make sure that the two parties have different credences in a proposition, without also having different outright beliefs regarding related propositions. This admittedly makes it more difficult to identify the cases in which the disagreement is a result of different credences as opposed to a different outright beliefs.

to live with. After all, there might be all sorts of propositions that we disagree about without anyone recognising that fact. That is true regardless of whether we allow a difference in credences to constitute a disagreement. Furthermore, when the differences are noticeable, it is seems natural to think that there is a sense in which the parties disagree.

If one is still worried about predicting too much disagreement, a possibility is to say that we have disagreement only if there is a significant difference in credences. What counts as 'significant' will presumably depend on the context. While I am not in principal opposed to introducing an additional element of context-dependence or vagueness along these lines, a worry is that this will complicate the present discussion by making it harder to determine whether the relevant condition is satisfied. In the interest of keeping things as simple as possible, I will therefore assume that the sufficient condition is adequate as it stands. For the purpose of the present discussion, this ought to be sufficient, but a more realistic view might be one that introduces an additional element of context-dependence or vagueness.

If one wants to appeal to credal disagreement in order to explain cases of disagreement involving epistemic modals, we also have to assume that the parties have different credences in the relevant propositions. In the case of (4) and (5), this seems to be a plausible assumption.

(4) The person approaching might be Fred.

(5) The person approaching cannot be Fred.

In this case, one would probably expect the speaker of (4) and the speaker of (5) to have different credences in the proposition that the person approaching is Fred. A natural question is whether something more general can be said in favour of this assumption. After all, when everything is as it should be, both our credences and what we take ourselves to know, reflect something about our general epistemic situation. However, I do not think that we can expect this to be a perfectly simple and straightforward relationship. While I think it is plausible that there is such a connection, the precise nature of the connection will depend on what we want to say about evidence and rationality. For instance, let us assume that agents ought to adjust their credences on the basis of their evidence and let us consider the view, defended by Williamson (2000, ch. 9), that one's evidence is what one knows. In that case, we can expect a fairly strong

connection between what agents take themselves to know and their credences.[10] This is view is obviously controversial and I would not want to rest any of my claims on it being true, but it illustrates one way in which the connection might work. A different view about these matters might make the connection looser. Nevertheless, it would be surprising if it turned out that there is no connection whatsoever. For present purposes, it is sufficient if it is generally going to be the case that someone who sincerely utters a sentence like (4) and someone who sincerely utters a sentence like (5), have different credences. If that is granted, the burden is on the opponents of contextualism to find a case of disagreement involving epistemic modals in which it is plausible that the parties have the same credence in the embedded proposition.

It is useful to compare contextualism to a simple expressivist view about epistemic modals. A simple way of thinking about this view is to say that when a speaker utters a sentence containing an epistemic modal, she expresses her credence in the embedded proposition.[11] In the case of 'might' this might only be a fairly low credence, whereas in the case of 'must' it would probably be a high credence in the embedded proposition. In the case of (4), the speaker would express his positive credence in the proposition that the person approaching is Fred, while the speaker of (5) would express a high credence in the proposition that the person approaching is not Fred. If the credences were sufficiently high, an expressivist could then argue that the reason why we take the speakers to disagree is that their credences in the relevant propositions are different.

The simple contextualist view does not treat epistemic modals as having such a direct connection to credences. It is not a part of the contextualist picture

[10] Even if we accept Williamson's (2000) views about evidence, the connection between what an agent takes herself to know and her credences will not be completely straightforward. For instance, let us follow Hawthorne (2012) and suppose that someone throws an infinitely thin dart at random at dart board with continuum many points. In that case, it looks like the chance of the dart hitting the bulls eye is going to be zero. But then there is also a temptation to assign a credence of zero to that proposition. However, we do not want to say that we know that it will not hit the bulls eye and it is still fine to say 'It might hit the bulls eye'.

[11] This simple expressivist view might be too simple. As pointed out earlier, a worry is that there are cases in which it seems fine to say 'It might hit the bulls eye' even if one has a credence of zero in the proposition that it will hit the bulls eye. For a more sophisticated discussion of how we can motivate and make sense of a non-factualist or expressivist view about epistemic modality, see e.g. Yalcin (2007, 2010, 2011, 2012). Blackburn (1984, 1998) and Gibbard (1990, 2003) are often mentioned as prominent contemporary defenders of expressivism in moral philosophy.

that speakers express credences when using epistemic modals. However, what is relevant for our purposes is that a contextualist can tell more or less the same story about disagreement as a credal expressivist.[12] It does not matter whether the speakers express the relevant attitudes in the way that credal expressivists are talking about. What matters is what credences the speakers actually have.

The upshot is that if people can disagree in virtue of having conflicting credences, it offers a basis for thinking that the speaker of (4) and the speaker of (5) disagree without being committed to the idea that this must be cashed out in terms of a conflict of outright beliefs. This makes it easier to make sense of the data from a contextualist point of view.

4 Correction and Retraction

In the previous section, it was proposed that the allegedly problematic cases of disagreement introduced in §2 can be understood in terms of the speakers having different credences in the embedded proposition. In this section, I will extend these ideas to cases involving correction and retraction. While the parties do not have to be expressing their disagreement in order to disagree, correction and retraction have to do with what the speaker is expressing and the relevant speech acts she is performing. In order to explain correction and retraction, it is necessary to look at the speech acts that speakers are performing when they use sentences that contain epistemic modals.

In this section, we will continue to look at cases in which the embedded proposition plays an important role. It has already been observed that correction or denial can target the embedded proposition as opposed to the proposition expressed. As von Fintel and Gillies (2008, p. 82) point out, in the case of first person uses of attitude verbs like 'thinks' or 'believes', correction does not have to target the proposition expressed by the attitude report. To illustrate this point, let us consider the difference between (9bi) and (9bii).

(9) a. A: I think it's raining.

[12] Dreier (1999) makes a similar point with respect to expressivism in moral philosophy. Insofar as an expressivist is in a position to tell a plausible story about disagreement, it is not clear why a contextualist cannot tell more or less the same story. See e.g. also Jackson and Pettit (1998). For an application of this strategy in defence of a contextualist treatment of predicates of taste, see Huvenes (2012).

b. B: No, it isn't.

i. B: No, it isn't.

ii. B: No, you don't.

In the case of (9bi), B is denying that it is raining, not that A thinks that it is raining. The response in (9bi) differs from B's response in (9bii), which concerns the attitude report itself. In the case of (9bi), the correction is targeting the proposition that it is raining. But in the case of (9bii), it is targeting the proposition that A thinks that it is raining. In the former case we can say that the correction is targeting the embedded proposition, and in the latter case we can say that it is targeting the attitude proposition.

Having made the observation that the correction can target the embedded proposition in cases like (9), von Fintel and Gillies go on to suggest that something similar may be going on in cases like (10).

(10) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

Instead of interpreting Mary as denying the proposition expressed by (10a), we may interpret her as denying that Harry is in the office.[13] If this is what Mary is doing, there is no problem for contextualism.

While von Fintel and Gillies focus on cases of correction, a similar point can be made regarding cases of retraction. It is easy to come up with cases of retraction involving attitude verbs like 'thinks' that seem to be analogous to the cases of retraction involving 'might'.

(11) a. John: I think that Harry is in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

c. John: Okay, then I guess I was wrong.

Again, it is quite natural for John to retract his original claim. His response in (11c) sounds perfectly appropriate in light of Mary's comment. Having said that, I do not think that it is plausible to interpret John as retracting the proposition expressed in this case. It is true that he thought that Harry was in the office and there is no apparent reason for him to retract the attitude

[13]Similar points have been made by e.g. Papafragou (2006) and Wright (2007).

report. Furthermore, this kind of example will probably not make us revise the semantics for 'thinks'. It is much simpler and much more plausible to interpret the retraction as targeting the embedded proposition. What John is retracting is the proposition that Harry is in the office, not the proposition that he thought that Harry was in the office. I want to propose that something similar may be going on in cases like (6).

(6) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

c. John: Okay, then I guess I was wrong.

Instead of interpreting John's retracting as targeting proposition expressed by (6a), we may interpret the retraction as targeting the proposition that Harry is in the office.

A natural way of developing these ideas is to say that there are two speech acts performed in cases like this. The first speech act is the assertion of the proposition expressed, the modal proposition. The second speech act involves the embedded proposition. Proposals along these lines have been put forward by von Fintel and Gillies (2007, 2008) and Portner (2009, ch. 4). There are various of developing this idea in the case of epistemic modals, but an interesting and promising possibility is to think of the speech act involving the embedded proposition as a kind of doxastic advice. This is an idea that can be found in the work of Swanson (2006) and it is also entertained by von Fintel and Gillies (2007). While Swanson makes use of this notion in connection with the project of providing a probabilistic semantics, an alternative to the more traditional semantics that I have assuming throughout the discussion, this does not prevent us from making use of the same idea for different purposes. Simplifying somewhat, we can say that an epistemic use of a sentence containing an unembedded 'might' conveys the advice not to overlook the possibility that the embedded proposition is true, and to have a certain positive credence in the proposition in question. I take it that we have at least some independent grip on the notion of giving advice, though for theoretical purposes one might hope that it will ultimately be possible to offer a more informative and rigorous characterisation.[14]

[14]There is a lot more to be said about the notion of doxastic advice. Portner (2009, p. 157) worries that Swanson (2006) needs to provide theory of the speech act of giving advice. This

This account fits well with the account of disagreement, based on credal disagreement, that was discussed in §3. If we think of the disagreement in the relevant cases in terms of the parties having different credences, it would make sense to think that this also plays a role when it comes to correction and retraction. The current proposal does a good job in this respect. What is going on in the case of (6), is that John is advising Mary to have a certain positive credence in the proposition that Harry is in the office. Once Mary provides him with new information regarding Harry's whereabouts, he retracts the advice.

The view that epistemic modals can be used to perform two distinct speech acts has certain *prima facie* promising features. Insofar as it is sometimes possible to appropriately stand by one's original assertion, this can be explained if there are two distinct speech acts involved. In those cases, it is the assertion of the modal proposition that is at issue. However, we often focus on the speech act involving the embedded proposition. In the terminology of Simons (2007), it can be the 'main point' of the utterance. That is what the retraction is targeting when the speaker chooses to retract.

This kind of view might also give us a better grip on examples like (8) in which it is less clear that it is appropriate for the speaker to retract.

(8) a. John: Harry might be coming to the party, but it would be very surprising if he did.

b. Mary: Actually, he won't be coming to the party. I just talked to him a minute ago.

c. John: Okay, then I guess I was wrong.

A natural suggestion is that the extra conjunct serves as a way of canceling or weakening the additional speech act. A potential upshot of this is that the

is not a trivial task. Another worry is that the claim that that the speaker is advising her interlocutor to have a certain minimal credence in the embedded proposition is too strong. The proposal would make certain uses of 'might' inappropriate. However, in many cases in which the speaker knows that her interlocutor is better informed than she is, it is not clear that is appropriate to use an epistemic modal like 'might'. For instance, let us suppose that I have a heard a rumour that you are leaving California. I take it to be compatible with what I know that the rumour is true. However, it is not clear that it would be appropriate for me to say 'You might be leaving California' in a conversation with you. This is something we can explain if epistemic modals are used to give doxastic advice. It would not make sense for me to give you doxastic advice when you are better informed than me.

proposition that Harry is coming to the party is not available as the target of retraction. Insofar as we already have reasons for thinking that it would not be appropriate to retract the assertion of the modal proposition, this would explain why it is less natural to retract in this case. While there are no doubt other ways of explaining the data, it looks like there are good reasons to take a view like this seriously.

It is also worth pointing out that this does not have to be a feature that is unique to sentences involving epistemic modals. It can be seen as an instance of a more general phenomenon of sentences being used to perform two distinct speech acts. As Simons (2007) observes, it is often the case that the embedded clause carries the main point of an utterance. For instance, in the case of (12a)-(12f), the speaker is proffering that Louise was with Bill as an answer to the question of who Louise was with last night.

(12) Who was Louise with last night?

a. I'm convinced that she was with Bill.

b. I think that she was with Bill.

c. I imagine that she was with Bill.

d. I heard that she was with Bill.

e. Henry said that she was with Bill.

f. Henry suggested that she was with Bill.

In all of these cases, it is plausible that there is some sense in which two distinct speech acts are performed. This might go some way towards assuage concerns to the effect that the proposal under discussion amounts to postulating special features of epistemic modals. That would be potentially problematic. However, once we recognise that this is a much more widespread phenomenon, that worry seems less urgent.

5 Objections and Replies

5.1 MacFarlane on Retraction

In the previous section, it was proposed that correction and retraction can target the embedded proposition as opposed to the proposition expressed. A

potential source of resistance to this idea is the thought that there are important differences between cases in which the relevant proposition is asserted or believed and cases in which it is not. While it is plausible that retraction can target the embedded proposition in cases involving 'thinks', that does not mean that that is also true in the case of epistemic modals. In order for a proposition to be the target of retraction, it has to be either asserted or believed. MacFarlane seems to raise a worry along these lines when he describes the retraction data.

> It's not plausible to say that the target of Sally's retraction (the thing she takes herself to have been wrong about) is the embedded proposition—that Joe is in Boston—for she didn't assert or believe *that*. It must, then, be the modal proposition she expressed by saying "Joe might be in Boston". (MacFarlane, 2011, p. 148, original emphasis)

We are frequently prepared to assert sentences containing epistemic modals without taking ourselves to be in a position to either believe or assert the embedded proposition. Furthermore, if we look at verbs other than 'believes' or 'thinks', we can see that there are cases in which it does not seem appropriate to retract, even when the embedded proposition has been shown to be false. MacFarlane (2011, p. 147) offers (13) as an example in which it sounds odd for the original speaker to retract her claim.

(13) a. A: It is rumored that you are leaving California.

b. B: That's completely false!

c. A: Okay, then I was wrong. I take back what I said.

We can imagine that A has heard a rumour to the effect that B is leaving California, but that she has not made up his mind as to whether she should believe the rumour or not. As it turns out, the rumour is false. In that case, A's retraction does not sound very natural. It is at least very concessive.

While MacFarlane focuses on retraction, it is worth noting that cases like (13) already show that it is not plausible to claim that a proposition cannot be the target of correction or denial unless it is believed or asserted. There is nothing strange about B's response in (13). It is natural to interpret B as denying that she is leaving California. But there is no reason to think that A, or anyone else for that matter, believes or asserts that proposition.

It is also worth pointing out that correction can be appropriate even if the original speaker makes it explicit that she is talking about what is compatible with what she knows.

(14) a. John: For all I know Harry is in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

There is no more reason to think that John takes himself to be in a position to assert or believe the embedded proposition in this case than in the cases involving 'might'. But in this case, the point is that John makes it explicit that he is talking about what is compatible with what he knows. The most natural interpretation of Mary's response is that she is denying that Harry is in the office, not that it is compatible with what John knows that Harry is in the office. However, in that case, it is strange to think that this could not happen in (6) as well, and to claim that we need to view cases like (6) as providing evidence for some kind of revisionary semantics for epistemic modals.

In light of this, it is probably not an accident that MacFarlane focuses on retraction. Cases like (13) suggest that a proposition can be an appropriate target for correction without being an appropriate target for retraction. However, that is not enough to show that a proposition has to be asserted or believed in order to be the target of retraction. In fact, there seems to be cases in which it is appropriate to retract a proposition even if it was never believed or asserted.

Let us suppose that Mary and John are investigating a crime. John harbours certain suspicions towards Harry, but he does not yet believe that Harry is the culprit, as there are many other suspects. He has still not made up his mind. As a matter of fact, there is also certain strong evidence in favour of Harry's innocence that he has not yet uncovered. John proceeds to discuss the matter with Mary who has had the opportunity to review all the evidence.

(15) a. John: I have a suspicion that Harry did it.

b. Mary: No, he couldn't have done it. He was in the Far East.

c. John: Okay, then I guess I was wrong.

It seems appropriate for John to retract his original claim in light of the evidence presented by Mary. I am assuming that in doing so he is retracting the proposition that Harry did it, and not the proposition that the he had a suspicion that

Harry did it. After all, that proposition is true, and that was not what Mary was challenging. However, we were also taking it to be a part of the scenario that John did not believe that Harry did it. He only had a suspicion towards Harry, and I am assuming that suspicion is compatible with lack of outright belief. If it were the case that retraction could only target a proposition that is asserted or believed, we would be hard pressed to make sense of John's retraction.

A similar point can be made by looking at cases that involve guessing. Let us consider the following dialogue.

(16) a. Mary: Can you guess when Napoleon was born?

b. John: I don't know. I am guessing that he was born in 1767.

c. Mary: No, he wasn't. He was born in 1769.

d. John: Okay, then I was wrong.

The response in (16b) sounds appropriate, but since John is only making a guess we cannot assume that John either believes or asserts that Napoleon was born in 1768 on the basis of his utterance of (16a). Moreover, it would at least be somewhat odd for John to stand by his guess once he is appropriately corrected. If the proposed constraint on retraction were correct, we could not say that what John is retracting is the proposition that Napoleon was born in 1767. But then how do we make sense of his retraction?

It can be appropriate for speakers to retract even in cases in which the speaker makes it explicit that she is talking about what is compatible with what she knows.

(17) a. John: For all I know Harry is in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

c. John: Okay, then I guess I was wrong.

As far as I can see, it does not sound altogether unnatural for John to retract his original claim. But there is no more reason to think that John believes or asserts that Joe is in the office in this case than in the corresponding case in which he is using an epistemic modal. Furthermore, if John's retraction can target the embedded proposition in a case like (17), it is difficult to see why it could not do so in a case involving an epistemic use of 'might'. After all, if

the simple contextualist view is correct, the relevant sentences are going to be equivalent.

In light of these cases, the suggestion that a proposition has to be asserted or believed in order to be the target of retraction looks implausible. Furthermore, while it is an open question exactly what it takes for it to be appropriate to retract a proposition, we have seen no reason to think the right story about this is going to be incompatible with the claim that this is what is going on in the case of epistemic modals.

5.2 Stephenson on Correction

Stephenson (2007) attempts to reinforce the point that contextualism cannot handle the correction data by pointing to some differences between sentences involving epistemic modals and sentences involving 'knows'. She argues that if contextualism were true we might expect Mary's response in (18b) to be just as appropriate as her response in (10b).

(10) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

(18) a. John: I don't know that Harry is not in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

But there is a clear difference between the two dialogues. Whereas Mary's response in (10b) is perfectly natural, there is something awkward about Mary's response in (18b). Stephenson notes that this is something that requires explanation. If we assume that the simple contextualist treatment of epistemic modals is correct, (18a) and (10a) will be equivalent since the latter is true just in case it is not ruled out by what John knows that Harry is in the office. The upshot of this is that someone who defends a contextualist semantics for epistemic modals needs to explain both the appropriateness of correction in (10) and the contrast between (10) and (18).

However, it is not clear what the difference between (10) and (18) really shows. If we change the example slightly, we seem to get a different verdict.

(14) a. John: For all I know Harry is in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

Again we find a significant difference between the cases. Whereas (18b) is admittedly awkward, (14b) is much better. But then it is just as much a question of how we can explain the difference between (14) and (18) as it is a question of how we can explain the difference between (10) and (18). Even if (14) and (18) are equivalent, it does not follow that it is appropriate to respond to them in the same way. After all, (14) and (18) are presumably also equivalent, but it is still not appropriate to respond in the same way.

Having said that, it is still important for contextualists to be able to explain the difference between (10) and (18). In what follows, I want to gesture towards an explanation of these differences that fits well with the hypothesis that the correction is targeting the embedded proposition. It is worth observing certain differences between (10) and (14) on the one hand, and (18) on the other. The complement clause in (18a) is different from the complement clauses in (10a) and (14a). While the former is negated, the latter are not. This difference is made explicit in (19) and (20).

(19) It might be that [Harry is in the office].

(20) I do not know that [Harry is not in the office].

If we assume that what is going on in these cases is that the correction is targeting the embedded proposition, this makes it less surprising that the cases are different. In order for the correction to be targeting the embedded proposition in the case of (18), that is, the proposition expressed by the complement clause, Mary would have to deny that Harry is not in the office, but that is not what she is doing. Insofar as she is denying anything, she is denying that Harry is in the office. It is therefore not surprising that her response in (18) sounds strange if we interpret her as trying to deny that Harry is not in the office.

At worst these considerations appear to be inconclusive with regards to what they tell us about a contextualist semantics for epistemic modals, but it is also tempting to draw a more optimistic conclusion. It looks like the data pattern in a way that one would expect if the hypothesis that the correction is targeting the embedded proposition were correct.

5.3 Agreement

So far I have focused on considerations involving disagreement, correction, and retraction. The basic response I have offered on behalf of contextualism is that

what is at issue in the cases we have looked at so far, is not the proposition expressed, but the embedded proposition. Furthermore, it is not a difference in outright beliefs, but a difference in credences that is relevant to the underlying disagreement. However, there are reasons for thinking that considerations involving agreement cannot be straightforwardly handled in the same way. This worry has been put forward by von Fintel and Gillies (2011). This particularly interesting given that they appear quite sympathetic to the idea that it is sometimes the embedded proposition that is relevant. The worry can be illustrated by one of their examples. Let us suppose that Alex and Billy are looking for Billy's keys when the conversation in (21) takes place.

(21) a. Alex: You might have left them in the car.

b. Billy: That's true./You're right. Let me check.

If the modal proposition is a proposition about what is compatible with what Alex knows, it is not clear that it makes sense for the agreement to be targeting that proposition. According to von Fintel and Gillies (2011, p. 115), Billy is not in a position to comment on what is compatible with what Alex knows. However, it is also not clear that it makes sense for the agreement to be targeting the embedded proposition. It does not look like Billy agrees that the keys are in the car. After all, we may stipulate that she does not believe that the keys are in the car. This makes examples like (21) different from an examples involving disagreement or correction, such as (10).

(10) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

In the case of (10), it makes sense to interpret Mary as denying that Harry is in the office. It would be implausible to stipulate that she does not believe that Harry is not in the office.

It is important to note that the current objection does not assume that agreement must target a proposition that is believed or asserted. This would be analogous to the problematic assumption that correction or denial cannot target a proposition unless it is believed or asserted. Instead, it rests on the assumption that a speaker must believe a proposition in order to agree with it. Nothing that has been said so far undermines that assumption.

While an objection based on agreement avoids some of the problems with an objection based on disagreement or correction, we should not be too quick to conclude that it undermines contextualist treatments of epistemic modals. There are reasons for thinking that it is still not clear that the agreement must be targeting the modal proposition. For instance, consider the dialogue in (22).

(22) a. Alex: For all I know you left them in the car.

b. Billy: That's true./You're right. Let me check.

It appears that Billy somehow agrees with Alex and that her response is appropriate. But if Billy's response in (22a) is appropriate, it is not surprising that Billy's response is (21a) is appropriate as well. After all, contextualists can treat (21a) and (22a) as having the same truth-conditions. In fact, the reasons for thinking that the agreement cannot be targeting the modal proposition expressed by (21a) are also reasons for thinking that the agreement cannot be targeting the proposition expressed by (22a). Furthermore, nothing has changed as far as the embedded proposition is concerned. We can still stipulate that Billy does not believe that the keys are in the car.

This leaves us with several options. One option is to say that the agreement is targeting the proposition expressed by (22a) after all. Another option is to say that there is a sense in which the agreement can target the embedded proposition even if Mary does not believe that proposition. A third option is to say that the agreement is targeting some other proposition. It is not clear what the right option is. But whatever the correct explanation turns out to be, there is no reason to think that it could not be extended to (21).

There are more general reasons for not wanting to rely too heavily on considerations involving agreement. Cappelen and Hawthorne (2009, p. 62) have drawn attention to certain complications regarding the use of agreement reports. Suppose that Mary is a basketball coach and only applies the predicate 'tall' to someone who is taller than 6 feet and 8 inches. However, John is just an ordinary person and applies the predicate 'tall' to anyone over 6 feet. If Harry is 6 feet and 4 inches tall, it does not seem correct to report that Mary and John disagree whether Harry is tall. But if Harry is 7 feet tall, it seems appropriate to say that Mary and John agree that Harry is tall. In this case, Harry counts as 'tall' by both Mary and John's standards. Based on these considerations, Cappelen and Hawthorne conclude that one has to be careful about relying on

considerations involving agreement.[15] If they are right about that, it would be a further reason for not wanting to put too much weight on cases of agreement involving epistemic modals.

5.4 Embedded Epistemic Modals

So far I have focused on unembedded uses of episemic modals like 'might'. One important question is whether the proposed account can also be extended to cases involving embedded uses of 'might'.[16] There are many interactions between epistemic modals and other operators that are worth investigating, but in this section most of the focus is going to be on cases involving negation and cases involving conditionals.

Let us start with a case involving negation. For instance, consider the dialogue in (23).

(23) a. John: Harry couldn't be in the office.

b. Mary: No, he is there. I just checked.

In this case, it is natural to interpret the negation as scoping over the epistemic possibility modal 'could'.[17] That means that the embedded proposition is the proposition that Harry is in the office. However, that is presumably not what the correction is targeting in this case. In fact, it looks like Mary is correcting John because she believes that proposition.

However, in this case, it turns out that we can simply treat the correction as targeting the proposition expressed, the modal proposition. The reason why cases like (10) seem to present a problem for contextualism is that John only seems to be making a weak claim.

(10) a. John: Harry might be in the office.

[15] See e.g. also Cappelen and Hawthorne (2011a) and Weatherson (2011) for relevant discussion.

[16] I want to thank an anonymous referee for Philosophical Studies for encouraging me to address these questions.

[17] I am assuming that 'could' can be used as an epistemic modal, at least when it occurs inside the scope of a negation. If we wanted a case in which the negation is scoping over 'might', we could have used the slightly more cumbersome sentence 'It is not the case that Harry might be in the office'. However, this sentence is less natural than the sentence involving 'could'. It therefore makes more sense to use 'could' for these purposes.

b. Mary: No, he can't be. I just checked and he wasn't there.

In the case of (23), John is making a stronger claim. Let us think of epistemic possibility modals as existential quantifiers and epistemic necessity modals as universal quantifiers over the worlds that are compatible with what the speaker knows. In that case, (23a) is equivalent to (24).

(24) Harry must not be in the office.

This basically amounts to the claim that John knows that Harry is not in the office.[18] It is therefore not surprising that Mary would take herself to be in a position to challenge this claim if she thought that Harry is in the office. In other words, there is no obvious reason why we could not treat the correction as targeting the modal proposition.[19]

While cases like (23) do not seem to present a problem for contextualist treatments of epistemic modals, there are also interesting issues having to do with the interaction between epistemic modals and conditionals. Let us suppose that both Mary and John are open-minded about whether Harry is in the office and that they both have a credence of 0.5 in the proposition that Harry is in the office. However, while John believes that Harry sometimes sleeps in the office, Mary knows that Harry would never sleep in the office.

(25) a. John: If Harry is in the office, he might be sleeping.

b. Mary: That's not true. If he is in the office, he is not sleeping.

It looks like Mary is right to correct John in this case. The question is what her correction could be targeting. One option is to treat the 'might' as scoping over the entire conditional.[20] The idea is that the embedded proposition is the proposition that if Harry is in the office, he is sleeping. John presumably does

[18]There is a debate about how strong the semantics for 'must' ought to be. See e.g. von Fintel and Gillies (2010) for relevant discussion. For the purpose of the present discussion, I am assuming a simple semantics for 'might' and 'must'.

[19]It is important to remember that it is not a part of the proposal under discussion that correction and retraction always have to target the embedded proposition. Furthermore, in a case like this, when the epistemic possibility modal occurs inside the scope of a negation, there does not seem to be any obvious reason for thinking that the embedded proposition would be available as a target of correction. It makes little sense to think of John as advising his audience to have a certain positive credence in the proposition that Harry is in the office.

[20]See e.g. Stalnaker (1980) for a suggestion along these lines.

not take himself to be in a position to believe or assert that proposition, but we have already seen that a proposition does not have to be believed or asserted in order to be the target of correction. Furthermore, it is natural to think that Mary and John will have different credences in the proposition that if Harry is in the office, he is sleeping.

Whether this is a plausible treatment of (25) depends on the correct theory of conditionals and the interaction between conditionals and epistemic modals.[21] However, even if this works as a treatment of (25), it is not always clear that we can treat epistemic modals as taking wide scope in this way. In particular, it looks like cases involving quantifiers add further complications. For instance, Swanson (2010, p. 536) discusses examples like (26).

(26 If there is a mural on the floor, every square inch of the mural might have paint on it.

On the relevant reading, the universal quantifier scopes over the 'might'.[22] Someone could use (26) even if they know that it is not the case that if there is a mural on the floor, every square inch of the mural has paint on it. This makes (26) different from (27).

(27) It might be that if there is a mural on the floor, every square inch of the mural has paint on it.

When the quantifier is scoping over the 'might', it looks like there is no embedded proposition that could be the target of correction. The worry is that we still have to explain correction in such cases and then we cannot say that the correction is

[21] According to the proposal under discussion, the embedded proposition is the conditional proposition that if Harry is in the office, he is sleeping. The proposal does not require us to adopt a particular theory of conditionals or conditional propositions. However, one might question whether there is even such an embedded conditional proposition. For instance, according to Kratzer (1981, 1991a), 'if'-clauses restrict other operators. If we treat the 'if'-clause as restricting the epistemic modal 'might', there does not seem to be any embedded conditional proposition that the correction could be targeting. More generally, if it turns out that there are no conditional propositions of the right sort, we would have to look for a different way to account for cases of correction involving conditionals. Seeing as a thorough treatment of different theories of conditionals is beyond the scope of the present discussion, I will continue to assume that there are conditional propositions of the right sort. However, there are lot of questions here that merit further investigation.

[22] For the purpose of the present discussion, I am assuming that the relevant cases involve epistemic modality. See e.g. Swanson (2010, p. 531) for relevant discussion.

targeting the embedded proposition. For instance, let us suppose that someone knows there is a mural on the floor and knows of a sufficiently large part of the mural that does not have paint on it. In that case, it would not seem altogether strange for her to respond to an utterance of (26) by correcting the speaker in some way.

Having said that, I think it is still possible to account for examples like (26) without straying too far from the original account of examples like (10). One idea is that the speaker is not just performing a speech act involving a single proposition. Instead, there is a potentially infinite number of propositions at issue.[23] This includes the proposition that if there is a mural on the floor, square inch one of the mural has paint on it, the proposition that if there is a mural on the floor, square inch two of the mural has paint on it, and so forth for every square inch of the mural.[24] Following the idea of doxastic advice that we borrowed from Swanson (2006), we can think of (26) as conveying the advice to have a certain positive credence in each of the relevant propositions.[25] Fur-

[23]There are other views according to which many propositions are expressed or asserted. See e.g. Cappelen and Lepore (2005, ch. 13) and Dorr (2014) for relevant discussion. In this context, it is worth pointing out that we do not have to think of the conversational participants as having all of these propositions in mind, at least not in a strong sense of 'having in mind'. For instance, there is no obvious reason why the conversational participants would need to have occurrent mental states involving all of the propositions.

[24]It is important to distinguish the idea that there is a potentially infinite number of relevant propositions from the idea that the relevant speech act involves a single proposition which is the conjunction of these propositions. The speaker might know that this proposition is false and it makes little sense to think that this is the proposition that is at issue. However, it would surprising if the speaker knew that all of the individual propositions were false.

[25]In the case of non-universal quantifiers such as 'most' and 'almost every', the situation is a bit more complicated. However, I do not see any insurmountable obstacles to extending the proposed account to non-universal quantifiers. In order to simplify the discussion, let us consider the sentence 'Most of the square inches of the mural might have paint on them'. As before, we have the proposition that square inch one of the mural has paint on it, the proposition that square inch two of the mural has paint on it, and so forth. The idea is that the sentence can be understood as conveying the advice to have a certain positive credence in most of these propositions. In order for someone to reject this advice and be in a position to correct the speaker, it must be the case that they do not have a sufficiently high credence in most of these propositions.

One might worry that this amounts to a disjunctive speech act and that this is somehow problematic. See e.g. Krifka (2001) and Swanson (2010, p. 532) for relevant discussion. However, in this particular case, it looks like there is nothing obviously wrong with the relevant advice. It is reasonable clear what it would take to follow the advice and what it would take

thermore, each of these propositions is available as a target of correction. For instance, if someone had a credence of zero in one of the relevant propositions, she would not be following the advice and she might correct the speaker on that basis. If the parties have different credences in one of the relevant propositions, that is also sufficient to explain their disagreement in terms of credal disagreement. That looks like something that we should generally expect to be true in a case like (26).[26]

If something along these lines is correct, there is a sense in which it is a departure from the idea that the correction is targeting the embedded proposition. The relevant propositions are not embedded propositions. However, the modified proposal looks like a fairly natural extension of the original proposal. It was not supposed to be a part of the proposal that correction always has to target the embedded proposition. The important idea is that the correction does not have to target the modal proposition. In may cases, it targets the embedded proposition, but sometimes it targets other propositions. This does not threaten the idea that the correction is targeting the embedded proposition in cases like (10), when there is not another operator that scopes over the epistemic modal.

There is obviously a lot more to be said about these issues. In particular, the interactions between epistemic modals, conditionals, and quantifiers raise a lot of interesting questions that merit further investigation. We have seen that it is difficult to hold that the correction always targets the embedded proposition. However, we have also seen that there seems to be resources for dealing with cases like this that preserve the spirit of the original proposal.

5.5 Probability Operators

So far the focus has been on possibility modals like 'might'. An interesting question is whether the story I have told about 'might', based on credal disagreement, can be extended to probability operators, such as 'probably' and 'likely'. A thorough discussion of this question is beyond the scope of this paper, but I would like to highlight one of the challenges associated with extending the story to expressions like 'probably'. In the case of (28), it sounds reasonable

to reject the advice.

[26] A worry is that the proposal presupposes that the speaker has a credence in each of the relevant propositions. Insofar as this is taken to be problematic, it is worth pointing out that this can still be understood in dispositional terms or in terms of the speaker have a commitment to having a certain positive credence in each of the relevant propositions.

to say that the underlying conflict is a matter of Mary and John having different credences in the proposition that Harry is in the office.

(28) a. John: Harry is probably in the office.

b. Mary: No, he might be there, but it isn't likely.

However, there are reasons for thinking that there cases in which this is not the whole story. There are further challenges associated with cases in which Mary uses expressions such as 'that's not true'. For instance, let us consider the dialogue in (29) as taking place while Mary and John are looking for Harry.

(29) a. John: Harry is probably in the office.

b. Mary: That's not true. He might be there, but it isn't likely.

If a contextualist treatment of 'probably' is correct, it is problematic to treat the correction as targeting the modal proposition. One would not expect Mary to be denying a proposition about what is probable in view of what John knows. But in this case it is also problematic to treat the correction as targeting the embedded proposition. Mary does not have to believe that Harry is not in the office in order for her response to be appropriate. In fact, it is clear that she does not take herself to be in a position to rule out the possibility that he is there. But if her use of 'that's not true' were targeting the embedded proposition, it is natural to think that she would have to believe that the embedded proposition were false. This suggests that this problem cannot be dealt with by interpreting the correction as targeting the embedded proposition.

It is not clear what this shows about 'might'. One possibility is that 'might' and 'probably' should be treated differently. For instance, if we compare (10) and (28), John appears to be making a significantly stronger claim in the latter case.

(10) a. John: Harry might be in the office.

b. Mary: No, he can't be. I just checked and he wasn't there.

Insofar as the proposition expressed is weaker in the case of 'might', this arguably makes it more natural to focus on the embedded proposition. This is not to say that it is unproblematic to focus exclusively on the proposition expressed in the case of 'probably'. The point is only to compare 'might' and 'probably'.

A more thorough and comprehensive comparison would require a lot more to be said about 'probably', but everyone should agree that there are some differences between epistemic possibility modals like 'might' and probability operators like 'probably'.

Furthermore, it is worth noting that this problem is similar to the problem involving agreement that were discussed earlier. Insofar as there are reasons for optimism in that case, that might also be a reason for optimism in this case. We also have seen that matters involving disagreement, as well as related considerations involving correction and retraction, can be more complicated than one might have thought. In light of these complications, we should not be too quick to jump to the conclusion that cases like (29) require a substantial revision of our semantics. In any case, my main concern is with epistemic uses of possibility modals like 'might'. The issues raised by expressions like 'probably' will have to remain a topic for further research.

Conclusion

There seems to be a common assumption behind the use of disagreement, correction, and retraction data. The assumption is that the disagreement must be about the proposition expressed, the modal proposition, and that the correction and retraction must also target that proposition. Furthermore, it is assumed that the disagreement must involve a conflict of outright beliefs. But as we have seen, these assumptions are highly suspect. I have argued that we can often understand the relevant cases of correction, and retraction as involving the embedded proposition rather than the modal proposition. Moreover, the underlying conflict can be understood in terms of credal disagreement. It is a conflict of credences or degrees of belief, not outright beliefs. If all of that is correct, it looks like we can hold on to a contextualist semantics for epistemic modals while paying sufficient respect to the relevant data.

In any case, this is not meant to be the final word on these matters. For instance, we have seen that there are also problems involving agreement. While there are reasons for thinking that those problems can be dealt with, it is not clear that we have a good understanding of exactly what is going on in the relevant cases. These questions are arguably even more salient when we consider cases in which 'might' occurs inside the scope of other operators. In some of

these case, it looks like there are potentially many propositions that are relevant. Moreover, I have focused almost exclusively on epistemic uses of possibility modals like 'might'. Shifting the focus from epistemic modals like 'might' to probability operators like 'probably' introduces additional complications. Nevertheless, we have seen that there are good reasons to take the idea of credal disagreement seriously and I think that this idea promises to shed important light on the debate about epistemic modals.

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