

A Flexible Contextualist Account of Epistemic Modals

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ON KRATZER'S CANONICAL ACCOUNT, modal expressions (like 'might' and 'must') are represented semantically as quantifiers over possibilities. Such expressions are themselves neutral; they make a single contribution to determining the propositions expressed across a wide range of uses. What modulates the modality of the proposition expressed — as bouletic, epistemic, deontic, etc. — is context.¹

This ain't the canon for nothing. Its power lies in its ability to figure in a simple and highly unified explanation of a fairly wide range of language use. Recently, though, the canon's neat story has come under attack. The challenge cases involve the epistemic use of a modal sentence for which no single resolution of the contextual parameter appears capable of accommodating all our intuitions.² According to the revisionists, such cases show that the canonical story needs to be amended in some way that makes multiple bodies of information relevant to the assessment of such statements.

Here I show how the right canonical, flexibly contextualist account of modals can accommodate the full range of challenge cases. The key will be to extend Kratzer's formal semantic account with an account of how context selects values for a modal's parameters. The strategy here is broadly Gricean; on this view, a context must be capable of publicly manifesting a speaker's parameter-value determining intentions.

As we'll see, *all* of the challenge cases can be explained in a contextualist-friendly way by appeal to the failure of this publicity constraint on contexts. A curious feature of these cases is that intuitions about them are split; utterances that some speakers regard as fine, others regard as odd. The account I'll defend provides a single explanation for both phenomena. The puzzles arise and our intuitions about them are split because context is unable to manifest which of two different parameter-value determining intentions a speaker has. Considering cases very like the ones in which the puzzles arise, but involving action explanations, will provide further evidence for this hypothesis;

1. Kratzer [1991], [forthcoming].
2. For discussion of those cases, see Egan [2007], Swanson [2006], MacFarlane [2011], and von Fintel and Gillies [2011].

as we'll see, in the case of such explanations, context is able to force one of two possible readings as the natural one. Finally, an additional payoff of these hypotheses is an explanation of a phenomenon that is puzzling on all extent accounts: why bare epistemic modal complements of belief reports almost always get their contents determined by a body of information that includes the attributee's. Taken together, these considerations suffice to undermine the motivation for recent departures from the canon.

First, though, we'll need a brief sketch of the canonical view, a description of the puzzle case that provides its greatest challenge, and a brief characterization of the two main revisionary solutions to that puzzle, relativism and cloudy contextualism.

1. The Canon, the Central Puzzle, and its Revisionary Solutions

1.1 *The Canon*

On Kratzer's canonical view, modal expressions, like 'might' and 'must', are represented semantically as quantifiers over sets of possibilities. Their basic form is

MODAL(B)(ϕ)

where MODAL functions as a quantifier over B, its domain of quantification or modal base. My focus here is primarily on 'might', which requires that ϕ , the prejacent, comes out true in some of the possibilities in B. Later I'll discuss an example of a comparative modal, which will require a ranking of the worlds in B.

In some cases, the use of an explicit phrase (*e.g.*, "given the local climate", "in light of Sally's preferences", or "given what Holmes knows") determines B or a ranking of the worlds in B. In other cases, though, one or both of these is determined by context. In the case of epistemic modals, context determines a modal base by selecting a body of information; the worlds in B will be worlds compatible with that body. Following von Fintel and Gillies, I'll call such statements "bare

epistemic modals" or BEMS.³ The dispute arises over whether that information is selected as a function of features of the context of use or the context of assessment and whether it is unique bodies of information that get selected or multiple ones.

1.2 *The Puzzle*

The most compelling challenge to canonical contextualism rests on cases that seem to show that no single, contextually determined body of information fits with all of our intuitions. Here's an illustrative example from von Fintel and Gillies:⁴

BASIC KEYS

Alex is helping her roommate Billy search for her keys.⁵
Alex asserts

(C) "You might have left them in the car."

Billy has two available responses:

(Y) "You're right; let me check"

and

(N) "No; I still had them when we came into the house."

Has Alex asserted a solipsistic proposition, that the keys' being in the car is compatible with what she knows, or a group proposition, that their being in the car is compatible with what she and Billy together know? Neither seems entirely satisfactory. A group reading

3. This summary of Kratzer's [1991] view owes much to the clear and concise presentation in von Fintel and Gillies [2011].

4. von Fintel and Gillies [2011] pp. 114–115.

5. For a discussion of a similar example, see Swanson [2006] pp. 40–41.

fits with our judgments regarding the truth value of (C) and the appropriateness of (Y) or (N). To see this, suppose first that among the possibilities compatible with what Alex and Billy together know there is at least one possibility in which the keys are in the car. The group reading predicts that in this case, (C) is true — and that is indeed our intuition in that case.⁶ Moreover, we have the further intuition that Billy's response in (Y) is appropriate, as the group reading predicts. Suppose, though, that Billy knows that the keys are not in the car. The group reading then predicts that (C) is false and (N) appropriate. This too fits with our intuitions.⁷

The difficulty for the group reading, according to the canon's foes, is that it is hard to see how Alex could be warranted in asserting (C). As von Fintel and Gillies claim,⁸

[Alex] does not seem to be within her linguistic rights to be claiming that the group's information cannot rule out the prejacent. After all, [she] does not know whether Billy has private information about the whereabouts of the keys.

That difficulty goes away under the solipsistic reading. Alex is fully warranted in asserting (C), so long as the keys' being in the car is compatible with what she knows. But that reading no longer preserves our sense that in each of the above scenarios, Billy's available responses are appropriate. (Just take the affirmative response. There's nothing in

6. Maybe you don't have the intuition that (C) is true in these circumstances. If so, the puzzle can be stated solely in terms of the joint appropriateness of Alex's asserting (C) and Billy's asserting (Y).

7. Maybe you don't have the intuition that (C) is false in these circumstances. If so, then, the puzzle can be stated solely in terms of the joint appropriateness of Alex's asserting (C) and Billy's asserting (N).

8. von Fintel and Gillies [2011] p. 116.. See also Swanson [2006].

the scenario that guarantees that Billy is in a position to take a stand on what's compatible with what Alex knows.)⁹ Conclusion: There's no canonical contextualist reading of (C) that preserves all of our intuitions.

1.3 Revisionary Solutions

The reasoning in BASIC KEYS provides perhaps the most compelling of the recent challenges to the canonical view.¹⁰ Below I'll argue that canonical contextualism is able to accommodate the full array of our intuitions in such cases. But first, a quick spin through the opposing views that are motivated by the BASIC KEYS reasoning:

Relativist conclusions from KEYS

1. In order to accommodate all of our intuitions in BASIC KEYS, we need to add an additional parameter to the canonical story, namely, points of assessment.
2. *Solipsistic Relativist explanation of BASIC KEYS.* The information of an assessor at a context of assessment determines a truth value for a BEM. So Alex says something true in (C), when evaluated at her context of assessment, given that that context is just the context of use. Yet Billy also says something true in rejecting (C) in (N). That's because what Billy says gets evaluated relative to her context of assessment and that context includes Billy's knowledge that the keys are not in the car. So Alex's assertion in (C) is warranted because, given her context of assessment, (C) comes out true, while Billy is warranted in expressing her rejection with (N) because (C) is, from her context of assessment, false.

9. von Fintel and Gillies [2011] pp. 115.

10. See both von Fintel and Gillies [2011] pp. 114–117 and MacFarlane [2011], pp. 150–152. I say "most compelling" because, at least on first inspection of BASIC KEYS, most find they have all of the problematic intuitions, whereas intuitions are more split in the more widely discussed eavesdropper and disagreement cases.

3. The relativist explanation, unlike the contextualist one, fits with all of our intuitions. So we should be relativists.¹¹

Revisionary (aka “cloudy”) contextualist conclusions from KEYS

1. Our conflicting intuitions show that the contextualist needs an interpretation of BASIC KEYS that allows Alex to assert (C) under a solipsistic interpretation and Billy to take up Alex’s assertion under a group interpretation.
2. *Cloudy contextualist explanation.* The canon wrongly presupposes that there is a unique context of use and so a unique proposition expressed with the typical of use of a BEM. In fact, typical usage involves underdetermination.¹² When Alex asserts (C), she “puts into play” a “cloud of propositions”. Which propositions? Each of the propositions that would be expressed on each of the different, “available” ways of resolving the contextual parameter. (In BASIC KEYS, those would be the Alex-, Billy-, and Alex+Billy-readings.) A speaker is warranted in asserting a BEM if she is warranted in asserting at least one of the propositions her assertion puts into play.¹³ Since Alex is warranted in asserting (C) under the Alex-reading, her assertion is warranted. Moreover, an addressee’s response is warranted if

11. MacFarlane [2011].

12. von Fintel and Gillies [2011], p. 117: “Alex’s BEM actually has both [solipsistic and group] readings — possibly many more, in fact — and ... this kind of multiplicity of meanings is precisely what gives BEMs their peculiar properties. The context does not, in general, determine what the relevant group is.” Here I am reading von Fintel and Gillies as claiming that it is not the case that typically context determines a unique restriction on B, not that it never determines a unique restriction. Since my own view is that it typically does, their view, as I understand it, is a rival to mine. If their view is that cases like BASIC KEYS that, they argue, require their exotic explanation are rare, then there is less contrast between their view and my own than on my reading of their view. (Thanks to an anonymous referee for this journal for discussion.)

13. *Ibid.* p. 120.

she is warranted in accepting/rejecting the strongest proposition the speaker has put into play that she “reasonably has an opinion about”.¹⁴ Since Billy is warranted in accepting or rejecting (C) under the group reading in each of the above scenarios, she is warranted in asserting each of (Y) and (N).¹⁵

3. Both relativism and revisionary contextualism fit the KEYS data, but the latter is less revisionary, so revisionary contextualism is preferable to relativism.¹⁶

2. A Canonical Contextualist Account of Modal Expressions, and its Advantages

2.1 *Flexible Contextualism: The Account*

Modal expressions function semantically as quantifiers over possibilities. When a bare modal expression is used, its “flavor”, as bouletic, epistemic, or deontic, etc. is determined by a speaker S’s publicly manifestable intentions in a context of use. “Publicly manifestable” because we want the proposition expressed at a context of use to figure in an account of what’s said on that occasion of use and because we want what’s said to figure in an account of what’s communicated. In order for the proposition expressed to be capable of doing that, it will need to be something a normal audience can work out from the context, *i. e.*, it will need normally to be publicly manifestable to such an audience. So the intentions that determine parameter values (which determine how a quantifier’s domain is restricted) will need to be somewhat indirect, in the way Kaplan has suggested demonstratum determination

14. *Ibid.* p. 121.

15. For details, see their [forthcoming] pp. 122. Notice that the claim here is somewhat in tension with their objection to Billy’s having an affirmative response to (C) under a solipsistic reading in BASIC KEYS. Their discussion here suggests that Billy may well be in a position to affirm that the keys being in the car is compatible with what Alex knows.

16. *Ibid.*

is.¹⁷ I suggest that such an intention is *S*'s intention for an addressee to recognize some specific, salient feature of the context as manifesting her intention to let some property or set of properties determine a domain restriction or ranking in that context. *S*'s intention is publicly manifestable if a reasonable, normal addressee *A* could, without too much difficulty, work out roughly which domain-determining characteristic *S* intends on the basis of her appreciation of the intended, salient features of the context. This work that a context must do to manifest *S*'s intention to a reasonable addressee can be called the "Publicity Constraint" on contexts. As we'll see, some of the apparent puzzles for contextualism arise in contexts in which Publicity isn't met and so context can't do its usual work of manifesting to *A* the unique (up to vagueness) proposition *S* intends to express.¹⁸

Applying this general story to BEMs in particular, we get:

H1: The proposition expressed by the use of a BEM is determined by a contextually determined body of information.

H2: That information is determined by what's known by some group, where group knowledge is distributed knowledge; it's the set of possibilities you get by intersecting the sets of possibilities compatible with what's known by each member of contextually determined group *G*.¹⁹ (In the solipsistic case, the group will consist of the speaker alone.)

17. Kaplan [1989a] and [1989b].

18. To see how this account of BEMs may be extended to an account of deontic modals in a way that allows for plausible explanations of the puzzle cases involving the latter, see Dowell [forthcoming], [ms1], and [ms2].

19. Formally, $[[B]]^{i/g}$ at $\langle c, i \rangle = \bigcap_{x \in G} f_x(i)$, where $[[B]]^{i/g}$ is the denotation of the modal

base at c, i , a context-index pair, and $\bigcap_{x \in G} f_x(i)$, the set of possibilities compatible

with what x_i knows at i and...and with what x_n knows at i . (The value for g , when necessary, induces an ordering on the worlds in B .) (Here I follow von Fintel and Gillies [2011].) I here opt for this account of group-knowledge partly because it seems to get the cases right and partly just to have a concrete

H3: Which body of information is contextually relevant is determined by the speaker's publicly manifestable intention for her addressee to recognize some feature of the context as helping to manifest what she takes to determine a body of information in that context. (That is, it is determined by a speaker's intentions in contexts that satisfy the above Publicity Constraint.)

Call H1-H3 "flexible contextualism about BEMs". To solve BASIC KEYS, we'll need to add two methodological hypotheses:

H4: For a sincere speaker *S*'s assertion of a BEM to be semantically competent, *S* must believe the proposition our best semantic theory assigns to her BEM use.

H5: For a sincere speaker *S*'s assertion of a BEM to be epistemically warranted, *S* must be justified in believing the proposition our best semantic theory assigns to her BEM use.²⁰

proposal on the table so that the view can be tested. There may be other accounts of group knowledge that do just as well and perhaps even better. Nothing here hangs on the present choice.

20. My arguments below depend in part upon the distinction marked in H4 and H5, so some illustrations may help clarify it. Both of the following two cases exhibit a type of badness in asserting, but of clearly different kinds.

Case 1: Mabel asserts "Barack Obama is a Muslim." Wondering whether Mabel understands the meanings of the words she's used, we quiz her about her knowledge of Islam, noting that her answers display a keen familiarity with its central tenets. To ensure that she's talking about Barack Obama, we show her clear photographs of the US president and ask her to identify the man she's referring to. She is indeed referring to Obama. We then ask her again about Obama's religious commitments and she again asserts "Barack Obama is a Muslim." As evidence, she cites her "gut feeling" and claims that one can tell he is a Muslim "just from looking at him".

Case 2: You're eating with Mabel while she heartily consumes large quantities of what is clearly a meat-based sauce. She then says "I don't like gravy," offering as a reason that diseases caused by vitamin deficiencies are detrimental to one's long-term health. (This is a variant of a case from Macfarlane [2005].)

The challenge BASIC KEYS poses for the canon turns on the claim that there is a strong, widely shared intuition that Alex's assertion of (C) is warranted. The distinction between H₄ and H₅ will become important below, then, when we ask whether our intuition that Alex's assertion is fine is an intuition that Alex meets H₄, H₅, or both.

2.2 Some Advantages: Accommodating Flexibility and Objectivity

2.2.1 Flexibility

One advantage of the present account is its ability to explain the flexibility of epistemic modals, *i.e.* their ability to select the information of different kinds of group in different contexts. Here is Kratzer's example of a solipsistic case (call it MAN):²¹

Suppose a man is approaching both of us. You are standing over there. I am further away. I can only see the bare outlines of the man. In view of my evidence, the person approaching may be Fred. In view of your evidence, it cannot possibly be Fred, it must be Martin. If this is so, *my* utterance of [M] and *your* utterance of [U] are both true."

[M] "The person approaching might be Fred."

[U] "The person approaching cannot be Fred."

The first case exemplifies an epistemic failure; Mabel's assertion is irrational, but she is nonetheless best understood as expressing her belief in the proposition our best semantic theory assigns to her sentence. In contrast, in the second case, Mabel isn't best understood expressing belief in the proposition our best semantics assigns. In present terms, the first exhibits a failure of H₅, and the second, of H₄.

21. Kratzer [1986].

In contrast, some uses seem to require non-solipsistic readings. Here is an example from DeRose, modified by von Fintel and Gillies, that clearly requires the relevance of some larger group's knowledge (call it TEST):²²

John has had a screening test that can rule out cancer but will not determine that he has it if he does. After the test has been run and the doctors have the results, Jane can say things like:

[K] I don't know whether John might have cancer; only the doctors know. I'll find that out tomorrow when the results of the tests are revealed.

[K] here is clearly warranted. If so, then it can't just be the speaker's knowledge that's relevant for its assessment. (After all, Jane knows that it's compatible with what she knows that John has cancer. So *that* can't be what she doesn't know.)

H₃ allows the present account to easily explain both types of case. Since speakers' intentions are flexible, so is what determines a modal's base. In MAN, the first speaker (Kratzer) is best understood as intending to make a claim about what is possible in view of what she knows. She is relying here on salient features of the context (features that she reasonably assumes are salient to her addressee) to make plain that this is her intention (including that it is plain to everyone that the addressee is in a perceptually better vantage point).

In TEST, conversational salience manifests Jane's intention for "... John might have cancer" to get evaluated in a way that includes the knowledge of John's doctors. So Jane is best understood as intending a group reading that includes them. Given this, Jane is warranted in

22. von Fintel and Gillies [2011] p. 111.

asserting [K]; Jane doesn't know whether John's having cancer is compatible with what his doctors know, so she doesn't know whether it's compatible with what the group knows.²³

In both MAN and TEST, the speaker either clearly is or may be included in the contextually determined group. But not all cases are like this. Some BEMS require a speaker-exclusive reading. Here's an illustrative case (call it BUS):²⁴

Ann is planning a surprise party for Bill. Unfortunately, Chris has discovered the surprise and told Bill about it. Now Bill and Chris are having fun watching Ann try to set up the party without being discovered. Currently Ann is walking past Chris's apartment carrying a large supply of party hats. She sees a bus on which Bill frequently rides home, so she jumps into some nearby bushes to avoid being spotted. Bill, watching from Chris's window, is quite amused, but Chris is puzzled and asks Bill why Ann is hiding in the bushes. Bill says

[(B)] "I might be on that bus."

The supposition that Bill is in the contextually determined group won't make sense of the appropriateness of (B) in this context. Bill, after all, knows that he's not on the bus. Here too the flexibility of speaker's intentions allows the present account to explain this case. Given that Bill is offering an explanation of Ann's behavior, conversational

23. Notice that it's hard to see how a solipsistic relativist, according to whom the truth of a BEM is determined by just the information of the assessor, can make sense of TEST. At the context of utterance, the assessor is the speaker, so such a relativist incorrectly predicts that only Jane's information is relevant here. Since Jane knows that it is compatible with what she knows that John has cancer, she shouldn't then say that she doesn't know whether he might. Only if the relevant body of information includes that of the doctors can Jane say something true.

24. Egan *et al.* [2005].

salience makes it clear that he intends Ann alone to be in the relevant group: Ann is jumping into the bushes because it's compatible with what she knows that Bill is on the bus.

2.2.2 Objectivity

Other cases suggest that BEMS may be false, even when compatible with the information of what seems to be the contextually relevant group. What should the present proposal say about these cases? Here is an example from von Fintel and Gillies:²⁵

SCHMOLMES

Schmolmes is a detective who, unlike his more famous cousin, sometimes makes mistaken deductions. On the basis of one such deduction, he concludes,

(G) "the gardener might be the culprit."

Unfortunately for Schmolmes, his own interview notes conclusively rule out the gardener. Here, Schmolmes seems to have said something false.

Their elegant solution is to treat stores of information as eligible for inclusion in a domain-restricting body.²⁶ With this idea in hand, we get an explanation for why (G) can seem false. As the example makes

25. von Fintel and Gillies [2011] p. 112. Their example is similar to Hacking's famous ship case (Hacking [1967]). In light of examples like SCHMOLMES, Hacking and DeRose propose that BEMS get evaluated against not what some contextually determined group knows, but what is within their epistemic reach. Since Schmolmes's notes are within his epistemic reach, (G) comes out false. (See Hacking [1967], DeRose [1991]. "Epistemic reach" is Egan's [2007] nice phrasing.) As MacFarlane, and von Fintel and Gillies, independently note, though, the notion of "epistemic reach" is difficult to fill out in any determinate and plausible way. (MacFarlane [2011], von Fintel and Gillies [2011].) An advantage of the present proposal over DeRose's and Hacking's is that it explains these cases without relying on the notion of epistemic reach.

26. See von Fintel and Gillies [2011] p. 112, footnote 9.

clear, Schmolmes means to be drawing a conclusion from his notes. On the present account, this means that he is best understood as intending to include the information contained in them and this in turn explains why (G) can seem false.

Intuitions about this case aren't uniform, though. To the extent that you find nothing amiss with (G), that can be accommodated by present account by noting that Schmolmes's assertion is semantically competent and perhaps even to some extent warranted, even if what he has said is false.

3. Solution to KEYS

So far so good. But we haven't yet seen how the present account can handle the case that poses the greatest challenge to the canon. Notice first that though BASIC KEYS is to reflect a realistic usage of a BEM,²⁷ in actual cases speakers generally have a lot more information than we're given in their description of the scenario. Indeed, BASIC KEYS is described in such skeletal fashion that it can be unclear whether all intuitive reactions are responses to a single case or to different ones. In order to assess how the proposals do against our intuitions about cases, then, it will be helpful to fill them out a bit, so that we can be sure that our intuitions are being tested against the same case.

Recall that the von Fintel and Gillies objection to the group reading is that it makes Alex's assertion unwarranted. To pose a serious challenge to the canon, then, the case needs to be filled out in a way that generates a strong, widespread intuition that Alex's assertion *is* warranted. Some ways of filling out KEYS, though, clearly don't generate that intuition. As consideration of different ways of filling out that case shows, the crucial feature left open in the von Fintel and Gillies discussion is what Alex knows about where and how carefully Billy has searched prior to their conversation. Here, for example, is one way of filling out that feature of the case that clearly doesn't generate the intuition that Alex's assertion is warranted.

27. In [2011], von Fintel and Gillies call it "a realistic scenario".

KEYS 1

Alex is helping Billy search for her keys. Alex knows that Billy is a careful searcher and only asks for help after she has done a thorough search for the missing item. Billy admits that she is searching for her keys just after Alex sees her emerge from the garage where Alex knows the car to be located. Let's additionally assume that Alex isn't too tired or otherwise cognitively impaired to put these bits of information together. It isn't lost on her that the best assumption given the evidence is that Billy has already thoroughly searched the car — and is still looking for her keys. Suppose now Alex asserts

(C) "You might have left them in the car."

Does that seem fine to you? Her assertion doesn't seem warranted, does it? Notice that it doesn't matter whether we give (C) a solipsistic or a group reading here; either is unwarranted. Here is a clear case in which we don't get the intuition that drives the move to cloudy contextualism or relativism.

Contrast KEYS 1 with another way of filling out KEYS:

KEYS 2

As before, but Alex knows that Billy is quick to enlist aides when she has lost something. Alex has no reason to think that Billy has already checked the car — indeed, she has some reason to believe that Billy hasn't. Suppose, though, that Billy has in fact ruled out that her keys are in the car. And suppose now Alex asserts

(C) "You might have left them in the car."

Here, we think that Alex's assertion is warranted. But we still don't have a KEYS case that poses a problem for flexible contextualism, since Alex is warranted even if we give (C) a group reading because of her epistemic position at the time of her utterance with respect to what the group knows. At that time, she has reason to think that the keys' being in the car is compatible with what she + Billy together know. This is compatible with her claim's being nonetheless false.

So far, we don't have a filling out of BASIC KEYS that gives rise to intuitions flexible contextualism can't explain. What we need is a way of filling out the case that pits the solipsistic and group readings against one another in the right way. An important feature of any version of the case is that Alex is helping Billy search for her keys. Given the usual Gricean assumptions, Alex should assert the most informative thing she can, since it's information that Billy needs to find her keys. This feature of the case suggests that Alex is best understood as intending the group reading, since that would be more informative than asserting the solipsistic one. The most problematic KEYS case seems to be one in which Alex has no background information about Billy's searching habits, since this seems to undercut her ability to assert the more informative proposition. The strongest case for revisionists, then, is:

KEYS 3 or TOTAL IGNORANCE

Alex has no idea where Billy's keys are. For all she knows, they're in the car. She also has no information about whether or not Billy is a careful searcher and has no idea where Billy has already searched. For all Alex knows, Billy has already ruled out that the keys are in the car.²⁸ Suppose, trying to be helpful, Alex now asserts

(C) "You might have left them in the car"

28. This case seems closest to the one von Fintel and Gillies [2011] intend in BASIC KEYS and in the spirit of Swanson's example [2006].

or, to avoid the appearance that what Alex says isn't ok because accusatory, suppose instead she says to Billy

(C') "They might be in the car."²⁹

Does that seem fine to you? Intuitions here are less strong or uniform. To get clearer on the case, we might ask whether we think it better, worse, or the same for Alex to instead ask

(Q) "Could they be in the car?"

My own intuition is that, assuming that Alex is cooperative and that, for all she knows, Billy has ruled out that the keys are in the car, it's somewhat bad for her to assert (C) or (C'), when she could have asked (Q).³⁰

Perhaps you hear either (C) or (C') as fine, though. If you do, ask yourself: Is your intuition that Alex's assertion is appropriate an intuition that it's *warranted*? Certainly, what Alex has said is perfectly good English. And what she says is very natural. Unfortunately, it is perfectly good English, as well as natural and common, for speakers to find themselves asserting things they don't have particularly good grounds for. Once the distinction between H4 and H5 is marked, a straightforward explanation for the intuition that what Alex says is appropriate is that she is in just such a common situation.

Indeed, this explanation fits with the intuitions of the majority of those who've considered this case, having been reminded of the distinction between semantic competence and warrant and asked to

29. Thanks to an anonymous referee for this journal for noting this possibility.

30. This isn't to say that we generally require that reflective speakers say what is maximally appropriate. Here, though, it's reasonable to expect that Alex, since she's reflective, will attend to a feature of her general knowledge that the conversation makes quite salient, namely, that she has no information about where Billy has already searched.

compare the assertion to the question.³¹ Most report both that they find (C) unwarranted and that the question sounds better (a pair of responses that are not surprising, given that the question skirts the issue of warrant). These responses aren't what revisionists need, however. The difficulty for the group reading in BASIC KEYS, according to von Fintel and Gillies, is that 'our' intuition is that (C) is warranted.³²

Perhaps, though, you are among the minority who still find Alex's assertion warranted. So far I've been discussing the KEYS cases as if flexible contextualism were committed to a group reading in each of them. But it should be remembered that the proposal has a way of accommodating the flexibility of BEMs that allows it to generate alternative, solipsistic readings. In any of these cases, it may be that Alex thinks of her answer as merely speaking to the question of what is compatible with what she knows. If she does this, she is asserting a less informative proposition than she would be under the group reading, but the strongest proposition she is warranted in asserting, and so is cooperative in perhaps the best way she can be. We may then explain the sense that each of Billy's two available responses, (N) and (Y) are appropriate, by appealing to her (incorrectly, but naturally enough,) mistaking Alex's solipsistic assertion for the group one. The mistake itself can easily be explained again on Gricean grounds.

Where are we? We've seen that the most compelling case for revisions to the canon is TOTAL IGNORANCE. To warrant the conclusion that no version of the canonical view can be made to fit the data, revisionists need respondents to share a strong, uniform intuition that Alex's assertion is warranted. But once the distinction between the different ways an assertion can be appropriate is marked, respondents don't have a strong, uniform intuition that she is. Indeed, typically even those who hear her assertion as "fine" think the question, which

31. The sample here is the group of those who have read or heard earlier drafts of this paper (around one hundred and fifty people, mostly philosophers). For details, see acknowledgements.

32. This is also a key assumption in MacFarlane's arguments against Nonsolipsistic (*i. e.*, group) contextualism. See MacFarlane [2011].

skirts the question of warrant, sounds better. The most that may be concluded is that reactions to this case aren't uniform. Later I'll offer a canonical contextualist explanation for this lack of uniformity, a phenomenon any plausible account needs to explain. But for now, the important point is that these varying reactions do not add up to a compelling case against the canon.

We're not quite done with KEYS cases yet, though, as there is an additional type of case that's thought to motivate relativism, namely, the case of retractions. In these cases, a speaker initially asserts a BEM that she subsequently retracts in light of new information. First, I'll put such a case on the table and then explain why such cases are supposed to be bad news for contextualists.

KEYS 4

Imagine Billy giving a more forceful negative response to Alex than (N), above. Let's suppose that in reply to (C), Billy says,

(N') "No, they can't be in the car; I've already carefully checked it"

to which we imagine Alex responding,

(W) "Oh, I guess I was wrong, then."

Some relativists have argued that the difficulty for contextualists comes in explaining how a speaker's original assertion, (C), could be warranted, while her retraction, (W), could also be warranted. If the contextualist gives (C) a solipsistic reading, then Billy's new information doesn't give Alex any reason to retract. But if the contextualist gives (C) a group reading, then while Alex is right to retract, she's not warranted in asserting what she does in the first place. Relativism, in contrast, explains both: (C) is warranted relative to the context of

assessment Alex occupies when she asserts (C), but not relative to the context she occupies when she retracts. So both her original assertion and her retraction are warranted.³³

Gillies and von Fintel contest the retraction data. They argue that speakers neither always retract in such cases nor uniformly have the intuition that retraction is warranted.³⁴ I agree with von Fintel and Gillies here, but think more can be said in defense of contextualism, since there do seem to be cases in which both a speaker's original assertion and her retraction are warranted. So we still need a flexible, contextualist-friendly account of these cases.

If we imagine KEYS 4 as a continuation of KEYS 2, we'll have just such a case, but one that flexible contextualism easily explains. As before, given that Alex asserts (C) as a part of a joint project of locating Billy's keys, H1–H3, together with the usual Gricean considerations, predicts that she is best understood as intending the Alex+Billy reading of her assertion. Here Alex's original assertion, (C), is warranted because she has every reason to think that Billy hasn't yet ruled out that the keys are in the car. Since Alex knows that she hasn't ruled that out either, she has reason to believe that the keys' being in the car is compatible with what they both know. So her assertion is warranted. In KEYS 2, though, it turns out that Billy has in fact already ruled out that the keys are in the car. So though Alex was reasonable to assert (C), what she said was nonetheless false. Billy's response allows her to see this and she rightly retracts her earlier claim.

What about the other KEYS cases? I've argued that in KEYS 1 and KEYS 3, Alex's asserting (C) is not clearly warranted. If that's right, then these cases cannot be filled out in a relativist-friendly, apparently contextualist-unfriendly way, since to be problematic for the contextualist, a case must involve both a clearly warranted assertion and a clearly warranted retraction.

33. See MacFarlane [2011].

34. von Fintel and Gillies [2008].

Finally, what about a case in which, instead of retracting, the speaker sticks to her guns? Here's the von Fintel and Gillies example (call it KEYS 5):³⁵

Alex: "The keys might be in the car."

Billy: "They're not. I still had them when we came into the house. Why did you say that?"

Alex: "Look, I didn't say they were in the car. I said they *might* be there — and they might have been. Sheesh."

Alex's final assertion seems entirely appropriate. The role that speaker's intentions play on the present proposal makes a solipsistic reading available in cases such as KEYS 5. It's true that, as in the previous KEYS cases, Billy is reasonable to take Alex to intend the group reading, since it's reasonable for her to assume that Alex is being cooperative and aiming to say the most informative thing she can. In her reply in KEYS 5, Alex is presenting herself as having intended a solipsistic reading in her original assertion. There are a variety of reasons why she might do this. She might do this because, although it would have been more practically useful to intend the group reading were she in a position to assert it, she wasn't in such a position and so retreated to the weaker claim. A second possibility is that Alex did intend a group-reading in her original assertion, but retreated to a solipsistic reading in defending herself against Billy's reply. In so doing, her reply to Billy is either insincere or self-deceived, but still "appropriate" in the sense of not displaying semantic incompetence. Instead, Alex displays her ability to exploit the deference commonly accorded to speakers on questions of what they've said.

Finally, what explains the lack of uniformity in our intuitions about cases like TOTAL IGNORANCE? One plausible explanation is the failure of the Publicity Constraint. Publicity requires that context works to manifest a speaker's domain-determining intentions. In contexts like TOTAL IGNORANCE, speaker and addressee have little information

35. von Fintel and Gillies [2011], p. 123.

about each other and about what each other knows. On the one hand, charity supports a group reading for (C), on the grounds that it would be maximally informative and so maximally helpful to Billy. On the other, charity supports a solipsistic reading, on the grounds that Alex is in a better position to assert it. Speakers' intuitions aren't uniform because it's unclear *what* Alex has said; different readings generate different intuitions. In this way, the present account explains just such a lack of uniformity.

4. Other Challenge Cases: Disputes and Eavesdroppers

There are two additional kinds of case that relativists have argued can't be accounted for by any plausible contextualist view. In each, they argue, there is pressure to expand the group of individuals whose knowledge is relevant for determining the truth of some BEM. This expansion should make warrantably asserting such BEMs difficult. But it isn't. That relativism can explain this and contextualism can't constitutes important grounds for preferring relativist theories to any contextualist one.

As we'll see, here too the Publicity Constraint has an important role to play in showing how such cases can be explained within a canonical contextualist framework.

4.1 Disputes

John MacFarlane argues that contextualism makes it impossible or nearly impossible to warrantably assert a BEM in an apparent dispute between individuals who aren't part of the same conversation. Here is his illustration:³⁶

Suppose two research groups are investigating whether a certain species of snail can be found in Hawaii. Neither group knows of the other's existence. One day they end up at the same bar. The first group overhears members of the second group arguing about whether it is "possible"

36. MacFarlane [2011], p. 152.

that the snails exist on the big island, and they join the discussion. Although the two groups have different bodies of evidence, it does not intuitively seem that they are talking past each other when they argue. Nor does it seem that the topic changes when the first group joins the discussion (from what is ruled out by the second group's evidence to what is ruled out by both groups' evidence). To accommodate these intuitions, the ... [Group] Contextualist will have to take all the possibility claims made by both groups to concern what is ruled out by the collective evidence of everyone who is investigating the question (known or unknown) — for any of these investigators could show up at the bar, in principle.

Since MacFarlane's discussion ends there, presumably the final sentence is meant as a kind of *reductio* of group contextualism. But the flexible contextualism defended here has no problem making sense of cases of this kind. Suppose the case is like this:

SNAIL

The members of Research Team I overhear the lead investigator from Research Team II assert,

(I) "It's possible that the snails are on the big island."

Suppose, moreover, that when the lead investigator speaks, she intends to include in the relevant group anyone currently engaged in the kind of inquiry she and her mates are currently engaged in. She has a reasonable but mistaken assumption about who is in this group; she thinks that everyone in this group is a member of Research Team II. In light of this (and assuming that the snails' being on the big island is compatible with what Research Team II knows) what she says is warranted. Nonetheless, it will be false if the snails' being on the

big island is incompatible with what Research Team I and II together know. Moreover, given her intentions and corresponding intentions on the part of the members of Research Team I when they reject her assertion, it's straightforward to see how it could be that the members of the two groups are engaged in a dispute, compatible with the lead investigator of Research Team II being warranted in asserting what she does.

4.2 EAVESDROPPERS

Eavesdropper cases are thought to help motivate relativism in a similar way. According to relativists, eavesdroppers are able to make warranted, true, and apparently contrary, third-party assessments of BEMs asserted in conversations to which they are not a party. Here's an example from Egan [2007] – call it:³⁷ EAVESDROPPERS 1

James Bond has just returned to London after a long day of infiltrating SPECTRE's secret base in the Swiss Alps, planting a bug in the main conference room and slipping out by night after leaving persuasive but misleading evidence of his presence in Zurich. ...while monitoring the newly place bug, Bond and his CIA colleague Felix Leiter overhear a conversation between Blofeld and his second in command, Number 2.

After Number 2 has discovered the misleading evidence, Bond and Leiter overhear him say to Blofeld:

(ZURICH) "Bond might be in Zurich."

Upon hearing (ZURICH), Leiter turns to Bond and says:

(L) "That's false."

37. Egan [2007], p. 2. Most of this case is quoted directly from Egan.

According to the relativists, we should have the intuitions that (ZURICH) and (L) are both warranted and that Number 2 and Leiter are disagreeing about a common content. They then argue that no contextualist proposal is able to accommodate all of these intuitions. The only way to accommodate them is to allow that a common proposition can be true as assessed from one context and false from another.³⁸

Elsewhere, von Fintel and Gillies point out that when a speaker says "that's false" in response to a BEM containing 'might' or 'must', it's available to the contextualist to interpret the speaker as rejecting the prejacent rather than the modalized claim itself.³⁹ MacFarlane accepts the ambiguity of "that's false", but offers a second test to distinguish between the two readings. His test involves treating ourselves as eavesdroppers or third-party evaluators of the speakers in cases like EAVESDROPPER 1 and 2.⁴⁰ Instead of asking us to assess assertions like ZURICH simply by registering our inclination to use the ambiguous "that's false", MacFarlane asks us instead to register our inclination to say that Number 2 spoke falsely. To say that Number 2 spoke falsely is to reject his entire claim, not merely the prejacent. So, if we are inclined to say that Number 2 spoke falsely, then we have forced a relativist-friendly reading of the case.⁴¹

One drawback of this test is that "so-and-so spoke falsely" is not a phrase commonly used in English and so may strike some as sounding odd for wholly independent reasons. A better test would be to ask respondents whether it sounds acceptable for a better-informed eavesdropper (*e.g.* Leiter) to say "what so-and-so (*e.g.* Number 2) said is false". Here intuitions are much-less relativist friendly. Even those who find it acceptable for Leiter to say "that's false" are much less likely to find it acceptable for him to say "what Number 2 said is false". These

38. See Egan [2007]; MacFarlane [2011].

39. von Fintel and Gillies [2008] pp. 81–83.

40. MacFarlane [2011] p. 147.

41. *Ibid.*

weaker intuitions are a very slight basis on which to rest a case against the canon. (Here too, any plausible theory needs an explanation for why intuitions conflict. I'll come back to this, below.)

A second kind of eavesdropper case is perhaps less easily explained. BEMS that involve comparative modals don't have prejacent. So it's not available to the contextualist to interpret the eavesdropper's "that's false" as a denial of the prejacent.

EAVESDROPPER 2

Suppose that after finding the misleading evidence, Number 2 says to Blofeld:

(ZP) "Bond's more likely in Zurich than in Paris."

Overhearing him, Leiter says to Miss Money Penny:

(PZ) "That's false. He's more likely in Paris."

Intuitions about whether (PZ) sounds fine aren't uniform. Not all hear (PZ) as fine and, interestingly, some of those that do hear it as fine, don't hear

(PZ') "What Number 2 said is false. He's more likely in Paris"

as fine. That itself is in need of explanation. A plausible account of modals should explain how someone is hearing (PZ) when it sounds fine, how someone is hearing it when it doesn't, why both readings can seem available, and why (PZ') can sound bad even when (PZ) doesn't. How might flexible contextualism explain why speakers' intuitions exhibit this conflicted pattern?⁴²

42. I owe both this objection and the example to Sarah Moss (pc).

The answer here too is that the case is underdescribed and whether or not (PZ) has an acceptable reading depends on how it's filled out. There are several ways to fill it out and make (ZP) and (PZ) both sound fine, but none that results in a case that flexible contextualism can't explain. To see this, first recall that in Kratzer's framework, comparative modals require ordering sources. According to Kratzer, the ordering source for epistemic modals is stereotypical; the worlds in their bases are ranked with respect to their "normality", *i. e.*, their likeness to the "normal course of events".⁴³ So, *very* roughly speaking, (ZP) is true or false depending upon whether more of the most normal worlds in the modal base are worlds in which Bond is in Zurich or in Paris.⁴⁴ The question here is: Which body of information, determined by the context of use, restricts each of their modal bases when (ZP) and (PZ) both sound fine and when (PZ) doesn't?

There are two contextualist-friendly interpretations of (ZP) here — indeed, as we'll see, it's important that there are two. On the present account, which interpretation is correct depends upon the speaker's publicly manifestable intentions. First, in asserting (ZP) Number 2 may intend for the modal base to be determined by what's compatible with what he (or he together with Blofeld) know. A second possibility is that in asserting (ZP) Number 2 intends for the restriction to be determined by what's compatible with what everyone currently engaged in his inquiry is engaged in, where being engaged in that inquiry involves addressing the question Number 2 is answering.⁴⁵

43. Kratzer [1991] p. 644. See also her [Ms].

44. A more precise statement takes into account the complication that there are an infinite number of worlds in even restricted modal bases. For details, see Kratzer [1991].

45. This is not, of course, an intention to include anyone who has ever wondered about the comparative likelihood of Bond's being in Zurich versus Paris. "Current" restricts the relevant individuals to those wondering at around the time of Number 2's utterance, while "his inquiry" restricts them to those responding to the token question *he* has implicitly posed.

In normal cases the difference between these two readings is unimportant; typically, the only people interested in answering a question posed in a particular conversation are that conversation's participants. The difference between them becomes important only in unusual cases, such as eavesdropper cases and disputes like *SNAIL*, in which the two groups may have different memberships. Because of this, eavesdroppers can be mistaken about what a speaker said. So, in *EAVESDROPPER 2*, there are at least two ways that Leiter can be understood to be assessing each of the resulting two possible propositions expressed by (ZP), depending upon whether Leiter correctly appreciates which proposition Number 2 intends to express. Suppose that Number 2 in fact intends to speak only to the question of which is more likely, given what he and Blofeld together know. First, Leiter could correctly appreciate that this is the proposition which Number 2 aims to express. Leiter would then be asserting that that proposition is false; given what Blofeld and Number 2 know, it is not more likely that Bond is in Zurich. In a case like this, both Leiter and Number 2 may have said something semantically competent, but only one of them can have said something true (and likely only one of them has said something warranted).

A second possibility is that although Number 2 intends to speak to the question of which is more likely, given what he and Blofeld together know, Leiter misunderstands Number 2 to be speaking to the question of which is more likely, given what is known by all currently engaged in his inquiry. In that case, Number 2's assertion may be warranted and true, depending upon which is more likely, given what he and Blofeld know. Assuming that Leiter's interpretation of Number 2's use of (ZP) is reasonable, his asserting (PZ) may also be in some sense warranted, so long as Leiter is right that, given what he knows together with what Number 2 and Blofeld know, Bond is not more likely in Zurich than in Paris. In other words, it may be reasonable for Leiter to believe the proposition he thinks he has asserted and reasonable for him to believe that he has asserted that very proposition, though in fact, he has not. In this case, Leiter is wrong about

which proposition's truth he's rejecting when he says "that's false". So, if what Number 2 has said is true, what Leiter has said with "that's false" is false.

Those are two ways of filling out the contexts in which (ZP) and (PZ) are uttered such that the use of each is fine, at least in the way that matters most to semantics, namely, semantic competence. There are two more ways they can be filled out, on the supposition that Number 2 intends to be speaking to the question of which is more likely, given what's known by all those currently engaged in his inquiry. Number 2 believes that there are only two such individuals, himself and Blofeld. But he is wrong about this; Leiter and Miss Money Penny are eavesdroppers engaged in the same inquiry. Here Number 2 may have said something warranted, assuming that he is warranted in supposing that he and Blofeld are the only ones currently engaged in his inquiry. But if adding what Leiter and Miss Money Penny know makes it more likely that Bond is in Paris than Zurich, what Number 2 has said is nonetheless false.

We again get two ways of interpreting (PZ), depending upon whether Leiter correctly understands what Number 2 has said. Suppose that Leiter is correct about what Number 2 has said. Then what Leiter has said with (PZ) may be warranted and even true, depending on what all of them together know. Or suppose instead that Leiter is mistaken about what Number 2 said; he thinks Number 2 is merely speaking to the question of what Number 2 and Blofeld together know. Here Leiter's use of (PZ) at least manifests his semantic competence and his asserting may even be in some sense warranted, if he is warranted in supposing what he does about what Number 2 has said and about what's likely given what Number 2 and Blofeld together know. (For this to be an unsurprising stand for Leiter to take, the case would have to be filled out in the right way. Perhaps Leiter is thinking that Number 2 is in a position like Schmolmes's, above.)

What's important is that all of these ways of understanding what is going on in *EAVESDROPPERS 2* are compatible with flexible contextualism. Equally important is that it has an explanation for why

intuitions about both eavesdropper cases are split: Number 2's context in neither case satisfies the Publicity Constraint, *i. e.*, neither context manifests which of two importantly different domain-determining intentions he has, and this leaves Leiter with two different possible propositions to take up or reject. This, in turn, leaves Leiter in a context in which his domain-determining intentions are not fully manifest to us; we may understand his intention as determining different domains, depending upon which proposition we understand him to be assessing. When we hear Leiter as intending to reject the proposition which Number 2 is perhaps most naturally understood as intending to express — one that is restricted only by the information he, Number 2, and Blofeld together have — we hear Leiter's assertion as odd. (Unless there is some reason for Leiter to regard Number 2 as having made a mistaken calculation, as Schmolmes does, it would be surprising for Leiter to think himself in a better position to assess *that* proposition.) But when we hear Leiter as intending to reject a proposition whose truth partly rests on what he knows, then we no longer hear his assertion as odd. In that case, we may think that Number 2 has made a reasonable assumption about whose knowledge restricts his modal's base, but one that's false, given that Leiter knows more and is eavesdropping on his deliberations with Blofeld.

So why do some who think (PZ) sounds fine think (PZ') doesn't? One conjecture is that in uttering the latter Leiter is making explicit that he is assessing what Number Two said, and not merely rejecting the proposition he, Leiter, would have expressed had he used the same sentence in his context. The explanation for why that sounds odd would then be the same as why (PZ) itself sounds odd to some.

5. Challenges to Relativism

Here too we'll see that Publicity has an important role to play in providing a flexible contextualist explanation of our intuitions.

5.1 Limits on Hindsight Evaluations

What about cases that pose challenges to relativism? Gillies and von Fintel point out that there are limits to the appropriateness of a more knowledgeable assessor's rejection of an earlier BEM-claim. Their cases involve large time-gaps, assessments of BEMs years after their utterance. More awkward for relativists are cases that involve much smaller time lags, since these look so like the retraction cases, such as KEYS 4, that are supposed to motivate revisions to the canon in the first place. Here is a modification of one such case that MacFarlane himself considers:

LOTTERY

The day before the lottery's drawing you ask me

(B) "Why did you buy that ticket?"

to which it is fine for me to reply

(G) "I might win."

Imagine now an equally natural exchange the following day, after another ticket was drawn and mine has lost.

You: (B') "Why did you buy that ticket? You didn't win!"

Me: (G') "True, but I might have won."

In contrast, the following exchange sounds odd:

You: (B'') "Why did you buy that ticket yesterday? You didn't win!"

Me: (G'') ?? "You're right. What I said yesterday was false."

Moreover, that the evaluation is first-personal doesn't seem to matter: Imagine the exchange the day before the drawing as before. Now imagine that the day after I lose you say,

(B''') ?? "Why did you buy that ticket yesterday? You didn't win! So, what you said yesterday is false."

If solipsistic relativism (the view that the information that determines the truth of a BEM is the assessor's) were right, both of these odd-sounding replies should be fine and the fine reply (G'), odd. What explains this pattern? Before offering a hypothesis, let me put another case on the table.⁴⁶

ICE CREAM

Emma is having a late-night hankering for something sweet. She says to her roommate, Alex,

(F) "Hey, I'm going into the kitchen to check the fridge! There might be some ice cream there!"

After Emma checks and sees there's no ice cream, it's fine for her to say

(I) "Oh, well. Still, it's a good thing I checked. After all, there might have been ice cream."

In contrast, it would sound odd for Number 2, who has eaten the last of the ice cream, listening in on the wiretap to say

(D) ?? "What Emma said is false!"

46. ICE CREAM is a modification of an example from von Fintel and Gillies [2008] p. 87.

The pattern here is similar to LOTTERY. One commonality is that the modals in each case figure in explanations of forthcoming and past actions. A possible explanation of this pattern would be that it feels odd to criticize someone's modal claim when it figures in an action explanation and (speaking as a contextualist) it's true relative to the best information an agent could be expected to have, prior to her action. We find something similar in BUS, where intuitions are also clear and uniform. This isn't surprising. Contexts in which a speaker is offering a BEM as an explanation of her action, or in which another person offers one as an explanation for another's, force us to hear the relevant body of information narrowly; after all, an actor can't be intending to act on information that is beyond her powers to possess. In contrast to cases like KEYS 3 and EAVESDROPPER 1 and 2, here context satisfies Publicity and so helps manifest the modal restriction the speaker intends.

It's easy to test this hypothesis with an eavesdropper case.

HENCHMEN 1

Imagine that Number 2 and Blofeld have thoroughly investigated Bond's likely whereabouts. Unfortunately, some of their evidence Bond has planted to mislead them. After careful deliberation, Blofeld says,

(H) "It's settled then; Bond might be in Zurich, so we'll send our henchmen there."

It now seems awkward for Leiter to say to Bond,

(L) ?? "That's false."

and more awkward to say

(L') ?? "What Blofeld said is false."

This provides some support for the conjecture above, that the reason for split intuitions in EAVESDROPPER 1 and 2 is the failure of Publicity, *i.e.*, the inability of context to distinguish between two different intentions the speaker might have. Here we can't hear Blofeld as having an intention that includes Leiter's information, since he can't be plausibly understood to be intending to include information beyond his reach as a basis for his action.

Is there some other explanation for the oddness available here, though? Maybe. But notice that it can't simply be the oddness of rejecting a claim that concludes, "...so we'll send our henchmen there". To see this, imagine instead that Blofeld had said,

(H') "It's settled then; Bond is in Zurich, so we'll send our henchmen there."

Here it sounds fine for Leiter to say either

(L) "That's false."

or

(L') "What Blofeld said is false."

The oddness, then, seems to rest on Leiter's rejection, not of the pre-jacent, but of Blofeld's modal claim.

Solipsistic relativism gets all of these cases wrong. To handle them, a relativist will need to "go flexible", *i.e.*, to allow contexts of assessment to make the bodies of information of differing groups available. But then he will, like the flexible contextualist, owe a story about how different contexts of assessment are able to select the different bodies intuitively needed to get all the cases right. Without such an account, flexible relativism is ad hoc in just the way that some critics argue that earlier contextualist proposals, such as DeRose's, are.⁴⁷

47. Egan, Hawthorne, and Weatherston [2005].

5.2.1 Factives and Attitude-attributions

Other challenge cases for relativists involve presupposition-accommodation involving factives. Here is an example from von Fintel and Gillies.

HENCHMEN 2

Neither Number 2 nor Blofeld has yet found the misleading evidence that Bond has planted. Listening into their conversation in London, it's perfectly appropriate for Leiter to say to Bond:

(E) "If Blofeld realizes you might be in Zurich, you can breathe easy—he'll send his henchman to Zurich to find you."

And it's perfectly appropriate for Bond to reply:

(T) "That's true."

The standard view is that presuppositions triggered in conditional antecedents are carried by the whole conditional. And factives, like 'realize', presuppose the truth of their complements. So (E) presupposes that Bond might be in Zurich. But Leiter knows that Bond isn't in Zurich. So by the solipsistic relativist's lights, he shouldn't be able to say something appropriate with (E); instead, we should have a case of presupposition failure. Likewise, since Bond knows that he's not in Zurich, his reply (T) shouldn't be appropriate. But it is.⁴⁸ Here too we find some pressure towards flexible relativism.⁴⁹

48. von Fintel and Gillies [2008].

49. For an initial statement of such a view, see MacFarlane [2011]. Though von Fintel and Gillies offer this case to illustrate a problem for relativists, it's not clear how their own proposal can explain it since it's unclear what makes a reading of a BEM "available" on their view. If the only available readings for the BEM in the antecedent in (E) are Bond-, Leiter-, and Bond and Leiter-readings,

To see how flexible contextualism can explain this case, consider first an attitude-attribution that doesn't contain a factive. Imagine instead of saying, "that's false", Leiter instead says:

(Z) "Oh, good. Number 2 believes that you might be in Zurich."

To which Bond can reply:

(T) "That's true."

Here both the speaker and addressee regard the prejacent of the might-claim as false. But that's OK. In attributing a belief to someone, we are trying to characterize the addressee's state of mind. So we should expect that when the attribution takes widest scope, which proposition the complement *might* ϕ has as its content is often determined at least in part by the addressee's information. The assumption here is that, in the default case, one's own modal beliefs are beliefs about what's compatible with what one or one's group knows. Given the connection between one's beliefs and actions, together with the observations that arose in considering LOTTERY and ICE CREAM, this shouldn't be surprising. Leiter is then saying (and Bond is affirming) something like:

(Z') "Oh, good. Number 2 believes that it's compatible with what he/his group⁵⁰ knows that you are in Zurich."

then their proposal also predicts a case of presupposition failure, saddling them with the same problem they saddled solipsistic relativists with. If Blofeld-, Number 2-, and Blofeld and Number 2-readings are also available, then Leiter is warranted in asserting (E), but, unless every reading that includes either Leiter or Bond is excluded, Bond won't be warranted in accepting what Leiter says or, if he is, it won't be by satisfying the only sufficient condition on warrant that von Fintel and Gillies identify. So von Fintel and Gillies either need a way of excluding that reading or they need a different norm of confirmation/denial to handle cases like this one. See von Fintel and Gillies [2011] p. 121.

50. Whether "You might be in Zurich" gets its content determined by what Number 2 knows or by what's known by some group that includes him is determined by Leiter's intentions in asserting (Z').

Notice that the complement of this belief-attribution is one that both Leiter and Bond can regard as true. This is what we get in the case of a factive such as 'realizes'. Here the content of complement must be such that both addressee and attributor regard it as true. Imagine instead that Leiter says to Bond:

(R) "Oh, good. Number 2 realizes you might be in Zurich"

to which Bond can reply:

(T) "That's true."

Here we can understand Leiter as asserting something like (Z') with the presupposition that the complement clause is true. And given that he has just overheard the Blofeld-Number 2 discussion of the misleading evidence, he is fully warranted in making such a presupposition. And so is Bond.

So what about (E)? Here Bond and Leiter know that Blofeld and Number 2 haven't yet found the misleading evidence. Leiter is then best understood as making a claim about what will be the case if they do. If they do, then they will come to believe that Bond's being in Zurich is compatible with what they know. And if they do, Leiter is happy to presuppose the truth of the complement of that belief attribution. Given this, it's appropriate for Leiter to presuppose the truth of the complement in (E)'s antecedent. And it is appropriate for Bond to accommodate that presupposition in his reply.

5.2.2 Attitude-reports: A Complication

There's a complication here. As Tamina Stephenson has observed, when BEMS serve as complements in attitude-attributions, the addressee's information is almost always contained in the body relevant for their evaluation.⁵¹ This data might seem a bit awkward for a contextualist. After all, if context serves to determine the domain of quantification

51. For a discussion of this data, see Stephenson [2007] p. 498.

for BEMS, shouldn't there be *some* contexts in which attributees aren't included in the relevant group?⁵² Actually, this data is awkward for all three views under discussion. Relativists will need an explanation for why contexts of assessment typically make available an attributee's information when her context of assessment differs from an attributor's, while cloudy contextualists will need to explain why propositions that exclude the attributee's information are at least typically not among those available.

Here I'll argue that there is at least one class of cases in which the context of utterance does exclude an attributee's information. But such cases aren't easy to find and we need a contextualist-friendly explanation for why that's so. Fortunately, Publicity makes the beginnings of such an explanation not hard to find. Publicity requires that contexts work to manifest a speaker's domain-determining intention. There's no reason to think that, for any intention a speaker may have, any old context can be made to manifest it. What are needed are explanations for why contexts typically force attributee-inclusive readings and for what's going on in contexts that manage to force exclusive readings.

Before seeing how the present account can explain this general limitation on the role of context, notice that there's no difficulty getting an attributee-exclusive reading by using an explicit restrictor phrase. Suppose that in conversation, Leiter informs Miss Money Penny that Blofeld and Number 2 are after Bond. Alarmed, she cries

"How can you remain so calm?! Blofeld and Number 2 are dangerous men!"

To which Leiter replies,

"Don't worry. For all they know, Bond might be in Zurich."

Later, Miss Money Penny reports this to Bond's boss, explaining that there's no need to worry about Bond's safety since, as she says,

52. Thanks to Francois Recanati for discussion here.

A Flexible Contextualist Account of Epistemic Modals

(P) "Leiter believes that, for all they know, Bond might be in Zurich."

Here (P) seems fine. The difficulty only arises when that restrictor phrase gets left out. Compare (P) to

(NP) "Leiter believes that Bond might be in Zurich."

Even with the context supplied, (NP) doesn't seem to say what (P) says. Adding a few additional, uncontroversial observations explains how Publicity typically fails when the complement is a BEM.

Two observations help explain why this is so. First, as MacFarlane has noted, it seems at least often true that a speaker is warranted in asserting an unembedded BEM on the basis of her own information.⁵³ The most obvious explanation for this is that the speaker's information is typically included in the domain-determining body. A second observation is that some, flexibly context-sensitive expressions get their denotations determined parasitically. For example, someone may indirectly report another's speech using 'nearby' and pick up on a location near the speaker, not the reporter. Belief reports can work similarly. If Ann says, "Naomi went to a nearby beach," Maya may attribute to Ann a belief in the proposition her assertion expressed simply by saying, "Ann believes that Naomi went to a nearby beach."⁵⁴

Putting these together yields a natural, flexibly contextualist story for how the BEM complements of belief reports are typically attributee-inclusive; if speakers' unembedded BEM assertions are typically speaker-inclusive, then belief reports will parasitically pick up on that inclusion, making the reports typically attributee-inclusive.

That explains *how* belief reports are typically attributee-inclusive, but not *why*. The above suggests that an explanation for why should begin with an explanation for why unembedded BEMS are typically

53. MacFarlane [2011] and *pc*. This is at least true when the speaker is in a context in which it's likely that she is as well informed as anyone else present.

54. Cappelen and Hawthorne [2009].

speaker-inclusive. Fortunately, there's a plausible explanation that builds on the proposed explanation for BUS, LOTTERY, ICE CREAM, and HENCHMEN 1, above. There I noted that all four cases involve action explanations. Contexts in which a speaker is offering a BEM as an explanation of her own action or another's force us to hear the relevant body of information narrowly; after all, an actor can't be intending to act on information she doesn't possess.

Not all BEMS are offered as action explanations. Nonetheless, an agent's beliefs are typically *available* to figure in explanations of her actions. Given this, and that her own information serves as the basis for her beliefs, it wouldn't be surprising if the epistemic possibilities of primary interest to a practically deliberating agent were those compatible with a body of information that includes her own. It's certainly possible for someone to have beliefs about which possibilities are compatible with information that excludes their own. (Consider Leiter, above.) But without adding other beliefs that don't have such contents, it's hard for such beliefs to serve as bases for rational action.⁵⁵ (Quick test: Imagine that someone asks you why you are going to your chair's office and you reply, "because she might be there and I'm looking for her". Now try to imagine under what circumstances your own information about her location is irrelevant to whatever you've said with "she might be there". If that really is your explanation for why you're headed that way, I think you'll find that it's pretty hard to find any.)

55. Leiter's belief about what's compatible with Blofeld's and No. 2's information may, together with a belief about how they are likely to act on the basis of that compatibility, allow him to draw practical conclusions, *e.g.*, about where to send Bond. But it's hard to see how just the belief about what's compatible with Blofeld's and No. 2's information (together with any of Leiter's desires) could allow him to draw any practical conclusions. Notice also that the practical conclusions he is able to draw rest on further beliefs about which practical conclusions Blofeld and No. 2 are likely to draw, on the basis of the compatibility. The present hypothesis explains both: beliefs about what's epistemically possible that are of greatest interest to an agent from a practical point of view are those that are compatible with a body of information that includes her own.

So the BEM belief contents that are most useful to practically deliberating agents are those determined by bodies of information that include their own. Given this, the connection between assertion and belief, and accepting something like Kripke's weak disquotational principle, gets us an expectation that belief ascriptions with BEM complements will generally include the attributee's information.

So finding a case in which an attributee's information is excluded is difficult. But not impossible. As already noted, BEMS that figure in action explanations can serve to make an actor's knowledge conversationally salient. So we might expect that cases in which we're explaining another's action by appeal to what's possible, given their information, when those possibilities must be different from what's compatible with our own, will be cases in which a speaker may be able to publicly manifest a speaker-exclusive intention that an attributor may pick up parasitically to manifest an attributee-exclusive body of information. Such cases aren't common, but here's one:

TREASURE HUNT

Suppose I have devised a treasure hunt for a group of children I know well. I've told the children that the treasure is hidden somewhere on the house's grounds. In fact, I've hidden it in the attic. You know that I've hidden it in the attic, but, like me, don't know where the children have already looked, only that they haven't found it yet. Not knowing the children as I do, you wonder whether they will think to check the garden. I reply:

(X) "If the treasure might be in the garden, they'll check there."

(X)'s antecedent can't have the same content as "For all I know, the treasure is in the garden" or "For all I and the children together know, the treasure is in the garden." Unless I'm guiding them, it's not my information but only that of the children that's relevant for predicting the conditions under which they can be expected to check there. (The conditions implicitly appealed to are that the children are such that if the treasure's being in the garden is compatible with what they know, they will notice this, and they will treat this as sufficient reason to check. The conditions, in this context, can't be: The children are such that if the treasure's being in the garden is compatible with what I or I and they together know, they will notice this and they will treat this as sufficient reason to check. After all, they know that I know where the treasure is, so, noticing that would be tantamount to noticing that the treasure is in the garden and that could not explain their checking to see whether it is.)

Given this, (X) is best read as having the same content as

(X') "If, for all they know, the treasure might be in the garden, the children will check there."

So far so good, but we still need an attitude attribution. Here's one. Suppose that as I wander off, a neighbor, Lila, joins you in watching the hunt. Lila also doesn't know the children well and wonders whether they will think to look in the garden. You reply,

(BX) "Well, Jan knows the children well and she thinks that if the treasure might be in the garden, they'll check there."

The second conjunct of (BX) attributes to me belief in the proposition I expressed with (X). Since, plausibly, (X) and (X') express the same proposition, the belief attributed to me in (BX) has the same

propositional object as that expressed by (X'). If so, then we have a case of a belief-attribution where the content of BEM complement is not determined relative to the attributee's information.⁵⁶

5.3 Assessor Knows More than Speaker

What about another kind of problem case for solipsistic relativists, cases in which a BEM's assessor knows more than the speaker? Here's an example from von Fintel and Gillies.

MASTERMIND

Mordecai and Pascal are playing Mastermind. Mordecai has started giving Pascal hints. Pascal says:

"There might be two reds."

to which Mordecai replies

(D) "That's right. There might be."⁵⁷

56. We can represent the content of the complement of the second conjunct of (BX) more precisely with the help of Kratzer's account of conditionals and their interaction with modal expressions. On Kratzer's account, the antecedents of conditionals serve to restrict the domain of an implicitly modalized consequent. The conditional is complicated, because the antecedent itself contains a modal expression. On Kratzer's account, modal base determiners are either bodies of information or sets of circumstances. As I most naturally hear the complement in (BX), the base for the implicit modal in the consequent is circumstantial. This means that the whole conditional, as I hear it, has the same content as "In every world w' in which the circumstances are the same as those in the context of utterance in the actual world w (e.g., the children are searching for the treasure, etc.) and in which it is compatible with what they know in that (w') world that the treasure is in the garden, the children will look in the garden." The important point is that what restricts the base for 'might' is neither my knowledge plus the children's nor mine alone, but simply the children's.

57. von Fintel and Gillies [2008] p. 90.

Solipsistic relativism conflicts with our intuition that (D) is fine here. Mordecai knows the number of reds he's hidden. If he knows that there aren't two reds, then (D) is false at his point of assessment. If he knows that there are, then (D) violates Grice's maxim of quantity.⁵⁸ Either way, solipsistic relativism seems to predict that there should be something wrong with (D).⁵⁹

The present proposal, in contrast, has a straightforward way of explaining this case. It should be clear to Pascal from context that Mordecai in (D) is taking up Pascal's epistemic perspective. The point of giving hints in a game isn't to tell your opponent the answer but to help him figure it out for himself. Pascal knows that Mordecai is in a position to tell him exactly how many reds there are. If Mordecai were intending a solipsistic or group reading of (D), that would be tantamount to telling him that there are two reds (if there are) or saying something false (if there aren't). Either way would violate the spirit of the game and the purpose of hint giving. The proposition that Mordecai is best understood as expressing with (D), then, is that there being two reds is compatible with what Pascal knows. That is something Mordecai is fully warranted in asserting.⁶⁰

58. Grice [1991].

59. Here too, it's not clear how the von Fintel and Gillies view would explain this case since Mordecai's asserting of (D) doesn't satisfy their sufficient condition on an assertion's warrant. The "strongest available reading [Mordecai] is in a position to be opinionated about" is the Mordecai and Pascal-reading. After all, he knows what information Pascal has acquired as a result of his guesses so far. And he knows how many reds he's hidden. But Mordecai shouldn't assert (D) on that reading. If there aren't two reds, Mordecai knows this and then (D) comes out false. If there are two reds, Mordecai's said something true but violated Grice's maxim of quantity, since he's in a position to assert "There are two reds" but doesn't. Since von Fintel and Gillies confirm/denial norm is a sufficient one, it's open for them to appeal to a different norm to govern (D) in this case. But it would be good to know what that norm is and why we should think it a genuine norm for an addressee's response in cases such as this.

60. Egan *et al.* [2005] discuss a similar example. Sally and Tom are lost in a maze. Sally knows the way out, but Tom does not. Tom asks her whether the exit is to the left. In reply, Sally says, "It might be; it might not be." Here we may also think of Sally as taking up Tom's epistemic position and refusing to rule out

5.4 Comparative Advantages: Unity and Explanation

Here is a good place to remember two additional advantages of the present proposal. First, all the views considered here see the use of BEMS as involving quantifier domain restriction. So all three face the question of what determines how that restriction is determined. As we've seen, relativists must "go flexible" to avoid counterintuitive results in cases like LOTTERY, ICE CREAM, HENCHMEN 1 and 2, and MASTERMIND. If they do, though, they will need to explain how bodies of domain-restricting information are determined as a function of contexts of assessment; a simple solipsistic story will no longer do.

Similarly, to explain our intuitions in a variety of cases, including HENCHMEN 2 and MASTERMIND, the cloudy contextualist owes an account of what makes a reading 'available' and so what determines which cloud of propositions the utterance of a BEM 'puts into play'.

In contrast, with H₃, flexible contextualism provides an account of how parameter values are determined at a context of utterance. This gives that account the additional advantage of fitting with a plausible account of domain-restriction for other quantifiers. To illustrate:

MEETING

Sally: "Every student was at the meeting."

George: "What, even those on leave in Nicaragua?"

Sally: "No, what I meant was every student in residence."⁶¹

any possibility that is compatible with it.

61. von Fintel and Gillies [2011] pp. 123–124. There they argue that their account of modal expressions fits with a plausible account of the contextual restriction on quantifiers by suggesting that "the precise delimitation of the contextual domain of quantification for ['every student was at the meeting'] can often be indeterminate in a realistic context." In MEETING, however, the intended restriction is quite clear.

Here, Sally's response makes clear which restriction on "every student" she intended in her original utterance. Usually, context can work to make it clear which restriction a speaker intends. (Indeed, George seems particularly thick in his response.) That a speaker's intentions play this role is a highly plausible assumption about quantification over individuals. (It's hard to see how to make sense of Sally's "...what I meant was..." in this perfectly natural bit of dialogue if they didn't.) The idea behind H₃ here is simply to accept this plausible assumption for quantification over possibilities as well.

Notice here that assuming that Sally intended the restriction she makes explicit in her reply in making her original assertion does not require that we assume she consciously entertained that restriction prior to making that assertion. We need only assume that in making her reply she recognizes that restriction as the one she intended all along.⁶² I propose we make a similar assumption about speaker's intentions in the case of implicit restrictions on the set of possibilities BEMS quantify over. Showing that speakers don't consciously entertain explicit restrictions prior to asserting BEMS doesn't show that speakers don't have intentions sufficient to determine unique propositions expressed.⁶³ Typically, as Publicity requires, context works to make a speaker's intentions clear. But if it doesn't, speakers are often on hand to aid in clarification. That's what we find in both KEYS 5 and MEETING.

Conclusion:

The flexible contextualism defended here explains the challenge cases to both solipsistic relativism and contextualism at least as well as, and in some cases better than, its revisionary rivals. Moreover, it

62. For a more detailed discussion of such an account of referential intentions and the discovery of their contents, see Dowell [2008].

63. The propositions determined are determinate "up to vagueness". The von Fintel and Gillies proposal that there is semantic underdetermination involved should not be confused with the common view that most of language, including modal language, contains some vagueness. See von Fintel and Gillies [2011].

accommodates the flexibility and objectivity of modal expressions in the context of a simple, unified theory of the semantics and pragmatics of those expressions. It does this by supplementing Kratzer's original account with a Gricean, metasemantic account of how context determines a modal's domain.

In addition, Publicity allows the present account to plausibly explain why intuitions are split in the puzzle cases and why they aren't in more ordinary cases, like TEST, ICE CREAM, and LOTTERY. Finally, these observations, together with a few other plausible observations about assertion and action explanation, allows for a plausible explanation of why the BEM complements of attitude attributions are typically attributee-relative. Taken together, these considerations constitute fairly compelling reasons to prefer the canonical, flexibly contextualist account defended here to both relativism and cloudy contextualism.⁶⁴

References

- Bianchi, Claudia. 2006. "Nobody Loves Me': Quantification and Context." *Philosophical Studies* 130: 377–397.
- DeRose, Keith. 1991. "Epistemic Possibilities." *Philosophical Review* 100: 581–605.
- Dowell, J.L. Ms1. "Flexible Contextualism about 'Ought'."
- Dowell, J.L. Ms2. "Invariantist Challenges to Contextualism about Deontic Modals."
- Dowell, J.L. Forthcoming. "Contextualist Solutions to Three Puzzles about Practical Conditionals." In *Oxford Studies in Metaethics*, Volume 7, ed. Russ Shafer-Landau.

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- Dowell, J.L. 2008. "Empirical Metaphysics: The Role of Intuitions about Possible Cases in Philosophy." *Philosophical Studies*, BSPC 2007 volume, July 2008, Volume 140, Issue 1, 19–46.
- Egan, Andy. 2007. "Epistemic Modals, Relativism, and Assertion." *Philosophical Studies* 133: 1–22.
- Egan, Andy, John Hawthorne, and Brian Weatherson. 2005. "Epistemic Modals in Context." In *Contextualism in Philosophy*, ed. G. Preyer and G. Peter, 131–69. New York: Oxford University Press.
- von Fintel, Kai, and Anthony S. Gillies. 2007. "An Opinionated Guide to Epistemic Modality." In *Oxford Studies in Epistemology: Volume 2*, ed. T. Szabo Gendler and J. Hawthorne, 32–62. Oxford: Oxford University Press.
- von Fintel, Kai, and Anthony S. Gillies. 2008. "CIA leaks." *Philosophical Review* 117: 77–98.
- von Fintel, Kai, and Anthony S. Gillies. 2011. "Might Made Right." In *Epistemic Modality*, ed. B. Weatherson and A. Egan, 108–130. Oxford: Oxford University Press.
- Grice, Paul. 1991. "Logic and Conversation." In *Studies in the Ways of Words*, Paul Grice, 22–40. Cambridge: Harvard University Press.
- Hacking, Ian. 1967. "Possibility." *Philosophical Review* 76: 143–168.
- Kaplan, David. 1989a. "Demonstratives: An Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals." In *Themes from Kaplan*, ed. J. Almog, J. Perry, and H. Wettstein, 481–563. Oxford: Oxford University Press.
- Kaplan, David. 1989b. "Afterthoughts." In *Themes from Kaplan*, ed. J. Almog, J. Perry, and H. Wettstein, 565–614. Oxford: Oxford University Press.
- Kratzer, Angelika. 1977. "What Must and Can Must and Can Mean." *Linguistics and Philosophy* 1: 337–355.
- Kratzer, Angelika. 1981. "The notional category of modality." In *Words, Worlds, and Contexts: New Approaches in Word Semantics*, ed. H. J. Eikmeyer and H. Rieser, 38–74. Berlin: de Gruyter.
- Kratzer, Angelika. 1986. "Conditionals." *Chicago Linguistics Society* 22:1–15.
- Kratzer, Angelika. 1991. "Modality." In *Semantics: An International Handbook of Contemporary Research*, ed. A. von Stechow and D. Wunderlich, 639–650. Berlin: de Gruyter.
- Kratzer, Angelika. Forthcoming. *Collected Papers on Modals and Conditionals*. (Ms. January 2008. URL: <http://semanticsarchive.net/Archive/Tc2NjA1M/notional-category-modality-new.pdf> .) Oxford: Oxford University Press.
- Kripke, Saul. 1979. "A Puzzle about Belief." In *Meaning and Use*, ed. A. Margalit, 239–283. Dordrecht: D. Reidel.
- MacFarlane, John. 2005. "The Assessment Sensitivity of Knowledge Attributions." In *Oxford Studies in Epistemology 1*, ed. T. Szabó Gendler and J. Hawthorne, 197–233. Oxford: Oxford University Press.
- MacFarlane, John. 2011. "Epistemic modals are assessment-sensitive." In *Epistemic Modality*, ed. B. Weatherson and A. Egan, 144–178. Oxford: Oxford University Press.
- Stanley, Jason, and Zoltan Szabo. 2000. "On Quantifier Domain Restriction." *Mind and Language* 15(2): 219–261.
- Stephenson, Tamina. 2007. "Judge dependence, epistemic modals, and predicates of personal taste." *Linguistics and Philosophy* 30(4): 487–525.
- Swanson, Eric 2006. *Interactions with Context*. Ph.D dissertation, MIT.