Falsity and Retraction: New Experimental Data on Epistemic Modals

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This paper gives experimental evidence against the claim that speakers' intuitions support semantic relativism about assertions of epistemic modal sentences and uses this evidence as part of a broader argument against assessment relativism. It follows other papers that reach similar conclusions, such as that of Knobe and Yalcin (2014). Its results were achieved simultaneously and independently of the more recent work of Kneer (2022). The experimental data in this paper supports two claims. The first is that, as Knobe and Yalcin (2014) also found, speakers diverge in their judgments about the truth-values and about the appropriate retraction of epistemic modal claims. The second is that speakers diverge in their judgments about when a retraction is appropriate and when it is required. This divergence was not tested by Knobe and Yalcin (2014) but aligns with the results independently reached by Kneer (2021b, 2022), and supports the arguments previously developed by Marques (2014, 2018). The present studies tested the intuitions of both North American English speakers and of peninsular Spanish speakers, whose judgements on the topic had never been tested. The broader argument involves the relation between required retractions and falsity.

Keywords: falsity, retraction, epistemic possibility modals, assessment-relativism

1. Introduction, clarifications, and disclaimers

This paper gives experimental evidence against the claim that competent speakers have intuitions that support semantic relativism about assertions of epistemic modal sentences. It follows other papers that reach similar conclusions, in particular Knobe and Yalcin (2014). Its results were achieved simultaneously and independently of the more recent work of Kneer (2021b, 2022). Here, I present further experimental data that supports two of the claims also made by these authors. The first is that, as Knobe and Yalcin (2014) also found, speakers diverge in their judgments about the falsity and about the appropriateness of retracting an epistemic modal sentence. This result confirms what other studies show: speakers don't share relativistic intuitions about the truth-conditions of epistemic possibility modals. More specifically, speakers don't tend to judge that the indicated modal sentences are false in the conditions described by relativists.

The second claim is that speakers diverge in their judgments about appropriate versus required retractions of epistemic possibility modals. This divergence was not tested by Knobe and Yalcin (2014) but aligns with the results independently reached by Kneer (2021b, 2022), and supports arguments previously developed by Marques (2014, 2018, 2019), Raffman (2016), or Ross and Schroeder (2013). Although these studies suggest that speakers may tend to agree that a retraction would be *appropriate* in the conditions where the relativist predicts the speaker should retract, the present studies indicate that speakers do not agree that a retraction is *required* – which undermines the existence of alleged intuitions in favor of assessment relativism.

The first experiment is a rerun of an experiment by Knobe and Yalcin (2014), with the crucial and important difference that it tests for falsity versus required retraction, whereas they test for falsity versus appropriate retraction. It was carried out with North American native English speakers, and the second experiment was carried out with peninsular Spanish speakers. The latter is the only study at the moment to test native Spanish speakers' intuitions about epistemic possibility modals, and simultaneously to test the answers to three questions: whether speakers think that the modal sentences are false, whether it is appropriate to retract them, and whether a retraction is required.

I must first clarify some issues that could be brought up in relation to the kind of work I present here. In the first place, some could complain that it is not clear that relativists should care about "many subject" experiments, as opposed to "few subject" experiments, such as those based on the theorist's own thought experiments.[1] There are two reasons why this is not a reasonable defense for a relativist. First, relativism has been advanced on the back of alleged shared intuitions. As anecdotal evidence, consider that MacFarlane (2014)'s *Assessment-Sensitivity* is sprinkled with uses of "intuitive", "intuitively", "the intuition", and more significantly, "our intuitions". There are no occurrences of "my intuition". Indeed, our intuitions are called upon whenever we are presented with a contrast between a contextualist prediction and a properly relativistic one. Insofar as claims about people's intuitions are a fundamental part of the argument for relativism, then "many subject" experiments remain relevant. After all, the relativist is not providing an egocentric semantic theory based on the idiolect of a single speaker – himself.

Moreover, if it were true that relativists can dismiss "many subject" experiments on the grounds that a few intuitions – the theorist's own, say – should suffice, then most current X-Phi would be misguided in its attempts to test, among others, intuitions in favor or against direct reference theories,[2] the knowledge norm of assertion, knowledge ascriptions,[3] aesthetic subjectivism,[4] etc. Some have indeed claimed that experimental findings aren't generalizable to the 'expert' intuitions of philosophers.[5] If there is a problem for the evidence presented here, there is a problem for others too, including Knobe and Yalcin, Kneer, and many more who have pursued the experimental program to try to advance philosophical debate. In any case, this is not the place to discuss the role of X-Phi versus the armchair as sources of evidence for philosophical theories.

Nonetheless, one important point of contention must be highlighted, and this does affect some of the experiments here reported. As Domaneschi and Vignolo (2020) argue, in a paper criticizing Machery et al. (2009), there is a problem about using judgments about truth-values to test semantic theories. The problem is that subjects' judgments are affected by an ambiguity of the truth-predicate. As they say, participants in experimental settings can either interpret 'true' as meaning true in relation to the information reported in the vignette, "whereas other participants can understand it as meaning true in relation to what the hypothetical speaker believes." (Domaneschi and Vignolo, 2020, 441). If this is a feature of how people can interpret questions about truth-values, these can also affect the reliability of the experiments reported and discussed here. Moreover, this "ambiguity" of the truth-predicate has implications for some attempts to rescue relativism, namely so-called flexible contextualism, such as that of Beddor and Egan (2018), whose views I'll return to below.

The second issue that must be addressed is this. Some may think that there is no clear reason why non-native English speakers' intuitions should be tested. A reason to go beyond studies with native English speakers (in the US) is to overcome, in the words of Stich and Machery, ". . . the cultural insularity that characterizes much of recent philosophy in the analytic tradition." (Stich and Machery, 2022, 1) Various research projects take in their hands the task of testing theoretical predictions cross-linguistically[6], in the expectation that either significant differences in judgement may pose a problem for the theoretical views at hand,

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[1] This concern was raised by an anonymous reviewer.
[2] See the discussion in Machery and O'Neill (2014).
[3] See Grindrod et al. (2018).
[4] See Bonard et al. (2022).
[5] For example, Devitt (2011) or Ludwig (2007). For a good discussion of this, see Nado (2016).
[6] See for example *The Geography of Philosophy* project at https://www.geographyofphilosophy.com/, or books like Stich et al. (2017).

reveal specific features of some dialects, conclude that a theory is on the right track when its predictions are confirmed cross-linguistically, or, more importantly, to achieve a better view of people's communication and understanding. The experiments reported here are relevant on the assumption that different languages can express epistemic possibilities. This is the case with Germanic and Romance languages (including Spanish). The results of the Spanish study reported are aligned with Kneer's. This offers independent confirmation of his conclusions, and of the theoretical arguments put forward by Marques (2014, 2018), particularly those against required retractions.

In the third place, some may be concerned that this paper only targets MacFarlane's assessment-relativism, and that the results here reported have limited interest, in particular for anyone trying to formulate less radical forms of relativism. Indeed, the studies were designed to test specifically the predictions of assessment-relativism. The reason why I focus on assessment-relativism is that I agree with MacFarlane that what is distinctive of relativism is the pragmatic difference in the conditions for the retraction of assertions, and not merely the relativity of truth of interpreted sentences to parameters beyond possible worlds. No one in this literature says that one should not aim to assert what is true at the context of utterance. But not everyone agrees that one ought to retract a correctly made assertion. I.e., not everyone agrees that an assertion's correctness, or "accuracy", is itself relative. Unless the conditions of required retractions are sufficiently *well supported* by speakers' intuitions, as studied for instance through cross-linguistic empirical studies with many subjects, then assessment-relativism is unmotivated. This is the evidence I sought in the two studies here reported.

Unlike assessment-relativism, accounts like the flexible relativism advanced by Beddor and Egan (2018) only focus on the truth of interpreted sentences relative to certain parameters. Their experimental studies hinge on vignettes that allow for ambiguous interpretations of what is required from participants. Their proposal of a flexible kind of relativism seems to me to be *ad hoc* and to lack a solid motivation for a revision of the (post)semantics. I'll argue that their study questions cannot, by themselves, reveal people's intuitions about the *correctness of the assertion* as performed by the speaker, since they ask about the *interpretation* of the sentence, which, as Domaneschi and Vignolo (2020) show, is ambiguous. This ambiguity in how a sentence is to be interpreted is a problem of the design of the studies; therefore, they do not establish that the speech act of assertion has relative correctness conditions.

In section 2 below, I introduce some of the issues that epistemic modal claims raise and present the relativist motivations for the revision of this standard analysis. In section 3, I elaborate on the philosophical relevance of judgments about required retractions for semantic theories. In section 4, I summarize Knobe and Yalcin (2014)'s original tests about judgements of falsity. In section 5, I present the two studies I carried out, and finally, in section 6, I discuss the results and their implications, while comparing the results of my studies to those of Kneer (2021b, 2022). All in all, the results do not support assessment-relativism, in particular, they do not confirm that speakers have intuitions in favor the obligatoriness of retraction.

2. Relativism and epistemic modals

The modal sentences this paper focuses on are common epistemic modal sentences, such as "Joe might be in Boston", "I may have left my keys in the car", or "she must have finished the exam by now". When we use sentences of this kind, we are not asserting that it is metaphysically possible that I left the keys in the car. Obviously, there is a possible world very close to our own where I did so. Because of that, it would be silly of me to assert something that anyone who knows me already knows to be true.

Epistemic modal sentences involve expressions like 'might', 'must', 'should', 'possibly'. They characterize epistemic states – usually understood as what can or must be the

case given the information available to speakers at a given time. The canonical interpretation of epistemic modal claims is contextualist. Consider (1) below:

(1) The keys might be in the car.

When we use epistemic possibility modal sentences, we convey what is possible given relevant information available, to me or to us. If I can't find my keys, and the last place I saw them was the car, which I just parked, I can gather that I might have left them there. I do not *know* that I left the keys in the car, otherwise I would have just said "I left the keys in the car". Moreover, if I had just placed the keys at their proper place inside the house (and had paid attention to what I was doing), I would not have said "I might have left the keys in the car", since I would also have knowledge to the contrary. It seems thus that the truth of epistemic possibility modals depends on what is possible, given the available information.

The examples used in the studies reported in the present paper are of sentences similar to (1). The examples are in English, and their corresponding translations into Spanish.

(2) Joe might be in Boston.
(3) For all I know, Joe might be in Boston.
(4) José puede estar en Barcelona.
(5) Por lo que sé, José puede estar en Barcelona.

On standard accounts, an utterance of (2) is true if Joe is in Boston is possible, given the information available in the context where (2) is uttered. (2) is a bare epistemic modal possibility sentence (a BEP). (4) is a Spanish sentence that expresses another epistemic possibility – that José might be in Barcelona. Unlike (2) and (4), sentences (3) and (5) make it explicit that the relevant information for assessing whether Joe being in Boston (or José in Barcelona) is the information known to the speaker at the time of utterance.

On Kratzer's canonical theory, the modals 'might' and 'must' are treated semantically as quantifiers over possibilities (Kratzer (1977, 1991)), where the domains of quantification are contextually restricted. Modal sentences contain parameters that require context to determine a circumstantial accessibility relation on a world of evaluation w. This determines a modal base, i.e., a set of worlds accessible from w that are circumstantially like w in relevant ways. Furthermore, context must supply a standard as a function of w – i.e., a standard that orders the worlds in the modal base. Thus, context contributes to determine a proposition by determining both a modal base and an ordering standard. Generally, an epistemic modal sentence, 'might φ', is true just in case the prejacent φ comes out true in at least one of the worlds in the modal base. In other words, the context of use determines a set of possible worlds compatible with the relevant epistemic state of the context of use, which is normally understood as the information available to the speaker at the time. In (2), 'Joe is in Boston' is the prejacent, the sentence that is evaluated as true or false with respect to each possible world in the modal base given by the context. 'Joe might be in Boston' is then true if it is compatible with the information available (to the speaker) in the context of use that Joe is in Boston.[7]

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[7] Under a strictly Krazterian account, epistemic modals don't have circumstantial modal bases (they have epistemic modal bases, with circumstantial modal bases reserved for root, i.e. non-epistemic, modals). Kratzer (1981) considers an empty ordering source for epistemic modals, whereas Kratzer (1991) considers a stereotypical ordering source for epistemic modality. Other authors, like Craige Roberts (1989), dispense with the need of a (non-trivial) ordering source for epistemic modals by giving them evidential modal bases. For the purposes of this paper and the argument here offered against assessment relativism, it is not necessary to decide on theoretical aspects of the formal theory, since what is at stake is whether speakers' intuitions corroborate a revision of the

On standard accounts, when a speaker says 'might φ', she says something *true* if φ's truth is compatible with the evidence available at the context of utterance. Relativists question this contextualist picture. Arguably, competent speakers like you and me have the intuition that utterances of epistemic possibility modal sentences may become false when our state of information changes, and therefore differs from the information available at the context of utterance.

Challengers to the standard Kratzerian semantics allege that it fails to make the right predictions about speakers' judgments about the falsity and about retractions of epistemic possibility claims. These judgments are elicited with dialogues like the one below between Sally and George. In the dialogue in (6), Sally's response in (i) would arguably be more intuitive than her response in (ii).

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

There are two ways that intuitions about retractions are used against the canonical, contextualist, account. First, intuitions about retraction may be used against indexical contextualism. Upon learning that Joe is down the hall, it is *natural* for Sally to retract her assertion that he might be in Boston. It follows that the content of her assertion must not be that her information was compatible with Joe being in Boston since that content is true.

The apparently natural response suggests that an alternative to the standard indexical contextualist view is right. For example, the alternative can be that the domain of possible worlds compatible with the information available to an agent is not part of a parameter contained in the modal sentence but is instead a parameter to which the truth of the modal is relative. Egan (2007)'s proposal that bare epistemic modals express centered world propositions exemplifies the alternative:

It might be the case that P is true relative to a centered world (w, t, i) iff it's compatible with everything that's within i's epistemic reach at t in w that P. (Egan 2007: 8)

MacFarlane suggests that, after Lewis (1980), we can understand *semantics proper* as the definition of truth at a context and an index initialized by the context. The parameters in the index would be, for instance, the speaker, the time, the place, or the available information of the context. Much of earlier work on what some have also called 'relativist semantics' has indeed focused on whether or not truth is to be defined only with respect to the world w of the context, or also to other possibly shifting parameters (of the index initialized by the context) like the time, place, speaker, or indeed the relevant information, as Egan's work mentioned above.[8]

Centered world alternatives like Egan's correspond to what MacFarlane calls nonindexical contextualist views, and are not controversial forms of relative truth.

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pragmatics of assertion and retraction in line with assessment-relativist claims. I'm grateful to a reviewer for pressing this issue.

[8] For some good recent introductions to relativist semantics in this sense, see for instance Kindermann and Egan (2019) or Zeman (2020). The theoretical decision to make some parameters part of the index and not of the proposition would distinguish what MacFarlane calls *nonindexical contextualism* and *indexical contextualism*.

Nonindexical contextualism predicts that a speaker asserts correctly when she says 'it might be the case that *p*' when *p* is compatible with the information available to her at the time of utterance. It further predicts that if the prejacent of the epistemic modal sentence is false with respect to information available to the audience, then the epistemic modal claim is judged as false *by the audience*. It could be added that it would be natural for the speaker to retract her assertion made at an earlier time when *p* is excluded by her newly acquired information, since 'it might be the case that *p*' would now be false.

But, MacFarlane points out, as long as we can define truth at a context in terms of truth at a context of utterance and the index initialized by the context, the stage which he calls *postsemantics*, we have not as yet offered a philosophically interesting form of relativism (MacFarlane, 2014, 58-59):

> Neither of the relativizations of truth we have considered so far involves us in any philosophically controversial kind of "relative truth." The relativization to contexts is required because the same sentence can be used to make true or false claims, depending on the context. The relativization to indices is required as a technical expedient for systematizing truth at a context. Since indices have no theoretical role beyond their role in defining truth at a context, the only motivation for positing a coordinate of indices is the presence of an operator that shifts it; conversely, the only grounds for objecting to a coordinate of indices is the absence of such operators. (MacFarlane, 2014, 59-60)

What would support such a controversial form of relativism would be the intuition that Sally *is under the obligation to retract* (MacFarlane, 2014, 256). If that were so, then we would have to accept that although she was right when she asserted that Joe might be in Boston, she is wrong when the context changes with the addition of new information. Without this double relativity, the requirement to retract would be inexplicable. So, is Sally obliged to retract?

MacFarlane makes an interesting argument in the following pages (MacFarlane, 2014, 256-260), partly in response to earlier objections that pointed out that it's ok for speakers to steadfast and refuse to retract. We can easily imagine Sally replying, quite rightly: "I didn't say that Joe is in Boston, I said that he might be!"[9] According to MacFarlane, the relativist can explain why on occasion speakers can refuse to retract – maybe Sally's intention was to assert an assessment-invariant proposition (i.e., one whose truth depends exclusively on the information of the context of utterance). But, he insists, the contextualist *cannot* explain why Sally would retract, and why we would think that she should do so. MacFarlane's rejoinder is worth pausing over. His claim requires that normal English speakers have communicative intentions that discriminate between assessment-relative and assessment-invariant propositions.

The charge against the contextualist is less than obvious, and there are contextualists that do give the kind of explanation that MacFarlane claims is not available. The debate crucially depends on whether the relevant contextual information is assessment-invariant or assessment-relative. Dowell (2011) persuasively argues, in my view, that the information of the context need not be the one available to the speaker when she speaks, but rather that it is the information that is relevant at the context of utterance. After all, the speaker's intentions and other contextual factors may determine that the standard of information of the context includes, say, evidence that the speaker is not fully cognizant. If Dowell is right, then the conversation in (6) would not pose a problem for contextualism, *even* if speakers had intuitions

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[9] MacFarlane responds directly to von Fintel and Gillies (2008), but other arguments are advanced by Marques (2014, 2018).

that Sally should admit that she was wrong. The information relevant at the context may well include easily accessible information that any of the interlocutors could gather by looking down the hall.

Some authors have argued that there are flexible forms of radical relativism, consistent with MacFarlane's concession that sometimes speakers can refuse to retract.[10] *Flexible relativism* is the view that "not only can the assessor adopt a perspective that is not their own (as when an exocentric assessment is made, or from the point of view of a group, etc.), but they can sometimes adopt the perspective that is relevant in the initial assertion's context of utterance (regardless of whether the initial assertion was made by themselves or by someone else." (Zeman, this volume, 63).

The next section gives some scrutiny of the relation between (post)semantics and required retractions, to show that a correct retraction of an earlier assertion is not sufficient for the retracted assertion to count as incorrect in the relevant sense for semantics: as an assertion of a false proposition. It will also assess, in broad terms, some central aspects of flexible forms of relativism, and show that current arguments in its support are lacking. Later, we will see that the experimental evidence supports neither the claim that there is a false proposition expressed, nor the claim that a retraction is required in the described conditions. It is this latter result – that retraction is not required – that ultimately undermines the very motivation for postulating contexts of assessment as theoretically required constructs. Section 6 returns to the case for flexible relativism and shows that it falls short of establishing what assessment-relativism requires.

3. The point of truth in semantic theory, assertion, and retraction

The stronger normative view about the retraction of assertions of epistemic possibility modals would support the "philosophically controversial" kind of relative truth that MacFarlane mentions. On this view, the challenges posed to the canonical semantic account of modals indicate that the truth of epistemic modal sentences is not determined *once and for all* at the context of utterance. In other words, it is not assessment-invariant.

The alternative view about retraction is not that it would be natural for a speaker to retract, in conversations like (6) above, but that she *ought to*. This is the second way to interpret intuitions about retractions, and it is used against contextualist postsemantics. The prediction is this: if, upon learning that Joe is down the hall, we judge that Sally *ought* to retract her assertion that Joe might be in Boston, then contextualists lack the resources to explain this fact, since they only relativize truth to the context of assertion, a feature that Sally's assertion has. This objection to contextualist postsemantics relies essentially on the strength of the intuition that the retraction is *obligatory*. If this intuition is not as robust as alleged, or it is not shared by ordinary speakers, then the assessment-relative view it is meant to support would seem to be advanced for its own sake as a "philosophically controversial" view. What is revisionist about this controversial view is the introduction of contexts of assessment, motivated by the seeming need to relativize truth to both a context of use and a context of assessment. In other words, *unless* there is robust evidential support for *the required retraction* of a past assertion of one of the types of sentences under contention, then contexts of assessment have no point in the explanation of our communicative practices.

In this section, I will give some scrutiny of the background assumption supporting the reasoning mentioned earlier. To recall, MacFarlane's rejoinder to some crucial criticism was that whereas the relativist can explain why on occasion speakers refuse to retract – maybe Sally's intention was to assert an assessment-invariant proposition (i.e., one whose truth

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[10] See for instance Zeman (2010), Khoo (2015), Beddor and Egan (2018), Dinges and Zakkou (2020).

depends exclusively on the information of the context of utterance), the contextualist *cannot* explain why Sally would retract, and why we would think that she should do so.

Let me make the steps of this rejoinder more explicit: First, we arguably have the intuition that Sally should retract at a later context. Second, we also think that she spoke truly when she asserted. Third, contextualism only contemplates the possibility of truth at a context of utterance, a feature that Sally's utterance has. Therefore, contextualism can't explain why we agree that Sally did as she should by retracting her earlier assertion.

Is this a good rejoinder? Note that the second step, that Sally spoke truly when she asserted, is not obvious and could be false if Dowell were right in her argument for flexible contextualism. But we should take a step back and ask about the deployment of a crucial assumption. The crucial assumption is the one that connects the retraction of an assertion and the truth-value of what was asserted.

MacFarlane seeks to defend this assumption by drawing from Michael Dummett's criticism of truth-conditional semantics. As MacFarlane says,

> Granted that our doubly relativized truth predicate is not the ordinary (monadic) truth predicate we use in ordinary speech, but a piece of technical vocabulary, we need to say something about how it is connected up with other parts of our theories of language and communication, so we can see the practical significance of going for a relativist semantic theory as opposed to a nonrelativist one. (MacFarlane, 2014, 94)

He then quotes the passage leading to Dummett's crucial point:

> If it was to be possible to explain the notion of meaning in terms of that of truth, if the meaning of an expression was to be regarded as a principle governing the contribution that it made to determining the truth-conditions of sentences containing it, then it must be possible to say more about the concept of truth than under which conditions it applied to given sentences. Since meaning depends, ultimately and exhaustively, on use, what was required was a uniform means of characterising the use of a sentence, given its truth-conditions. (Dummett, 1978, xxi)

As Dummett says, "what has to be added to a truth-definition for the sentences of a language, if the notion of truth is to be explained, is a description of the linguistic activity of making assertions" (Dummett, 1978, 20), that is, a description of the kind of illocutionary speech acts performed. Crucially, then, the explanation of the point of truth must look at the illocutionary practice of assertion, at what a correct assertion requires, and at what is required when an assertion proves incorrect:

> Of course, we can talk about what is required to be the case by an assertion; but this notion relates, once again, to how we recognize the assertion as incorrect … There is a well defined consequence of an assertion's proving incorrect, namely that the speaker must withdraw it, just as there is a well-defined consequence of disobedience. (Dummett, 1978, 22)

We can formulate the requirement of the well-defined consequence of an assertion being incorrect due to falsity as follows:

(R)   A speaker must: retract an assertion if it is false.

Let us follow Dummett and assume (R). MacFarlane also follows Dummett and accepts that a truth-definition must be accompanied by an account of the role of truth in the practice of assertion (MacFarlane, 2014, 99). To that end, he offers two constitutive rules of assertion:

> **Reflexive Truth Rule**. *An agent is permitted to assert that p at a context c_1, only if p is true as used at c_1 and assessed from c_1.* (MacFarlane, 2014, 103)

> **(Reflexive) Retraction Rule.** *An agent in context c_2 is required to retract an (unretracted) assertion of p made at c_1 if p is not true as used at c_1 and assessed from c_2.* (MacFarlane, 2014, 108)

Now, recall the first step of the rejoinder above – that speakers have the intuition that Sally should retract. Does the fact that she retracts show that her assertion is incorrect because false? No, because (R) only says that if the assertion is incorrect (due to falsity) then the speaker must retract it. (R) does not state that if retractions are appropriate or required, then the speaker spoke falsely. However, without this claim, MacFarlane's rejoinder doesn't hold. There may be other reasons why a speaker is required to retract that are not related to the falsehood of the assertion.

A proper appreciation of the relation between the speech act of retraction and other speech acts should consider what it is to retract. To my knowledge, the best current account of retraction is Caponetto (2018)'s: a retraction cancels the deontic updates engendered by a given speech act performed by the speaker, and only the speaker can retract that act. If one ought to assert only what is true, one of the deontic updates engendered by the assertion that *p* is that one has done as one should, i.e., in Gricean terms, one has followed the Maxim of Quality.

Nonetheless, there may other reasons to retract related to other violations of conversational maxims. There is no reason to think that the deontic updates engendered by an assertion of *p* is limited to saying what is true. Undoing deontic updates may go beyond a commitment to the truth of what is asserted. It may involve the cancellation of implicatures, or dropping a commitment to the relevance of what one said given the course of the conversation at the state at which it occurred, etc. For instance, one may retract having asserted that there is a gas station around the corner when one realizes that the interlocutor will infer that the station is open and has gas to sell, and not because it is false that there is a gas station around the corner.

Hence, the fact that the contextualist predicts that a speaker should retract an assertion that is proved false (incorrect) at the context of utterance is consistent with speakers retracting for reasons other than falsity. Indeed, Sally's retraction in (6) need not bear any necessary or obvious connection, assuming (R), to the falsity of Sally's utterance after learning from George that Joe is down the hall.

We can consider other cases analogous to (6) involving presumably context-dependent gradable adjectives: 'mature', 'big', and 'brilliant'. The use of either requires context to provide at least a relevant comparison class. In (7), assume that the child at 12 is mature for her age: she does her homework, cleans her room, greets adults, can engage in normal polite conversations with them, etc. Indeed, she has learned from the adults around her that she is very mature for her age. In (8), assume that a 3-year-old toddler finds his grandmother's house big, and when he returns as a tall 16 year old is amazed at how small his grandmother's house is. Finally, in (9), the 15-year-old child is brilliant not just for a child who cooks, but in comparison with the average home cook (he reads cookbooks, watches MasterChef religiously, practices new complex recipes weekly, etc.)

(7) **Mature**
    a. 12-year-old Lia in 2023: I'm very mature.
    b. Lia's mom in 2027: Sometimes I can't believe the silly things you came up with when you were 12! Lying to your teachers to go home early because you were bored in school, vaping behind the school gym, hanging out with 17-year-old boys because the ones in your class were "childish" ... It's a miracle that nothing bad happened to you.
    c.
    • Lia in 2027: Yeah, I guess I was wrong, I was not very mature.
    • Lia in 2027: Yeah, although I was mature for a 12-year-old, I was still just a silly kid!

This case is parallel to (6), the **Boston** case. We can see either response by Lia in 2027 as viable. Likewise, for (8):

(8) **Big**
    a. 3-year-old Dylan: Grandma, your house is so big!
    b. 16-year-old Dylan: Grandma, your house is not big at all.
    c. Dylan's grandma: So, you think you were wrong when you were a kid?
    d.
    • 16-year-old Dylan: Yeah, I guess I was wrong, your house is not big.
    • 16-year-old Dylan: No, I wouldn't say that. Your house was very big for me then. I'm just impressed by how different it looks to me now.

This case shows a shift in perspective or point of view. Dylan can just as much say that he was wrong as he can acknowledge that, from the point of view of a 3-year-old child, a space can appear big, even if it does not look big to an adult. There is no such thing as a space being big *tout court*. Things look big or small only from a point of view. In visual spatial perception, how we perceive the size of things is relative, in part, to our own size.[11] But now contrast with (9) below.

(9) **Brilliant**
    a. 15-year-old James: Don't worry about preparing dinner for your guests this weekend, mom, I can help.
    b. James's mom, Maggie, to the guests when they arrive for dinner: You know that James is a brilliant cook, he prepared this 6-course meal all by himself.
    c. Guest who has a friend who is a famous chef: I have a friend who has a 3 Michelin star restaurant. One of his cooks has left to open her own place. Maybe I can give James's contact to my friend?
    d. Maggie: That's not what I meant! I didn't mean that James is a brilliant cook like your friend, James is only 15.

Maggie here makes it clear that what she meant was that her son is a brilliant cook for a 15-year-old, and not brilliant for a top chef.

I return to these cases in the discussion in section 6. These considerations open room for alternative explanations of some of the intuitions on which assessment relativism relies. Do

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[11] As Cassam says "in egocentric spatial perception the objects of perception are experienced as standing in spatial relations to the perceiver" (Cassam, 1994, 52). See also Perry (1993), Peacocke (1999), or Schwenkler (2014).

people actually think that retractions are required or not? In particular, do people think that epistemic possibility modals should be retracted in cases like (6)? Throughout the argument for assessment-relativism, as became evident in the previous paragraphs, intuitions about truth, falsity, correctness conditions and retractions take central place. It is thus relevant to carry out empirical studies to ascertain whether these intuitions are shared or not. If competent speakers don't think that Sally is required to retract, but that it may be appropriate for her to do so, then – I think – there is some *prima facie* reason to think that Sally's retraction does not track falsity. This conclusion would be supported by finding that speakers also don't think that what Sally said is false.

The presumably shared core intuitions can be stated more generally:

(A.)   Competent speakers judge that a speaker who asserts 'might φ' has said something false if φ is incompatible with information available *to them*.

(B.)   Competent speakers judge that a speaker *is required to* take back her assertion of 'might φ' when she acquires new evidence that excludes φ's truth.

This is at odds with standard contextualist accounts of the semantics of epistemic modal sentences. Yet, unless the relativist's revisionist semantics captures a distinctive aspect of how people talk that other theories cannot explain, assessment relativism remains unmotivated. The experimental results by Knobe and Yalcin (2014), presented in the next section, question this picture, because they suggest that people may judge retraction to be natural and even appropriate (so, (B.) might be true), without judging that the epistemic modal claim is false (so, (A.) is not true). We can put it in the terms of the framing of requirement (R) and conclude that it may be that people retract for reasons other than falsity.

Knobe and Yalcin (2014) did not test the strong reading of *should retract*. This is important because, on the one hand, it would ask directly about speakers' intuitions about the Reflexive Retraction Rule. On the other hand, it could be reasoned that shared judgements about required retraction give stronger *prima facie* reasons to describe speakers' linguistic activity that requires assessment-relative truth.

We may well ask whether this form of relativism is supported by our linguistic practices.[12] As Marques (2018) puts it,

> Do we need the new assessment-relative truth-predicate? In other words, does assessment relativism allow us to explain something that […] contextualist theories cannot explain? This is a theoretical decision, and general considerations of simplicity and economy are relevant. Unless retracting assertions of sentences of the disputed kind is something that assessment-relativism can account for, but contextualism cannot, or that it is something that assessment-relativism can account for better than contextualism, then assessment-relativism is an unmotivated semantic complication. (Marques, 2018, 3336).

As the results in the next sections indicate, people do not share the intuition that speakers are required to retract under the described conditions, and hence speakers' intuitions do not provide the expected support for assessment-relativism. First, experimental results of Knobe and Yalcin (2014) show that speakers don't share the intuition that a speaker who asserts 'might φ' has said something false if φ is incompatible with information available *to them*. I

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[12] For a different, more nuanced, approach to the relation between assertions of 'might p' and retractions, see Egan (this volume).

then report the results of two different experiments I carried out and compare them with independent results reached by Kneer (2022). My results show that competent speakers don't judge that a speaker should take back a previous assertion of 'might φ' when she acquires new evidence that excludes φ's truth. This shows that assessment-relativism about epistemic modals is unmotivated.

4. Falsity – Knobe and Yalcin

In recent experimental work, Knobe and Yalcin (2014) tested the first of the two intuitions that competent speakers are represented as having, which they rephrase as principle (J):

> (J)　　Competent speaker/hearers tend to judge a present-tense bare epistemic possibility claim (BEP) true only if the prejacent is compatible with their information (whether or not they are the producer of that utterance); otherwise, the BEP is judged false.

Objectors to the canonical contextualist theory predict that extra-contextual assessors do not judge a BEP to be true, and judge it to be false, if the prejacent is not compatible with the information available to them. The canonical view predicts that assessors do judge a BEP in those conditions to be true.

　　Knobe and Yalcin (2014) carried out several surveys to test (J). Here, I report the one survey that is directly related to retraction and falsity. The survey focuses on the dialogue in case (6) above. One hundred and fifty-nine participants were recruited on Amazon Mechanical Turk 100 to complete a paid Qualtrics online survey. The IP address location was restricted to the United States. The experiment used a 2x2 design in which each participant was assigned to receive a particular statement (*epistemic modal* vs. *nonmodal*) and a particular question about that statement (*falsity* vs. *retraction*). Each participant had to report to what extent they agreed with the statement received on a 7-point Likert scale ranging from complete disagreement (1) to complete agreement (7).

　　Participants in the *epistemic modal* condition received the following vignette:

> Sally and George are talking about whether Joe is in Boston. Sally carefully considers all the information she has available and concludes that there is no way to know for sure. Sally says: "Joe might be in Boston." Just then, George gets an email from Joe. The email says that Joe is in Berkeley. So George says: "No, he isn't in Boston. He is in Berkeley."

Participants in the *nonmodal condition* received a vignette that was exactly the same, except that Sally says, "Joe is in Boston." Some participants received the retraction question:

> *We want to know whether it would be appropriate for Sally to take back what she said (for example, by saying 'Ok, scratch that.'). So please tell us whether you agree or disagree with the following statement:*
> - **It would be *appropriate* for Sally to *take back* what she said.**

The remaining participants received the falsity question:

> *We want to know whether what Sally said is false. So please tell us whether you agree or disagree with the following statement:*
> - **What Sally said is *false*.**

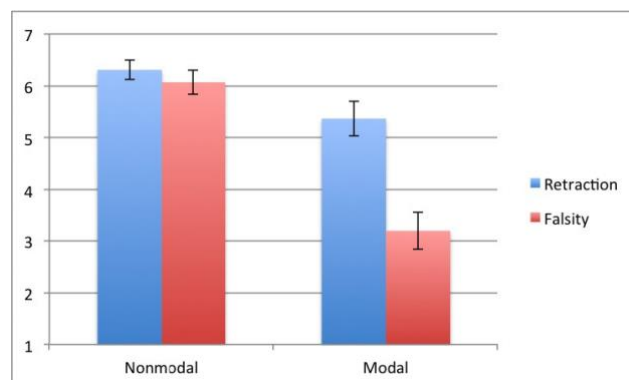The results are displayed in figure 1 below:

Figure 1: Knobe and Yalcin's 2014 Falsity x Retraction

The results for the nonmodal condition did not show any significant difference between the *appropriateness of retraction* and the *falsity* of the claim (the mean rating for appropriateness to retract was above 6 and the mean rating for falsity was 6). In the modal condition, there was a disparity in the mean ratings for judgments of falsity (around 3) and for appropriateness to retract (around 5,5). Although the respondents did not agree that what Sally said is false, they tended to agree that it would be appropriate for her to retract.

Knobe and Yalcin's results indicate that native speakers' judgments about the *falsity* of an epistemic possibility modal and about the *appropriateness of the retraction* of the modal diverge. Even if speakers are inclined to think that a retraction of an assertion of a BEP is *appropriate*, that is not evidence that speakers think that the assertion is false. There is a significant difference in the *falsity* judgements in the modal and non-modal condition, which wouldn't exist if (J) were true.

5. Falsity and required retractions: North American and peninsular Spanish participants
Knobe and Yalcin's survey asked about the *appropriateness* of retracting. Because of this, their survey did not directly address the presumed *requirement to retract* an epistemic possibility modal with a prejacent that is consistent with information that was available at the context of utterance, but inconsistent with information that is available at the context of assessment. For all we know, an assessment-relativist might say, survey participants may well have answered the falsity question while having in mind the context of use while answering the retraction question having in mind their context of assessment. Hence, the results would not be conclusive against assessment-relativism.

If the response in the previous paragraph were right, then speakers may answer the question about falsity and the question about retraction having in mind different contexts of utterance and of assessment. If that were the case, then new surveys that ask people explicitly about whether Sally has an obligation to retract *should* reveal convergent levels of agreement and would thus confirm that when speakers are asked about retraction, they have in mind the context of assessment.

It was against this background that I carried out a new survey designed to test whether MacFarlane is right that speakers have intuitions that support the assessment-relativity of epistemic modal claims. If competent speakers agreed, or tended to agree, that upon learning that Joe is down the hall, Sally *is required* to retract her assertion that he might be in Boston, this would give support to the claim that epistemic modals are assessment-sensitive. I carried

out two experiments designed to test whether speakers judge that a speaker should take back her assertion of 'might φ' when she acquires new evidence that excludes φ's truth.[13]

5.1 First experiment: US English speakers

I replicated Knobe and Yalcin's experiment, modifying only the *requirement* question to test if, as I said above, speakers respond to retraction questions having in mind contexts of assessment rather than contexts of utterance.

Two hundred and three participants were recruited on Amazon Mechanical Turk to complete a paid Qualtrics online survey.[14] The IP address location was restricted to the United States. Each participant was randomly assigned one of the two conditions of the Boston scenario. The formulation of the scenario was exactly the same as in Knobe and Yalcin's experiment reported above.

The experiment repeated the 2x2 design in which each participant was assigned to receive a particular statement (*epistemic modal* vs. *nonmodal*) and a particular question about that statement (*falsity* vs. *required retraction*). Each participant had to report to what extent they agreed with one of the statements received on a 7-point Likert scale ranging from complete disagreement (1) to complete agreement (7). The vignettes received by participants were identical to Knobe and Yalcin's, and the falsity question was also the same. The only difference was in the retraction question.

Is Sally required to take back what she said?

The mean response for each condition is displayed in Figure 2. The data were analyzed using a 2 (question: falsity vs. retraction) x 2 (sentence: modal vs. non-modal) ANOVA. There was a main effect of question, $F(1, 201) = 13.1$, $p < .001$, and a main effect of sentence, $F(1, 201) = 68.9$, $p < .001$. Importantly, there was also a significant interaction, $F(1, 201) = 6.5$, $p = .01$. To further explore this interaction, I used separate t-tests to examine the difference between questions for each sentence. For the modal sentence, there was no significant difference between questions, $t(100) = .66$, $p = .51$, with participants tending to disagree with the claim that the statement was false and with the statement that the speaker should retract. By contrast, for the non-modal sentence, there was a highly significant difference such that participants agreed more that the sentence was false than that the speaker should retract, $t(101) = 5.1$, $p < .001$.

The results confirm that speakers judge a BEP to be true if the prejacent is compatible with information available to the speaker at the context of utterance. This is compatible with both contextualist and relativist predictions: that speakers judge the falsity question having in mind that context. But the results don't support the claim that speakers would judge that a speaker is required to take back her assertion of 'might φ' when she acquires new evidence that excludes φ's truth, i.e., that speakers have in mind the context of assessment and agree with a requirement to retract. Rather, speakers tend to disagree that there is such a requirement.

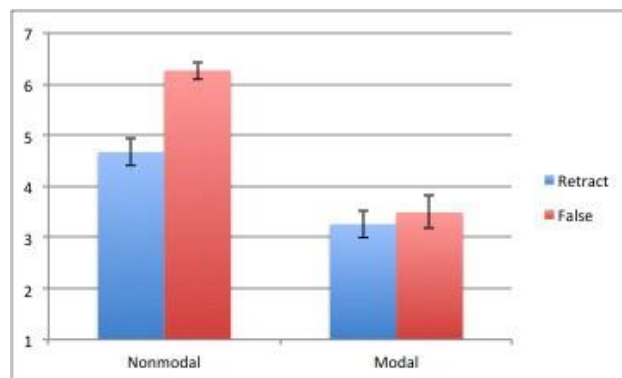
[14] Sixty-seven participants, and (33%) were female.

Figure 2: Mean responses by condition for Experiment 1 with US participants. Error bars show standard error of the mean.

The disparity in the response in the nonmodal case was unexpected. It seems to suggest that speakers don't have clear views about whether nonmodal assertions should be retracted when false. I cannot here offer conjectures about this result with US participants. Unfortunately, this survey did not compare people's judgements on falsity, the requirement to retract, and the appropriateness of retracting.

5.2 Second experiment: Spanish speakers

I decided to carry out a new survey with Spanish speakers, contrasting the replies to three questions about identical situations to the ones tested before.

With the support of the BESlab, at the University Pompeu Fabra in Barcelona, I asked three hundred and thirty-four participants (from BESLab's subject pools, mainly university students and academics in social sciences and humanities, including economics, political science and law) to fill in an online questionnaire using Qualtrics.[15] The participants were asked to confirm if they were Spanish nationals and native Spanish speakers. Participants were randomly assigned one question only. Each participant had to report to what extent they agreed with one of the statements received on a 7-point Likert scale ranging from complete disagreement (1) to complete agreement (7). The vignettes received by participants were translations into Spanish of the story in Knobe and Yalcin's vignettes. The experiment used a 2x3 design, in which each participant was assigned to receive a particular statement (*epistemic modal* vs. *nonmodal*) and a particular question about that statement (*required retraction*, *falsity*, or *appropriate retraction*).

Below, I present the vignettes in Spanish distributed to the participants.

Vignette: Non-modal
Sara y Jorge están hablando sobre si José estará en Barcelona. Sara considera cuidadosamente toda la información que tiene a su disposición y concluye que no puede saberlo con seguridad. Sara dice:
     José está en Barcelona.
Justo después, Jorge recibe un mensaje de José por correo electrónico. El mensaje indica que José está en Valencia. Jorge dice: *No, José no está en Barcelona. Él está en Valencia.*

Vignette: Modal

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[15] Two hundred and eighteen (65%) participants were female.

> Sara y Jorge están hablando sobre si José estará en Barcelona. Sara considera cuidadosamente toda la información que tiene a su disposición y concluye que no puede saberlo con seguridad. Sara dice:
>> *José puede estar en Barcelona.*
>
> Justo después, Jorge recibe un mensaje de José por correo electrónico. El mensaje indica que José está en Valencia. Jorge dice:*No, José no está en Barcelona. Él está en Valencia.*

There were three questions about the modal and the non-modal conditions:

> *Falsity*: *Queremos saber si lo que Sara ha dicho es falso. Díganos por favor si está de acuerdo, o no, con la siguiente afirmación*:
>> **Lo que Sara ha dicho es falso.**

> *Required retraction*: *Queremos saber si le parece que Sara tiene la obligación de retirar lo que ha dicho (por ejemplo, diciendo, "ok, olvídate de eso"). Díganos por favor si está de acuerdo, o no, con la siguiente afirmación:*
>> **Sara tiene la obligación de retirar lo que ha dicho.**

> *Appropriate retraction*: *Queremos saber si le parece que es apropiado que Sara retire lo que ha dicho (por ejemplo, diciendo, "ok, olvídate de eso"). Díganos por favor si está de acuerdo, o no, con la siguiente afirmación:*
>> **Es apropiado que Sara retire lo que ha dicho**.

The mean response for each condition is displayed in Figure 3.
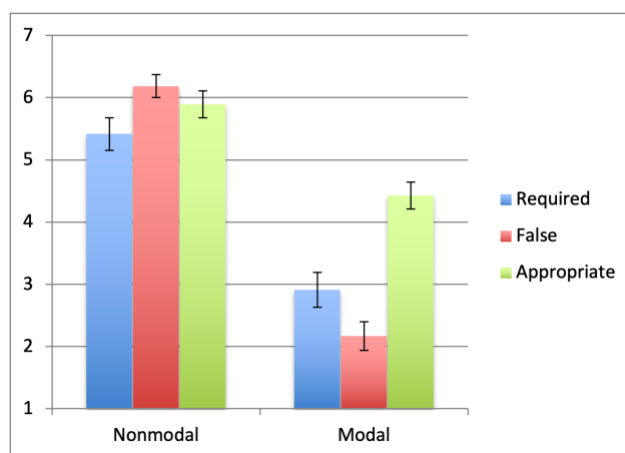

Figure 3: Mean responses by condition for Experiment 2 with Spanish speakers. Error bars show standard error of the mean.

The data were analyzed using a 3 (question: required retraction vs. falsity vs. appropriate retraction) x 2 (sentence: modal vs. non-modal) ANOVA. There was a main effect of the question, $F_{(2, 334)} = 10.5$, $p < .001$, and a main effect of the sentence, $F_{(2, 334)} = 171.5$, $p < .001$. Importantly, there was also a significant interaction, $F_{(2, 334)} = 13.5$, $p = .01$. To further explore this interaction, I examined responses to each vignette separately. For the nonmodal vignette, a one-way ANOVA showed a significant effect of the question, $F_{(2, 165)}$

= 3.1*, p* = .048. Post-hoc Tukey's tests showed that there was a significant difference between responses to the falsity question and responses to the required to retract question (p=.038). No other pairwise comparisons yielded significant effects. For the modal vignette, a one-way ANOVA showed a highly significant effect of the question, F (2, 169) = 17.3*, <* .001. Post-hoc Tukey's tests found a significant difference between the required to retract question and the appropriate to take back question ($p < .001$) and a significant difference between the falsity question and the appropriate to take back question ($p < .001$) but no significant difference between the required to retract question and the falsity question ($p = .13$).

6. Discussion

In section 2, I said that if there were a widely shared intuition among speakers that anyone in a situation like Sally's is required to retract, then there should be evidence in support of the controversial form of relativism advocated by MacFarlane. For MacFarlane's hypothesis to be right, people should agree that although Sally was right when she asserted that Joe might be in Boston, when she assesses her previous assertion from the new context where she has acquired new information her new assessment is that she was wrong. Without agreement on this double assessment-relativity, any claim that there is a requirement to retract epistemic modals from contexts of assessment is unmotivated and inexplicable.

If there were a double relativity in the assessment of a given assertion of an epistemic modal sentence, that would support the double relativization of the truth-predicate. The US and Spanish experiments here reported tested both claims:

1. Competent speakers judge that a speaker who asserts 'might φ' has said something false if φ is incompatible with information available *to them*.
2. Competent speakers judge that a speaker should take back her assertion of 'might φ' when she acquires new evidence that excludes φ's truth.

The results in the US and in the Spanish experiments align with the results about falsity in the Boston scenario in Knobe and Yalcin (2014). In the US experiment, participants did not agree that Sally had said something false ($M = 3,49$).[16] In the Spanish experiment, participants not only *did not agree* that the modal claim was false. Indeed, they *tended to disagree* that it was false ($M = 2,167$).

Now, recall that Knobe and Yalcin's survey asked about falsity and about the appropriateness of retracting. Because of this, their survey did not directly address the presumed requirement to retract an epistemic possibility modal with a prejacent that is consistent with information that was available at the context of utterance, but inconsistent with information that is available at the context of assessment. As I pointed out earlier, an assessment-relativist might say that people tend to ask falsity questions having in mind the context of utterance but answer the retraction questions having in mind their context of assessment.

The US and Spanish experiments I carried out where crucial to measure the value of this response. If people judged retraction questions bearing in mind their context of assessment, then we ought not to find any significant difference between answers to questions about *appropriate* retractions, and those about *required retractions*.

The US experiment revealed that participants did not agree that Sally was required to retract. In fact, their responses revealed that judgments about required retractions were close to judgments about falsity (on required retraction, the $M = 3,26$). However, and since the US study

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[16] See also the results in Kneer (2021a).

did not directly compare judgements on the falsity, the appropriate retraction, and the required retraction of epistemic modals sentences, the Spanish study was designed to test responses to the three questions. Again, the hypothesis that speakers make judgements about retractions having in mind their *context of assessment*, which would explain the responses to the *appropriate retraction* in Knobe and Yalcin's (2014) study, can be properly appraised with the results of the Spanish study. Although Spanish speakers did not express agreement with the claim that it would be appropriate for Sara to retract (the mean was slightly above the middle of the scale, $M = 4,426$), they tended to disagree with the claim that Sara should retract the assertion that José might be in Barcelona ($M = 2,914$). Not only that, but this response was also closer to Spanish speakers' replies about falsity than to the responses about appropriate retraction.

The responses were markedly different from the replies to the nonmodal vignette, where the results indicate that participants agreed that what Sara said was false ($M = 6,186$), and tended to agree not just that it would be appropriate for her to retract ($M = 5,893$) but also that she's required to retract ($M = 5,415$). These results are compatible with Dummett's contention that one must retract an assertion if it is incorrect, i.e., false. This was formulated as principle (R):

(R) A speaker must: retract an assertion if it is false.

These results indicate that people *do not* have the intuition that a speaker is required to retract an epistemic modal claim 'Might φ' in a context of assessment at which its prejacent, φ, is known to be false. Judgements about the practice of asserting and retracting are meant to reveal the need for a doubly relativized truth predicate. But the data collected here, and in other studies, seems to show that there is no evidence that ordinary languages need a doubly relativized truth predicate.

The present results are close to those in Kneer (2022), who carried out a study comparing replies to the two retraction questions in a Boston situation identical to that in Knobe and Yalcin (2014) and a modified situation replacing 'appropriate' for 'required':

- **RetractionWeak** It would be appropriate for Sally to take back what she said.
- **RetractionStrong** Sally is required to take back what she said.

As he says,

> Agreement with the claims that it is appropriate for Sally to take back what she said was significantly above the midpoint ($M = 5.75, p < .001$), replicating the findings of Knobe and Yalcin. Agreement with the claim that Sally is required to take back what she said, however, was significantly below the midpoint ($M = 3.41, p = .020$), replicating the findings from Kneer (2015, 2021a)… The effect size of formulation was large (Cohen's $d = 1.19$). (Kneer, 2022, 129)

In the discussion of these results, Kneer (2022) offers some plausible hypothesis about the remaining question of why so many participants in the various studies here discussed appear to tend to agree that it is appropriate to retract what a contextualist predicts is a true, i.e. correct, assertion.

> As Grice (1989) observed, communication is not limited to what is said (the semantic content) but frequently revolves around what is meant, which includes conversational implicatures. (Kneer, 2022, 131).

There may be implicatures that are false, although what is said is true. This is also compatible with (R). In section 3, I said that judging a retraction to be appropriate (even required) is compatible with the assertion being true but infelicitous or inappropriate for reasons independent of its correctness *qua* assertion of a true proposition with respect to the parameter (or perspective) intended in the context of use. (R) only says that if the assertion in incorrect (due to falsity) then the speaker must retract it. But there may be other reasons why a speaker is required to retract that are not related to the falsehood of the assertion, perhaps reasons related to other violations of conversational maxims. Kneer (2022) alludes to a possible explanation of such retractions. In contrast, Khoo (2015) offers a Stalnakerian explanation in terms of conversational updates to a conversation. As Kneer (2022) puts it,

> Whether we are, like Khoo or Knobe and Yalcin, inclined to invoke a Stalnakerian (1978, 1999, 2002) framework or else Grice's theory of implicature to explain rejections not aimed at the truth value of the proposition expressed doesn't matter much. What seems evident is that rejecting a claim can go beyond objecting to its alleged falsity. Instead, one might be objecting to certain implicatures it carries on its heels and/or to certain updates of the common ground it tends to engender. (Kneer, 2022, 131).

Both explanations can help to make sense of cases (6)-(9) from section 3. It is one thing to recognize that we cannot use the same sentence now, given present standards (or perspectives, or parameters), because *now* we wouldn't make a true assertion were we to use that sentence. It is another to say that our past assertion is *incorrect* when we assess it now, and still another thing to say that our past assertion is now incorrect for reasons that have to do with its truth-value. Many authors make a fuss of the use of expressions like 'I guess I was wrong'. But uttering 'I guess I was wrong' does not automatically mean that the speaker must admit that her past assertion was wrong due to falsity. If it is not due to falsity, then the theoretical notion of a context of assessment to which truth would be relative is spurious.

So, for what reasons may one admit being wrong and retract? A very straightforward answer is that one may retract because past standards (or parameters or perspectives) are wrong for current conversational aims. A speaker can either be steadfast and defend the correctness of her past assertion, because she spoke truly, while also making clear that the same sentence *asserted now*, given present standards, would not be true: Lia's assertion at 12 of 'I am mature', made in comparison with standards applicable to 12 year old children; Dylan's assertion of 'Grandma, your house is so big', made from his point of view as a toddler; Maggie's assertion of 'James is a brilliant cook', with respect to the standards of normal home cooks. Crucially, a speaker can say 'I guess I was wrong' about things that are not directly related to truth or falsity. Lia can admit now that she was wrong in thinking that maturity for a 12-year-old was the same as maturity for an adult. Dylan can admit that it would be wrong to think that what looks big to a 3-year-old is what looks big to a grown up. Sally can admit that she was wrong in assuming that her information was up to date. In other words, one can admit being wrong about how the standards or perspectives of past assertions would compare to the appropriate standards of present conversational contexts.

We can now return to the suggestion that flexible forms of radical relativism can resist the results and arguments presented thus far. The reader will not be surprised to find out that I am skeptical about the prospects of a flexible form of radical relativism. According to Dan

Zeman's description cited earlier, "an assessor can adopt a perspective that is not their own (as when an exocentric assessment is made, or from the point of view of a group, etc.), but also the perspective that is relevant in the initial assertion's context of utterance (regardless of whether the initial assertion was made by themselves or by someone else" (*op.cit*). These exocentric (versus endocentric) perspectives are those that are required for interpreting the modal *sentences*. However, assessment-relativism requires that we assess the *right* performance of an assertion. Experimental studies that purport to test evidence in support of assessment-relativism should reveal not merely whether people have intuitions concerning how to interpret and evaluate sentences but also help us diagnose how people assess others' sentence use, i.e., others' speech acts.

The idea of a flexible form of relativism was introduced in a paper by Beddor and Egan (2018) that also relies on experimental evidence. They claim that flexible relativism is consistent with experimental evidence like the one reported earlier in this paper:

> Suppose we retain the basic relativist semantics (Relativist *Might*). But unlike traditional versions of relativism we deny that assessors invariably rely on their own context of assessment when assessing the truth-value of a BEP. Instead, they can look to other contexts of assessment—for example, that of the speaker. Call the resulting view "flexible relativism." Here is a way to think about this sort of view. The proposition that's expressed by an utterance of *Might p* is a centered worlds proposition—the one corresponding to the property: lacking information that rules out *p*. Asked to deliver a verdict about the truth or falsity of the utterance, there are different questions one could be seeking to answer. One could be offering an answer to the question, is the proposition expressed true of me (the assessor)? Or one could be offering an answer to the question, is the proposition expressed true of the speaker? In the first case—where the better informed assessor is delivering a verdict about whether the proposition expressed is true of themselves—they should say false if they know that the prejacent is false. In the second case – where the better-informed assessor is delivering a verdict about whether the proposition expressed is true of the speaker – they should say true as long as the prejacent is compatible with the speaker's information. Possibly there are other questions they could be addressing as well, which would lead their truth-value attributions to track (their beliefs about) the truth-value of the centered worlds proposition at other contexts of assessment. (Beddor and Egan, 2018, 9–10)

Beddor and Egan (2018)'s crucial view is that:

(i) The proposition that's expressed by an utterance of *Might p* is a centered worlds proposition.
(ii) When asked about the truth or falsity of the utterance, an assessor can say that the *proposition expressed* is true of her.
(iii) When asked about the truth or falsity of the utterance, an assessor can say that the *proposition expressed* is true of the speaker.

Now, this 'flexibility' appears to correspond to the ambiguity in judgments of truth value that Domaneschi and Vignolo (2020) highlight, and which vitiates Machery et al. (2004)'s experiments about people's referential intuitions alleged to undermine Kripke (1980)'s anti-descriptivism.[17] As Domaneschi and Vignolo (2020) argue, "the participants in

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[17] For the original criticism of Machery et al. (2004), see Martí (2009).

the experiment who responded "true" did so mainly because they understood the truth predicate as meaning *true from the hypothetical speaker's epistemic perspective*" (Domaneschi and Vignolo, 2020, 453). Of course, it is not as if participants cannot interpret the question about truth-values with respect to their own perspective. What is at stake concerns how people typically assess others' speech acts.

What does this mean for Beddor and Egan's (2018) experiments, or the experiments reported earlier? The ambiguity between (ii) and (iii) is one that is compatible with NIC (and, with a slight modification, it is compatible with IC, but I will not¡ argue this here). In the experiments reported in their paper, the ambiguity in judgements is triggered by different QUDs. But the judgements elicited, as they recognize, concern the BEP, i.e., the epistemic modal sentence itself. The judgments do not concern the correctness of the speech act, i.e., the assertion of that BEP. Thus, in one of their experiments, the vignette tells the reader about John's medical visit, where John has a rare disease, and his life may be at risk. The doctor John visits lacks information (after having read all available published medical research on the disease) as to whether some new medicine may cure John. The doctor says,

> (10)   Accuphine might cure you. There is a new study being run right now to test it out, but they haven't released the results yet, so there is no way to know whether it works or not.

In the story Beddor and Egan (2018) tell us, it turns out that John knows one of the researchers that later tells him that accuphine would probably cause serious harm to John.

Unfortunately, I think that nothing in this story, or in the experiments reported in their paper, supports assessment relativism. All that is being tested is whether the BEP as reinterpreted at a new context, given a new QUD, is true or not. This should be what any contextualist account should say. In this type of case, given the high stakes for John, what matters is discovering the best possible medical research and to evaluate whether the BEP is true with respect to it. If the medical research available to the original doctor is not the best, since more recent research is superior, then John should not stick to that doctor's verdict (John can 'reject it', as Khoo (2015) would put it).[18]

As I argued above, it is one thing to recognize that we cannot use the same sentence now, given present standards (or perspectives, or parameters), because *now* we would not assert truly. It is another to say that we asserted *incorrectly* in the past because, if we had used the same sentence in an assertion now, the sentence used would not be true. As I've also suggested, 'I guess I was wrong' does not automatically mean that the speaker must admit that her past assertion was wrong because false. Rather, one may retract because past standards (or parameters or perspectives) are wrong for current conversational aims. Just as Lia can admit that she was wrong in thinking that maturity for a 12-year-old amounts to maturity for an adult, John's doctor could admit that his past medical information was not good enough given superior existing medical information that was nonetheless not published when he had seen John.

Zeman (this volume) however draws a different conclusion. He considers that part of the problem is that we have allowed for flexibility with truth-value assessments but not for flexibility with retractions. He clarifies:

> In my view, the problem arises due to [Beddor and Egan's] inflexible take on retraction judgments (…) The way out of this quandary is… to deny that judgments about

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[18] On the idea that some perspectives or standards are superior to others, see for instance Zakkou (2015).

retraction "invariably track truth in the context of assessment of the person doing the (…) retracting" and introduce flexibility here as well, in addition to the flexibility pertaining to truth-value assessments which Beddor and Egan already accept. The required flexibility can be incorporated into the framework by making the choice of the relevant perspective play a role in determining the conditions under which people should retract. Thus, I propose to replace MacFarlane's Retraction Rule with the following:

> **Retraction Rule**^{F}: An agent in context c_2 is required to retract an (unretracted) assertion of p made at c_1 if
> (i) p is not true as used at c_1 and assessed from c_2 and
> (ii) the perspective with respect to which p is assessed in c_2 is not the perspective with respect to which p is assessed in c_1. (Zeman, this volume, 71)

Now, there are several problems here. The first problem concerns what MacFarlane (2014) is at pains to achieve in Chapter 5 of his 2014 book – to make sense of the need for a theoretical notion of assessment-relativity based on people's actual communicative practices (what Dummet would call "the practice of assertion"). The strong retraction norm he advances is the only one, he thinks (and I agree), that warrants introducing what ultimately is a new formal device, the context of assessment. A flexible retraction norm appears to me to be normatively unwarranted. But I admit that Zeman does attempt to formulate the conditions in which it would apply, not by dropping the requirement condition, but by making explicit the relativization of assessment perspectives. The virtue of this proposal is that it tries to capture the relativization of correctness conditions themselves. However, I think that he does not succeed.

The main problem, in my view, is that this rule is falsified by the cases of 'steadfast' refusals to retract. All the examples in the present paper, (1)-(10), are of sentences that we can take to express a proposition after an interpretation that assigns reference to names, and for which other contextual parameters are resolved. Assume that 'might' requires a non-indexical contextual interpretation. Take (1), 'the keys might be in the car', as uttered by me to my family last night. This is not true as used at c_1 and assessed from c_2, where c_2 is this morning. However, the time frame in which my family asked me about the keys was last night, I meant to convey a possibility about the location of the keys given what I knew at the time, and what I asserted was assessed as true by my family.

The question now is: does any experimental evidence available, or do our own intuitions in general, support condition (ii)? My family and I know that the BEP in (1) is not assessed this morning from the same perspective as the perspective from which we assessed it last night. *Mutatis mutandis*, the same is true of Sally when she acquires new information, or of John's doctor if and when new research is published about accuphine. Zeman would have to establish that any of the speakers (Lia, John's doctor, or I), violate Retraction Rule^F for him to be right that we are under any obligation to retract when the BEP used is assessed from different perspectives. But the same point that Marques (2018) offers applies to Zeman's definition:

> According to the relativist, when it is revealed that there is no ice cream left, the asserter of [there might be ice-cream in the freezer] ought to retract with something like "Oh, I guess I was wrong" or "I take that back, there's no ice cream left then". The point of von Fintel and Gillies (2008) (p. 81 ff), however, is that not all *mights* are retracted in

the face of new evidence. Often, speakers resist an invitation to retract. A speaker could resist thus [Look, I didn't say there is ice cream in the freezer; I said there might be. Maybe the kids finished it last night. Sheesh.] (Marques, 2018, 3345)

What this shows is that even though *p* can be assessed from different perspectives – the perspective of the initial utterance and the perspective at the context of the challenge are different – it still does not follow that the speaker is under any obligation to retract the original assertion.

Wyatt and Ulatowski (this volume) argue that the assessment-relativist should endorse a weakened retraction norm, whereby a retraction is *permissible* rather than required if the asserted proposition is not true at the context of use and assessment. They contend that this means that if retractions were required, that would be evidence in favor of absolutism. But if retractions of the crucial sentences as used are merely permissible, then we should be pushed "towards IC, NIC, AR, or expressivism" (Wyatt and Ulatowski, this volume, 24). Using sentences with taste predicates in their characterization of assessment-relativism and of non-indexical contextualism (NIC), they say that what is characteristic of each is that

> NIC entails that an assertion like ['Vegemite is disgusting!'] has exactly one circumstance of evaluation – the circumstance of the context – whereas AR entails that such an assertion has indefinitely many circumstances of evaluation, each of which is determined by a possible context of assessment. (Wyatt and Ulatowski, this volume, 17)

Nonetheless, I think that even Wyatt and Ulatowski don't fully capture what the failure to establish that a retraction is required entails. Unless a retraction is required, the existence of indefinitely many possible circumstances of evaluation is no problem for either IC or NIC. What AR needs is that the *relevant* circumstances of evaluation for a given assertion *not be* determined once and for all at the context of assertion. What the assessment relativist needs to show, then, is that an assertion using that sentence with the interpretation as intended by the speaker still leaves it open whether *the assertion itself* might not be, once and for all, correct even when the speaker does all she should at the context of assertion. And this is what is not established, if I am right.

We are thus left with the last rejoinder that an assessment-relativist can provide. In cases like the Boston imagined situation, Sally could easily refuse to retract. This is corroborated by the results of the studies in this paper, and those of Kneer (2022). MacFarlane suggests that this is not a problem because it could be that Sally's communicative intention was to convey an assessment-invariant proposition (MacFarlane, 2014, 256-260). I think that this is an unpersuasive response. It is not plausible that speakers have communicative intentions that can discriminate between assessment-sensitive and assessment-insensitive propositions, a distinction that even theorists struggle to elucidate, as the discussion in this section illustrates.

Be that as it may, the suggestion would have to be extended to account for the responses of participants in the studies on epistemic possibility modals reported here. As we saw, people do not agree, or tend to disagree, that a speaker is required to retract an assertion of the form 'might *φ*' if the prejacent is false at their context. Following MacFarlane's rejoinder, the reason must be that people interpret what speakers say as expressing, or intending to express, an assessment-insensitive proposition. But if that is the case, so much the worse for the assessment-relativist. We are left with the claim that speakers sometimes intend to convey assessment-sensitive propositions, without any compelling motivation for an assessment-sensitive communicative practice that we can discern.

I'd like to finish by noting that I find it only normal that people are in general interested in assessing what others assert given what others presumably intended in asserting. This is manifest in the type of truth-value judgements in the cases discussed by Domaneschi and Vignolo (2020), lso in the judgments about falsity in the experiments discussed here, but also in the normative appreciation of people's speech acts that is manifest in judgments about retractions. Normative evaluations of people's speech acts are instances of how we evaluate people's actions, more generally, by reflecting in part on their presumed intentions; after all, what action a person does is at least in part constituted by what she intends to do.

7. Conclusion

In this paper, I gave experimental evidence against the claim that speakers' intuitions support assessment-relativism about the assertion of epistemic modal sentences and used this evidence as part of a broader argument against assessment-relativism. The present studies tested the intuitions of both North American English speakers and of peninsular Spanish speakers, whose judgements on the topic had never been tested. The results confirm that speakers are not inclined to judge that a past assertion of a BEP is false when they have information that falsifies the prejacent. Indeed, and against relativist predictions, both North American English speakers and peninsular Spanish speakers disagree, or tend to disagree, that the epistemic possibility modal claim is false, and likewise disagree, or tend to disagree, that the speaker is required to retract the past assertion of the sentence. Interestingly, speakers diverge in their judgments about when a retraction is appropriate and when it is required. This divergence was not tested by Knobe and Yalcin (2014) but aligns with the results independently reached by Kneer (2021b, 2022), and supports the arguments I previously offered (Marques(2014, 2018). Finally, I have also considered recent arguments in favor of a flexible form of assessment-relativism and found those arguments to predominantly track intuitions about the truth-value of a BEP sentence, or of the proposition it expresses. Those arguments do not address speakers intuitions about the correctness of assertions. Therefore, I found them to be inconclusive against contextualism.

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