

What Might But Must Not Be

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1. Introduction

The characterization of modal concepts as quantifiers over possibilities – what we'll call the Quantifier Analysis (QA) – claims that what is possible is what is true in *some* possibilities, and what is necessary is what is true in *all* possibilities. Much of QA's influence is due to its application (particularly in Kratzer 1977, 1981) to the semantics of modal terms in natural language, like 'must', 'might' and 'may'. By positing contextually variable parameters that define the relevant domain of possibilities, QA provides a flexible, unifying framework that accommodates that modal terms have different senses or 'flavors', including epistemic, deontic, metaphysical and teleological.

This paper addresses a problem arising from some epistemic uses of modals. Certain 'might'-sentences appear felicitous although, according to QA, they are necessarily false. Some philosophers (e.g. Huemer (2007: 125), Braun (2012: 472, 2013: 489-90) and DeRose (ms)) have appealed to this problem in rejecting QA, but otherwise it has received little attention. Greater attention has been paid to a related question in formal epistemology: How to square Bayesian/Probabilist normative theory, which says we should be completely confident of logical and mathematical truths, with seemingly rational uncertainty about such things? (Hacking 1967, Garber 1983: §3 and 4) Like some answers to that question, our solution recognizes how actual reasoning is simpler than the ideal. However, our question is descriptive – about what we *are*

saying with 'might'. We offer a pragmatic explanation of why making these claims makes sense despite their being false, as QA maintains.

2. The Problem

Neave and Luke wonder whether various numbers are prime. 'How about 899?' Neave asks. 'Well it's not divisible by 2, 3, 5, or 11,' Luke replies. Neave says, '899 might be prime.'

In fact, 899, the product of 29 and 31, isn't prime. Nonetheless, Neave's assertion that 899 might be prime seems natural and appropriate. It is natural to think that *given what Neave and Luke knew at the time*, it might have been prime. According to the standard interpretation, it is this qualified epistemic modal claim that Neave asserted.

However, if QA is correct, there is a problem. QA holds that '899 might be prime,' uttered in Neave's context, is true just in case there is a possibility compatible with what she and Luke know in which 899 is prime. But it is necessarily false that 899 is prime, so there are no such possibilities. Therefore, QA tells us what Neave says is false.

One might welcome this result. It explains why observers (like us) can react to this conversation by saying, 'Neave is wrong. 899 is necessarily not prime.' If asked whether we *agree* with Neave that 899 might be prime, it is natural to say we do not.¹ Perhaps, then, Neave's claim is natural and appropriate given her ignorance, but false.

¹ We don't provide a solution to this 'lost disagreement' problem here, though we note that it arises with contingent might-claims too. QA-friendly solutions include Dowell 2011, von Fintel and Gillies 2011, Montminy 2012, Lennertz 2014a, Silk 2016 (for epistemic modals) and Björnsson and Finlay 2010, Khoo and Knobe 2018 (for deontic modals).

However, this quick dismissal overlooks important points. We can suppose that Neave knows every number is either necessarily prime or necessarily not prime. So, she knows that if 899 isn't prime, there are no possibilities in which it is prime. And Neave is not confident that the antecedent is false; that is, after all, why she says that 899 might be prime, and not that it is prime. So, Neave should accept that *she doesn't know whether there are any possibilities in which 899 is prime*: either they all are, or none are. It seems to follow that she cannot appropriately assert that there are some possibilities in which 899 is prime. But according to QA, this is what she asserted by saying, '899 might be prime.'

Note that we assume throughout that necessarily coextensive propositions—like the necessarily false propositions that 899 is prime and that $2+2=5$ —can be nonidentical, and therefore that propositions are not simply sets of possible worlds. Proponents of the possible-worlds analysis of propositions have strategies for accommodating the apparent difference between believing that 899 is prime and believing that $2+2=5$, some of which generate alternative solutions to the current problem for QA.

3. Standard Responses

We shall now discuss the prospects for two common responses to this problem, and explain why we find them unpromising, in order to motivate retaining QA unmodified and offering a pragmatic solution.

The less revisionary attempt proposes that modals quantify over not just *metaphysical* possibilities, but also so-called *epistemic* possibilities—including metaphysically impossible

'possibilities' that cannot be ruled out apriori (Soames 2006, Chalmers 2011). This move only slightly departs from the standard QA picture. Unfortunately, it doesn't solve the puzzle. Suppose Neave knows Peano's Axioms, as well as the definitions of number-theoretic terms. It follows apriori from these that 899 is not prime. So, there are no epistemic possibilities consistent with what Neave knows (metaphysically possible or not) in which 899 is prime, and her utterance of '899 might be prime' is predicted to be false.

The more revisionary proposal rejects QA. It allows a proposition to be epistemically possible for a person, even if its negation is an apriori consequence of her beliefs. Most of the purveyors of our problem avow this picture. A simple version says that 'It might be that p ' is true at a context just in case the speaker doesn't know that p is false. (The full details of DeRose's (1991), Huemer's (2007) and Braun's (2012) views are nuanced, and Braun's invariantism might exempt him from the disunified charge that follows, though we lack space to explore his account in detail). We won't refute this response. But observe that it seems to require abandoning a unified semantic treatment of modals. Since our problem also arises for epistemic possibility modals such as 'may' and 'could', and these terms also have deontic uses standardly analyzed as quantifying over deontic possibilities, this requires introducing into this class of terms something more like ambiguity than context-sensitivity. We prefer to retain the unified QA semantics and search for a pragmatic solution.

4. The Pragmatic Role of 'Might'-Statements

Our solution retains QA without modification, claiming that the intuition that what Neave says is true is misleading. We explain why Neave's statement is natural and appropriate, and why it

might seem as if Neave says something true. This is because the most important and salient thing she communicates *is* both relevant and true.² In this section we motivate a general account of the most important thing communicated by typical utterances of epistemic ‘might’-sentences.

Grice’s (1989) work on conversational pragmatics emphasizes that the content at a context of the sentence a speaker utters (roughly ‘what is said’) often isn’t the only—or most important—thing she communicates. Speakers often use sentences that mean one thing to convey, in addition or instead, something that better fits the conversational purposes. We suggest this is generally true of uses of epistemic ‘might’-sentences: in addition to (or sometimes, instead of) asserting a sentence’s semantic content, a speaker communicates information about *what she takes to be a serious option in reasoning*. (Speakers may communicate other things too, such as the recommendation that the audience ought to take the relevant possibilities as serious options in reasoning, but for simplicity we will focus just on this implicature.) First, we’ll show that ‘might’-claims ordinarily communicate something like this. Second, we’ll show how what is communicated is calculable as a conversational implicature given QA.

Suppose that in investigating a murder Holmes and Watson are reviewing their evidence, which is compatible with any of thousands of people being the murderer. Holmes says, ‘Moriarty might be the murderer.’ He communicates more than simply that it is consistent with their evidence that Moriarty is the murderer. He seems to suggest that he considers Moriarty a serious suspect. We claim that typically, a sentence of the form ‘It might that *p*’ is used to convey that the speaker

² A rival pragmatic solution is that Neave is really considering a different, contingent proposition; *that the number named ‘899’ is prime* (Stalnaker 1984, Braddon-Mitchell and Jackson 2007: 200-201). Our solution avoids objections against this approach raised inter alia in Field 1978: 14-5, Soames 2006, Elga and Rayo ms, and it has the advantage of taking Neave’s utterance at face value. A QA-friendly solution to instances of our puzzle involving indexicals in Santorio 2012 postulates that ‘might’ is a context-shifting ‘monster’; this doesn’t easily extend to mathematical cases like Neave’s.

takes the content of the prejacent, p , as a serious option in reasoning (see also Toulmin 1958, Huemer 2007, Montminy 2012, Braun 2012, Willer 2013 and Lennertz 2014a and 2014b). When an agent explicitly reasons in a situation of uncertainty, she generally doesn't consider all the options consistent with her evidence. This is often too complex and cognitively demanding. Rather she focuses on some options, which she will reflect on and gather evidence about.

QA can explain this feature of epistemic discourse by appeal to Grice's First Maxim of Quantity: 'make your contribution as informative as is required'. The semantic content of Holmes's claim is extremely weak. For each of a huge number of people, there is a possibility consistent with Holmes's evidence in which that person is the murderer. So why would Holmes mention Moriarty specifically, instead of his childhood doctor, Watson's mother, or the Queen of England? (This weakness is an issue for many non-QA theories of epistemic modals, including the theories of those who use our problem as an objection to QA. Holmes' assertion communicates more than that nobody in the community has a way of knowing that Moriarty isn't the murderer (DeRose 1991), that Holmes isn't justified in dismissing that Moriarty is the murderer (Huemer 2017), or that it is possible simpliciter that Moriarty is the murderer (Braun 2012). These theorists therefore are obliged to accept pragmatic supplementation similar to what we propose below—which Braun, at least, avows.)

Since Holmes and Watson are trying to identify a list of suspects to investigate further, the natural conjecture for Watson is that Holmes asserts that it is compatible with their evidence that Moriarty is the murderer with the intention of making him salient as a suspect. We can show this by considering what is (according to QA) an equivalent utterance. Suppose Holmes instead says, 'It is consistent with our evidence that Moriarty is the murderer.' Watson replies, 'Do you really

think we should be investigating him?', and Holmes responds, 'No, of course not. We don't know any motive Moriarty would have, and we don't have reason to suspect he was even at the scene.' Watson would be puzzled about why Holmes mentioned Moriarty at all. That our posited implicature arises when using an explicit QA paraphrase suggests that it arises given this analysis of 'might'.

Given QA and the ordinary purpose of asserting 'might'-sentences, the speaker will normally implicate that she takes the prejacent proposition as a serious option in reasoning. So, we posit the existence of a *generalized conversational implicature* with this content: the use of 'might' is enough, by itself but defeasibly, to convey this content. But this pragmatic account is also subtle enough to explain why this implicature is defeasible or cancellable. For example, when responding to Holmes's utterance of 'Moriarty might be the murderer,' Inspector Lestrade can felicitously say, 'Yes, Moriarty might be the murderer. So might your childhood doctor, or Watson's mother, or the Queen of England. Don't waste our time until you have something concrete to go on!' Here he makes bare assertions of consistency with the evidence, without communicating (indeed, while denying) that these are serious options. He cancels the normal implicature by mentioning alternatives that transparently are not serious options.

This defeasibility or cancellability of what is pragmatically conveyed constitutes a significant advantage for our proposal over semantic accounts that attribute expressive or recommendatory content to the meaning of 'might', because there are cases where no expression or recommendation of taking the prejacent as a serious option in reasoning is plausible—although the QA semantics fits well. This includes uses of 'might' under quantifiers ('Anybody might be the murderer'), in the past tense ('Moriarty might have been the murderer (for all we knew), although

we now know he wasn't') and for possibilities outside our cognitive grasp ('There are people we don't know about who might be the murderer'). Because our story appeals to the conversational purpose of the utterance, it allows for varying implicatures given varying conversational purposes, such as expressing one's refusal to dismiss something as a serious option in reasoning, expressing that something should have been taken as a serious option, etcetera.

5. Application to Our Case

Although the semantic content of a 'might'-sentence involving an unobvious impossibility – like '899 might be prime' – is (according to QA) necessarily false, the pragmatic aspect of 'might'-discourse sketched above is no less applicable than in Holmes's case. An agent may reasonably take a proposition as a serious option in reasoning which isn't actually consistent with what she knows. This can happen when the inconsistency is unobvious, as with the primality of 899. In Neave's context, where the question of the primality of 899 has been raised explicitly and the conversationalists are unaware that 899 isn't prime, she takes it as a serious option that 899 is prime.

We can therefore expect that when Neave says '899 might be prime,' she implicates that she takes it as a serious option in reasoning that 899 is prime.³ This seems the right thing to communicate in her situation. So, QA explains why Neave has a reason to utter that sentence. However, providing a reason isn't equivalent to providing a *justification*. To justify Neave's

³ Other cases raise questions about this solution's generality. For example, '(For all I know) any number ending with the digits '17' might be prime.' As above, we can appeal to a modified conversational purpose and implicature here: expressing that one doesn't dismiss treating the primality of any such number as a serious option.

utterance, or explain why it seems *natural and appropriate*, we need also to show that she didn't obviously have stronger reason to say something else instead.

Supposing QA true, the key difference with the Holmes case is that the proposition Neave asserts is *false*. This might seem a decisive reason not to express herself in that way. Why doesn't Neave directly assert that she takes it to be a serious option in reasoning that 899 is prime, avoiding risk of falsehood? If we want to respect the intuition that Neave's utterance was natural and appropriate, this may prompt us to reject QA. However, the account we've sketched can explain the naturalness of Neave's utterance.

It is common to say something literally false to communicate something important and true. For example:

(1) You're a *real* genius. (Sarcasm)

(2) I could eat a horse! (Hyperbole)

Admittedly, these aren't the best models for understanding Neave's utterance. They exploit the transparent falsity of the content of the sentence (whether we assert or just, as Grice would say, make as if to say this content) in order to pragmatically convey something relevant and true.

However, there are other situations where the content of the sentence (which is asserted) is false and what is implied is true, but where we only recognize the falsity of what is said on reflection.

Suppose that while driving, you ask for water. Seeing only a few drops in the bottle, I say, 'There's none left.' This is literally false, though what I convey – that there is not enough water left to have anything substantial to drink – is true. One might grant the example but still wonder why it makes

sense to say this false thing to convey something true. One reason is that uttering the shorter sentence is more convenient, knowing that your audience will recognize the obvious implicature.

Other examples include ‘We’re out of gas’ and ‘I have nothing to do all weekend.’ A case even more like Neave’s, where we aren’t in a position to know the content’s truth: Minutes from your destination, your partner worries that the spare tire is flat and suggests you stop and check. You reply, ‘The spare isn’t flat’ without knowing so. Suppose the spare is flat. You’ve spoken appropriately and usefully (communicating that you shouldn’t stop to check), despite saying something you couldn’t know that was, in fact, false.

A similar explanation helps us understand why Neave asserts something she doesn’t know is true in order to convey something relevant and true. Part of the answer lies in the convenience or efficiency of the sentence ‘899 might be prime’. More importantly, according to our proposal this implicature is by default read into ‘might’-statements, making it the first kind of communicative device that comes to mind when looking to express such a state of mind.

Readers may have a further reservation – that there is sense that Neave doesn’t merely speak felicitously, but also asserts something true and nothing false. In response, we propose that a further factor is *semantic opacity* (Bach 2011, Montminy 2009, Finlay 2014: 236-45, Finlay 2017: 202). It is plausible that ordinary, competent users and interpreters of English, like Neave and ourselves, typically fail to recognize that such assertions are literally false. Distinguishing between the semantic content of a sentence and its typical pragmatic accompaniments is often difficult. This is especially true of generalized implicatures, as we have suggested for ‘might’-sentences and the expression of taking options seriously. This is unsurprising, given widespread theoretical

disagreements in philosophy and linguistics among competent speakers about the correct semantic analysis of words.

Therefore, even if QA is correct, competent speakers may not generally be aware of this. Without explicit knowledge of the correct semantic theory, recognizing that the utterance appropriately conveys what such utterances standardly convey, as we've argued is the case with Neave's utterance, makes it natural to assume it is true. This hypothesis is bolstered by noting that cases like Neave's are unusual. Generally, when it is reasonable to take something as a serious option in reasoning, that proposition is consistent with one's evidence. Cases where something is reasonably taken as a serious option because of the unobviousness of its inconsistency with one's evidence are comparatively rare in ordinary life (perhaps excepting examples involving Kripke's necessary a posteriori like 'Today might be Wednesday,' 'She might be Maria,' and 'Water might be H₂O.'). This explains why speakers often fail to notice their problematic nature.

One could complain that attributing error or confusion to ordinary speakers is a heavy cost. Does this favor a theory that denies that Neave's assertion, and many people's intuitions about it, are false? We don't think so, since the opacity hypothesis has countervailing benefits. For example, if somebody pressed Neave about this problem (i.e. that if 899 isn't prime, then it necessarily isn't prime), it seems natural for Neave to become puzzled, and on reflection, retract her claim: 'Okay, I don't know whether 899 might be prime. I just know I'm not in a position to say whether it is prime.' Our account makes sense of this reaction, unlike theories that reject QA, many of which are hard-pressed to explain why Neave shouldn't stick to her guns. This is also a reason to prefer our account to an error theory assigning ordinary speakers mistaken belief in metaphysical possibilities in which actual primes aren't prime. Plausibly a semantic theory should give greater

weight to what people say after careful consideration than to their immediate, unconsidered responses.

6. Conclusion

We have argued that the unified and powerful QA account of modal terms shouldn't be rejected because of the felicity of 'might'-sentences about unobvious impossibilities. This problem is amenable to our straightforward pragmatic explanation. Given the purposes for which 'might'-sentences are standardly used in conversation on the basis of their QA semantics, their uses can be pragmatically felicitous even if their semantic contents are literally false, and there is a ready explanation why this falsity is easily missed.⁴

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