

Epistemic Modality, Eavesdroppers and the Objectivity Problem

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There is an account of modal operators that is both elegant and powerful and that deserves to be called *the standard account*. There are, however, some epistemic uses of modal operators which seem to be counterexamples to the account – they pose what I call *the objectivity problem*. It is often thought that the objectivity problem can be fixed by a certain kind of modification to the standard account. I argue that this kind of modification cannot work. Then I argue that the problem posed for the standard account by recently discussed eavesdropper cases is really just the objectivity problem in a different guise, thereby emphasizing the need for a new solution to the objectivity problem. Finally, I propose a new solution to the objectivity problem.

1. The standard account

According to what I shall call *the standard account* of possibility operators, an utterance of ‘Possibly *S*’ (and its variants ‘It is possible that *S*’, ‘It might be that *S*’, ‘It can be that *S*’, etc.) in a context *C* is true if and only if the prejacent (the proposition expressed by *S* in *C*) is compatible with the conversational background (a set of propositions determined by *C*).¹ If we analyze compatibility in terms of worlds then we can put it this way: the utterance is true iff there is a world in which the prejacent and the propositions in the conversational background are all true. Different kinds of possibility correspond to different kinds of conversational background: if the conversational background is a body of knowledge then the utterance is an epistemic use of ‘Possibly *S*’; if it is a set of laws or regulations then it is a deontic use; if it is a set of desires then it is a bouletic use; and so on. As stated, the account allows that when ‘Possibly *S*’ is used epistemically there is flexibility in whose knowledge forms the conversational background – it could be the knowledge of the speaker, the knowledge of someone other than the speaker, or the knowledge of some group of people which may or may not include the speaker.

2. The objectivity problem

There is a problem for the standard account that has been recognized for some time. Here is an old and well-known example due to Hacking (1967, p. 148):

Salvage ship

Imagine a salvage crew searching for a ship that sank a long time ago. The mate of the salvage ship works from an old log, makes some mistakes in his calculations, and concludes that the wreck may be in a certain bay. It is possible, he says, that the hulk is in these waters. No one knows anything to the contrary. But in fact, as it turns out later, it simply was not possible for the vessel to be in that bay; more careful examination of the log shows that the boat must have gone down at least thirty miles further south. The mate said something false

¹ See Kratzer (1977, 1981, 1991), and von Fintel (2006).

when he said, 'It is possible that we shall find the treasure here,' but the falsehood did not arise from what anyone actually knew at the time.

The problem is that the mate's utterance of 'It is possible that the wreck is in that bay' is false, even though the prejacent (the proposition expressed by 'the wreck is in that bay') is compatible with what anyone knows at the time. So no matter which body of knowledge we take, the prejacent is compatible with that body of knowledge, and the standard account wrongly predicts that the mate's utterance is true. The case suggests that the truth of an epistemic utterance of 'Possibly *S*' can depend upon facts about the world that are not known to anyone at the time, contrary to what the standard account predicts. Call this *the objectivity problem*.

Not everyone agrees that the mate's utterance is false. They ask: "Why is it not epistemically possible that the wreck is in that bay, given that it is compatible with what anyone knows at the time that it is? Perhaps it is not possible in some other sense, but in an epistemic sense it is." If they are right that the mate's utterance is not false then there is no problem here for the standard account. But many people agree that the mate's utterance is false, and that there is a problem here for the standard account. My question is: if so, then what should the standard account do about it?

3. A popular fix

One popular way of dealing with the objectivity problem is to allow that the conversational background determined by an epistemic utterance of 'Possibly *S*' can include not just what is known (by some person or group of persons) but also what can be known (what is within 'epistemic reach', as Egan (2007) would say). The mate's utterance is false, not because the prejacent is incompatible with what is known at the time, but because it is incompatible with what can be known at the time (that the log rules out the wreck being in that bay). Call this *the popular fix*.

It is well known that the popular fix needs to place restrictions on what counts as knowable relative to an utterance of 'Possibly *S*', or else there are many utterances that it wrongly predicts to be false. Take any location *L* for which an utterance by the mate of 'It is possible that the wreck is at *L*' is true, but the wreck is not at *L*. If we allow that it can be known that the wreck is not at *L* (for example, by diving at *L* and looking), then it is not compatible with what can be known that the wreck is at *L*, and so the utterance is wrongly predicted to be false. So to get the right result the popular fix has to say that relative to this utterance it cannot be known that the wreck is at *L*. Hacking (1967) proposes that only things that can be known by some practical investigation count as things that can be known (diving at *L* and looking is not practical); De Rose (1991) proposes that only things that can be known by some method in a contextually determined set of relevant methods count as things that can be known (diving at *L* and looking is not a relevant method).

There are known problems for each of these two ways of putting restrictions in place (see Egan (2007), von Fintel and Gillies (2008)). But I have more serious concerns about the general approach of the popular fix.

4. Concerns about the popular fix

I have one objection and two challenges.

First, an objection. There are cases in which the unknown fact that makes an utterance of 'Possibly *S*' false is an unknowable fact, so appealing to what can be known to solve the objectivity problem is bound to fail.² Here are three examples, each of which aims to be structurally analogous to the salvage ship case, but in which the falsifying fact is unknowable:

First example. Suppose that John believes that Descartes had between 200 and 400 books on his bookshelf and is not open to it being otherwise. He is wondering whether it was between 200 and 300 or between 300 and 400, and asserts 'It might have been between 200 and 300'. If in fact Descartes had only ten books on his bookshelf then John's utterance is false. But the fact that Descartes had only ten books on his bookshelf is not something that John or anyone else can know.

Second example. Suppose that epistemicism about vagueness is right, and there can be people who are not thin but unknowably not thin. Suppose that Mary is unknowably not thin. John believes that Mary is thin and is not open to it being otherwise. He is wondering whether, of all the thin girls, Mary is the prettiest. He thinks that she stands a good chance and asserts 'Mary might be the prettiest thin girl'. But Mary is not even thin, so John's utterance is false, and the fact that Mary is not thin is not something that John or anyone else can know.

Third example. Suppose that John thinks that it is not an unknown truth that there is life on Jupiter and is not open to it being otherwise. He is wondering whether it is (a) false, or (b) true but not known. He asserts 'It might be false that there is life on Jupiter'. If in fact it is an unknown truth that there is life on Jupiter then John's utterance is false. But the fact that it is an unknown truth that there is life on Jupiter is not something than John or anyone else can know.

Each of these cases has the same structure as the salvage ship case: Someone asserts 'Possibly *S*'; there is some true proposition *q* which is incompatible with the prejacent *p*, and because of which the utterance is false; but *q* is not something that anyone at the time knows. According to the standard fix, the utterance is false because *q* is something that can be known (within certain restrictions). But the three examples above show that there are cases in which *q* cannot be known, so that no amount of tinkering with restrictions will get the standard fix to work.

That is my objection to the standard account. In addition, I have two challenges.

² Thanks to Stephen Kearns.

First, we have what I call the *openness observation*. When the truth of an utterance of ‘Possibly S’ depends upon facts about the world that are not known to anyone at the time, it can do so in a way that depends upon what the speaker is open to during the utterance. This is a feature of all the above cases that I haven’t yet emphasized, but one that is important. On the most natural way of understanding the salvage ship case, the mate is not open to the log’s ruling out that the wreck is in that bay. But if we add to the story that he is (that he has some doubts about his calculations), then many now judge that the mate’s utterance is true, and that upon re-examining the log the mate would be right to stand by his original claim and say, ‘It still might have been there’. Similarly, in the examples above, if John were open to Descartes having had ten books on his bookshelf then his utterance would not be false, if he were open to Mary not being tall then his utterance would not be false, and if he were open to it being an unknown truth that there is life on Jupiter then his utterance would not be false.

It seems difficult for the popular fix to account for the openness observation. In the salvage ship case, let p be the proposition that the log rules out the wreck being in that bay. If the popular fix is right then we have the following correlation: if the mate is not open to p then p can be known (so that his utterance of ‘It is possible that the wreck is in that bay’ is false); if the mate is open to p then p cannot be known (so that his utterance of ‘It is possible that the wreck is in that bay’ is true). Prima facie these correlations are the wrong way around, and there is a challenge here for the popular fix to explain them.

My second challenge is this. The standard account faces the objectivity problem not just with epistemic uses of ‘Possibly S’ but with non-epistemic uses as well. Here are two examples:

Metaphysical use

John rolls a die and it comes up ‘3’. He asserts, ‘I might have rolled a ‘2’’ (intending a metaphysical reading). There are worlds in which the prejacent (that John rolled a ‘2’) and the propositions in the conversational background (the metaphysical laws) are all true, so on the standard account John’s utterance is true. But if the die that John is using has a ‘3’ on all sides then his utterance is false (assuming that John is not open to swapping his die for a regular one before rolling it – if he is then his utterance is true).

Deontic use

John is looking for a parking space in downtown Ithaca. The Ithaca council provides special parking spaces for fuel efficient cars. Pointing to one of these spaces John asserts, ‘I can park there’ (intending a deontic reading). There are worlds in which the prejacent (that John parks there) and the propositions in the conversational background (the parking regulations) are all true, so on the standard account John’s utterance is true. But if John is driving a Hummer then John’s utterance is false (assuming that John is not open to swapping his car for a fuel efficient one before parking – if he is then his utterance is true).

It is not clear how the popular fix might be extended to these cases. The natural first try is as follows: in the metaphysical case, the conversational background can include not just things that are metaphysical laws but also things that can be metaphysical laws, and it can be a metaphysical law that John uses a die with a '3' on all sides; in the deontic case, the conversational background can include not just things that are parking regulations but also things that can be parking regulations, and it can be a parking regulation that John drives a Hummer. This does not seem like a promising approach, so there is a challenge here for the present approach to come up with a more promising way of extending to other kinds of possibility.

Note that in the metaphysical and deontic cases just given we also have the openness observation – that the truth of an utterance of 'Possibly S' can depend on what the speaker is open to at the time of the utterance. What we would like is a solution to the objectivity problem and an explanation of the openness observation that extends to all kinds of possibility. I think that with a simple and well-motivated modification of the standard account we can get just that (see Section 6).

But before that, some remarks about eavesdropper cases.

5. Eavesdropper cases

There has recently been some discussion of epistemic uses of 'Possibly S' in cases that involve eavesdroppers. Here is simple case as it might typically be described:

Two cups

John is trying to work out which of two cups a ball is under. He asserts (with warrant), 'The ball might be under cup 1'. In fact the ball is under neither cup. An eavesdropper who knows that the ball is under neither cup judges 'false' of John's utterance. Her judgment is correct.

Not everyone agrees that the eavesdropper is correct to judge 'false', but assume for the moment that she is (I will offer an explanation of this below). The case poses a problem for the standard account. According to the standard account, John's utterance is false just in case it is not compatible with the conversational background (a body of knowledge) that the ball is under cup 1. So if the eavesdropper is correct to judge 'false', then the conversational background cannot be merely John's body of knowledge, because it is compatible with what John knows that the ball is under cup 1. If the conversational background includes the eavesdropper's body of knowledge then we get the result that the eavesdropper is correct to judge 'false', but then we have trouble explaining why John is warranted in making the assertion in the first place – he has no idea (we can add) whether or not he has an eavesdropper, or how much such an eavesdropper might know, so if the truth of his utterance is sensitive to the knowledge of any eavesdropper, then he is not warranted in making the assertion. Call this the *eavesdropper problem*.

In response to the eavesdropper problem, Egan et. al. (2005), Egan (2007), MacFarlane (2008), and others have defended a *relativist* account of epistemic uses of 'Possibly S'.

According to this account, the truth of an epistemic utterance of 'Possibly S' is not true or false simpliciter but only relative to an assessor and a time. In particular, an epistemic utterance of 'Possibly S' in a context C is true relative to an assessor A at time t iff the prejacent is compatible with everything that A knows at t. In the two cups case, John's utterance is true relative to John at the time of the utterance (since it is compatible with everything that John knows at the time of the utterance that the ball is under cup 1) and that is why John is justified in making the assertion (perhaps we need to add that John knows that his utterance is true relative to him at the time). But relative to the eavesdropper at the time of her judgment John's utterance is false (since it is not compatible with everything that the eavesdropper knows at the time of the judgment that the ball is under cup 1), and that is why the eavesdropper is correct to judge 'false' (i.e. false relative to her at the time of the judgment). The relativist account thus allows that John is justified in asserting 'The ball might be under cup 1' and that the eavesdropper is correct to judge 'false'.

Rejecting the relativist account, von Stechow and Gillies's (2008) propose that coupled with a sufficiently enriched pragmatic theory the standard account can handle eavesdropper cases.³ According to the standard account, an epistemic use of 'Possibly S' determines a certain body of knowledge as the conversational background, but it does not make explicit exactly which body of knowledge this is, and this can give rise to an interpretational ambiguity. von Stechow and Gillies propose that sometimes speakers exploit this ambiguity, and would say that this is what John is doing in the two cups case. By uttering 'The ball might be under cup 1', John puts into play at least two propositions, one being a solipsistic reading of 'The ball might be under cup 1' (on which the conversational background is everything that John knows), the other being a group reading (on which the conversational background is everything that John and the eavesdropper together know). John is warranted in making the utterance because he is warranted in asserting at least one of these two propositions (the solipsistic one). The eavesdropper is pragmatically obliged to react to the strongest proposition she reasonably has an opinion about, which is the group reading. Since the group reading is false, the eavesdropper is correct to judge 'false'. This *ambiguity by design* account thus allows that John is justified in asserting 'The ball might be under cup 1' and that the eavesdropper is correct to judge 'false'.

The relativist and ambiguity by design accounts both assume a certain explanation for why the eavesdropper is correct to judge 'false': she is correct to judge 'false', because when she assesses John's utterance her body of knowledge is to be included in the conversational background of the utterance, and her body of knowledge is incompatible with the prejacent of the utterance (had it been compatible with the prejacent then her judgment would not have been correct).

But is this the right explanation? Here is an alternative: the eavesdropper is correct to judge 'false' because John's utterance is false, and John's utterance is false because the ball is under neither cup, something that John was not open at the time of the utterance. In short, this is just another instance of the objectivity problem. Whether or not the eavesdropper is correct to judge 'false' does not depend on what she knows.

³ Against the relativist account also see Hawthorne (2007) and Wright (2007).

Whether or not she is warranted to judge 'false' might depend on what she knows, and perhaps she judges 'false' because of what she knows, but whether or not she is correct to judge 'false' does not depend on what she knows.

Which is the better of these two explanations? Here are some reasons to think that it is the latter.

First, consider a modified case in which the eavesdropper is ignorant of where the ball is, and judges 'false' just as a guess. In this case her judgment is still correct:

Two cups (ignorant eavesdropper)

John is trying to work out which of two cups the ball is under. He asserts, 'The ball might be under cup 1'. In fact the ball is under neither. An ignorant eavesdropper guesses 'false' of John's utterance. Her guess is correct.

According to the first explanation the eavesdropper's judgment is not correct – her body of knowledge is compatible with the ball being under cup 1, so she is not correct to judge 'false'. According to the second explanation her judgment is correct – it is still the case that the ball is under neither cup, something that John is not open to. So the second explanation fares better.

Second, consider a modified case in which the ball is under cup 2, and the eavesdropper knows that the ball is under cup 2. In this case her judgment is not correct:

Two cups (cup 2)

John is trying to work out which of two cups the ball is under. He asserts, 'The ball might be under cup 1'. In fact the ball is under cup 2. An eavesdropper who knows that the ball is under cup 2 judges 'false' of John's utterance. Her judgment is not correct.

According to the first explanation the eavesdropper's judgment is correct – her body of knowledge is incompatible with the ball being under cup 1, so she is correct to judge 'false'. According to the second explanation her judgment is not correct – the ball is under cup 2, something that John is open to. So the second explanation fares better.

Third, consider a modified case in which John is open to the ball being under neither cup. In this case, again, the eavesdropper's judgment of 'false' is not correct:

Two cups (open-minded)

John is trying to work out which, if any, of two cups the ball is under (he is open to it being under neither cup). He asserts, 'The ball might be under cup 1'. In fact the ball is under neither. An eavesdropper who knows that the ball is under neither judges 'false' of John's utterance. Her judgment is not correct.

According to the first explanation the eavesdropper's judgment is correct – her body of knowledge is incompatible with the ball being under cup 1. According to the second

explanation her judgment is not correct – the ball is under neither cup, something that John is open to. So the second explanation fares better.

I propose, then, that the second explanation is the correct explanation for why, in the original two cups case, the eavesdropper is correct to judge 'false'. She is correct to judge 'false' because John's utterance is false, and John's utterance is false for the same kind of reason that the mate's utterance is false in the two ships case. Explaining why those utterances are false is the objectivity problem, and this is indeed a problem for the standard account. But the two cups case poses no new problem to do with the presence of eavesdroppers. So too, I propose, for all of the other cases involving eavesdroppers that have recently been discussed (although I won't justify that here).

All the more reason, then, to figure out a way to solve the objectivity problem.

6. A proposal

I will now propose a modification of the standard account that promises to solve the objectivity problem and explain the openness observation, and extends to all kinds of possibility.

It will help to consider the metaphysical case first. About this case it seems natural to say this: if the die that John used had a '3' on each side, then whether or not it is true that John might have rolled a '2' depends on whether or not we can consider worlds in which John first swaps the die for one that has a '2' on it: if we can then it is true; if we cannot then it is false. Might John have rolled a '2'? Not if he was stuck to using the die with a '3' on all sides. But yes if he was allowed to first swap it for a regular die. We can think of this in terms of closeness: whether or not it is true that John might have rolled a '2' depends on how close to the actual world are the worlds that we can consider: if they can be sufficiently far away then it is true; otherwise it is false.

We seem to have an intuitive notion of closeness between worlds. Suppose John rolls a die with a '3' on all sides, and that he rolls a particular '3'. He might have rolled a different '3' with the same die, so there is a counterfactual world in which John rolls a different '3' with the same die. He also might have rolled a '2', by first swapping the die for a regular one and then rolling a '2', so there is a counterfactual world in which John rolls a '2' with a regular die. The first of these counterfactual worlds is closer to the actual world than the second is – the second requires a greater deviation from actuality than the first. Presumably it is this notion of closeness to which David Lewis (1973, 1986 pp. 20-7) appeals when giving his account of counterfactual conditionals: 'If it had snowed today then I would have gone skiing' expresses (in my mouth) a proposition that is true iff every closest world in which it snowed today is a world in which I went skiing. As for 'might' counterfactuals: 'If it had snowed today then I might have gone skiing' expresses (in my mouth) a proposition that is true iff some closest world in which it snowed today is a world in which I went skiing. If the truth or falsity of our utterances of 'If it were the case that A then it might be the case that S' is sensitive to the closeness of worlds, then it would not be surprising to find that the

truth or falsity of our utterances of 'It might the case that S' (and 'Possibly S') is also sensitive to the closeness of worlds.

With this in mind, I propose the following modification of the standard account (it is the original standard account with an addition, shown in italics):

Modified standard account

An utterance of 'Possibly S' in a context C is true if and only if there is a world *within d of the actual world (where d is determined by C)* in which the prejacent and the propositions in the conversational background are all true.

The idea is that the context of utterance determines some distance between worlds, *d*. Exactly which distance this is depends, in part, upon what the speaker is open to – roughly, the more the speaker is open to the greater the distance she is allowing that the actual world is from the closest prejacent world and the bigger the value of *d*; the less the speaker is open to the less the distance she is allowing that the actual world is from the closest prejacent world and the smaller the value of *d*. With a distance *d* thus determined, whether or not the utterance of 'Possibly S' is true depends not simply on whether there is a world in which the prejacent and the propositions in the conversational background are all true, but on whether there is such a world within *d* of the actual world. Thus apart from the compatibility of the prejacent and the conversational background, it also depends upon which world is actual. This is why the truth of an utterance of 'Possibly S' can depend upon facts about the world that are not known to anyone, and in a way that depends upon what the speaker is open to.

How does the modified account handle the salvage ship case? When the mate asserts, 'It is possible that the wreck is in that bay', there is some *d* such that his utterance is true iff there is a world within *d* of the actual world in which the wreck is in that bay and everything that he knows in the actual world is true. The mate thinks that the log does not rule out the wreck being in that bay, and is not open to it being otherwise. Because of this *d* is small enough that if the log does rule out the wreck being in that bay then there are no worlds within *d* of the actual world in which the wreck is in that bay. Since the log does rule out the wreck being in that bay (as the mate later discovers), there are no worlds within *d* of the actual world in which the wreck is in that bay, and so the mate's utterance is false.

How does the modified account handle the two cups case (original version)? When John asserts, 'The ball might be under cup 1', there is some *d* such that his utterance is true iff there is a world within *d* of the actual world in which the ball is under cup 1 and everything that he knows in the actual world is true. If John thinks that the ball is under one of the two cups, and is not open to it being otherwise, then John thinks that the actual world is fairly close to a world in which the ball is under cup 1, and because of this *d* is small enough that if the ball is actually under neither cup then there are no worlds within *d* of the actual world in which the ball is under cup 1. Since the ball is actually under neither cup, there are no worlds within *d* of the actual world in which the ball is under cup 1, and John's utterance is false. If John is open to the ball being under neither cup, then *d* is large enough that even if the ball is actually under neither

cup there are worlds within d of the actual world in which the ball is under cup 1. Since the ball is actually under neither cup, there are worlds within d of the actual world in which the ball is under cup 1, and since there are some such worlds in which everything John knows in the actual world is true, John's utterance is true. We can thus see how the truth of John's utterance depends (a) on facts about how the world is that need not be known to anyone at the time of the utterance, and (b) in a way that depends on what John is open to: the latter effects the value of d , and thus how close to the actual world there needs to be a world in which the ball is under cup 1; the former effects whether or not there is such a world.

The explanation of each case takes the same general form: Someone asserts 'Possibly S '; there is some d such that the utterance is true iff there is a world within d of the actual world in which the prejacent p and the propositions in the conversational background B are all true; the speaker believes that q is true, and is not open to it being false, and because of this d is small enough that if q is actually false then there are no worlds within d of the actual world in which p is true; as it turns out, q actually is false, so there are no worlds within d of the actual world in which p is true, so there are no worlds within d of the actual world in which p and the propositions in B are all true, so the utterance is false; had the speaker been open to q being false then the utterance would have determined some bigger distance d^+ , big enough that the utterance would then have been true. In the salvage ship case, S is the sentence 'The wreck is in that bay' and q is the proposition that the log does not rule out the wreck being in that bay; in the two cups case, S is the sentence 'The ball is under cup 1' and q is the proposition that the ball is under cup 1 or cup 2. Nothing in the explanation assumes that the utterance is an epistemic use of 'Possibly S ' – the same form of explanation can be used for the metaphysical and deontic cases above.

Thus with a simple and well-motivated modification of the standard account we can solve the objectivity problem and explain the openness observation in a way that extends naturally to all kinds of possibility.⁴

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