

Introduction: Epistemic Modals

Brit Brogaard² · Dimitria Electra Gatzia¹

Published online: 5 April 2016
© Springer Science+Business Media Dordrecht 2016

Auxiliaries such as “might,” “must,” “could,” “seem,” “see,” or “understand” and adverbials such as “possibly,” “probably,” or “perhaps” are known within the philosophical community as *modals*. They appear in expressions such as “He might be arriving late,” “She could have scored higher on the GRE,” “Premise 2 seems true,” “I can see your point,” or “They seem to understand why you are upset” and can be used to convey different types of modality depending on contextual factors. When used epistemically, these expressions mark the necessity or possibility of an underlying or *prejacent* proposition relative to a body of evidence or knowledge. Consider, for example, the following exchange between three colleagues who are having lunch in the office break room:

- A: Do you know where Tess is?
B: Tess might be in her office.
C: Tess must be in her office.

Suppose that B knows that Tess tends to spend her lunch break in her office when she does not have to attend a meeting, but does not know whether Tess has to attend a meeting today. In this case, “Tess might be in her office” can be used to convey the possibility that Tess is in her office. Suppose further that C also knows that Tess tends to spend her lunch break in her office when she does not have to attend a meeting. However, unlike B, C also happens to know that Tess is not attending a meeting today. In this case, “Tess must be in her office” is used to convey the necessity that Tess is in her office.

Theorists with otherwise radically different commitments agree that epistemic modals mark the necessity or possibility of a prejacent proposition relative to a body of evidence or knowledge. However, there is vast disagreement about the semantics of epistemic modals, which stems in part from the fact that statements of epistemic possibility or necessity make no explicit reference to a speaker or group, an audience, or an evidence set. To use the example above, “Tess might be in her office” makes no explicit reference to either a speaker, group, or audience, nor does it make an explicit reference to an evidence set. A context is needed in order to determine the semantic content or truth-value of the proposition expressed by the utterance “Tess might be in her office.”

Traditionally, three major approaches have been proposed to deal with this difficulty: contextualism, relativism, and expressionism. Contextualism says that, in standard cases, the semantic content (or truth-value) of statements of epistemic modality is determined by information relevant to the context of the utterance (DeRose 1991; Brogaard 2008; von Stechow and Gillies 2011). For instance, without knowing the context in which the conversation between A, B, and C is taking place (in the example above), one cannot determine the semantic content (or truth-value) of the propositions expressed by B’s and C’s utterances. Relativism says that the semantic content (or truth-value) of statements of epistemic modality is determined by the context of assessment rather than the context of utterance (Egan et al. 2005; Egan 2007; MacFarlane 2011; Stephenson 2007). On this view, “Tess might be in her office” has different truth-conditions (or semantic contents) in different contexts of assessment.

Both contextualists and relativists maintain that statements of epistemic modality are assertoric. Accordingly, when B utters “Tess might be in her office”, B is asserting

✉ Dimitria Electra Gatzia
dg29@uakron.edu

¹ Orrville, OH, USA

² Coral Gables, FL, USA

that he is uncertain about whether Tess is in her office. Expressionists, by contrast, deny that statements of epistemic modality are assertoric. B's utterance is not an assertion that B is uncertain about whether Tess is in her office (that is, B is not expressing a second-order belief pertaining to her knowledge) but rather an expression of B's attitude of uncertainty. Consequently, expressionists deny that statements of epistemic modality have a truth-value. Contextualists and relativists, by contrast, maintain that the truth-value of statements of epistemic modality are sensitive to the epistemic states of members of the relevant group; for contextualists the group is that of the speaker, whereas for relativists the group is that of those assessing the utterance.

Contextualists hold that epistemic modality claims are properly understood as being evaluated relative to a context of utterance. The relevant context is, therefore, a function of the speaker's context of utterance to a content or a truth-value (Brogaard 2008; von Fintel and Gillies 2011). For example, "Tess might be in her office" as uttered by B (in the above example) in the epistemic sense is true at the relevant point of assessment just in case it is compatible with the set of propositions known by B (and perhaps B's conversational partners) at the world and time of utterance.

Relativists hold that epistemic modality claims are properly understood as being evaluated relative to a context of assessment, where the assessor can but need not be the speaker (Egan et al. 2005; MacFarlane 2011). The relevant context is, therefore, a function of the assessor's point of evaluation of the speaker's utterance to a content or a truth-value. For example, "Tess might be in her office" as uttered by B in the epistemic sense and assessed by an assessor A, is true at the relevant point of assessment just in case it is compatible with the set of propositions known by A at the world and time of A's assessment of B's utterance.

The relevant knowledge of a speaker S or an assessor A about the world they live in is usually represented by the set of epistemically possible worlds. The content of S's or A's knowledge depends on the class of epistemically accessible worlds (Lewis 1986). Accordingly, whatever is true in some epistemically accessible world (which is a world that S or A cannot rule out as being the world they live in given what they know) is epistemically possible for S or A; whatever is true in every epistemically possible world, is epistemically necessary for S or A. For example, contextualists maintain that the content of S's utterance ranges over possibilities compatible with what S (or S and S's relative community) knows at the time of utterance. In the above example, "Tess might be in her office" is true just in case Tess is in her office in some world in the set of worlds compatible with what the speaker (B) or the speaker and her relative community (B and her coworkers) know at the time of the utterance (Kratzer 1977; DeRose 1991). On

this view, therefore, the epistemic use of modals such as "might" is contextual.

Indexical contextualists believe that any account that provides an invariant semantic content for statements of epistemic modality is inadequate. In his contribution to this volume, David Sackris goes against the orthodoxy to defend an invariant contextualist account. He maintains that an invariant semantics is able to capture speaker intuitions if it is combined with a performative account of utterances of epistemic modals. According to Sackris, an utterance of epistemic modality '*Might ϕ* ' is true just in case no one ever has, does now, or ever will know that not- ϕ . Although on this view, many utterances of epistemic modality '*Might ϕ* ' will be false, Sackris argues that this outcome is not a reflection of his view's weakness since in retrospect speakers are often willing to judge earlier epistemic possibility claims as false even if the prejacent was consistent with the speaker's body of knowledge at the original time of utterance. This suggests that statements of epistemic modality typically have a performative component, viz. they perform a speech act in addition to assertion (Portner 2009). According to Sackris, a speaker S expresses a content with the invariant truth conditions '*Might ϕ* is true just in case no one ever has, does now, or ever will know that not- ϕ ', while indirectly asserting a lack of certainty (i.e., S indirectly asserts that S is less than certain that '*Might ϕ* ' is true). This position differs from contextual accounts defended by Kratzer (1977) or DeRose (1991). On Kratzer's and DeRose's accounts when speaker S says '*Might ϕ* ', S asserts a prejacent proposition relative to S's (or S and S's relative community) body of evidence or knowledge at the time of utterance. On the view Sackris defends in this volume, by contrast, the content of '*Might ϕ* ' is unchanging but can be used by different speakers to assert something about their own levels of credence concerning whether a situation obtains.

The worth of a semantic account is often measured by reference to examples. For example, Andy Egan (2007) uses a case involving eavesdropping, which has come to be known as the Blofeld case, to defend a relativist account of epistemic modals by showing that a single utterance can be true relative to one evaluator but false relative to another. von Fintel and Gillies (2008) also use the Blofeld case but, in this case, as part of their argument against context of assessment accounts of epistemic modals. von Fintel and Gillies (2008: 79–80) describe the Blofeld case as follows:

Bond and Leiter are in London, listening to a bug Bond planted in a conference room in SPECTRE's headquarters in the Swiss Alps. Bond left behind some misleading evidence pointing to his presence in Zurich. Blofeld finds the evidence, takes it to be

genuine, and turns to his second in command, Number 2:

(8) Bond might be in Zurich.

And Number 2 may well reply with a “That’s true.” But Leiter, hearing all this from London, is not at all inclined to say “That’s true” when *he* hears (8) from Blofeld, even though Leiter knows full well that it is compatible with everything that Blofeld knows—and indeed compatible with everything Blofeld’s conversational partners know—that Bond might be in Zurich. Instead, Leiter might say “Excellent: Blofeld’s wrong again!” or “That’s false.”

It may seem that Leiter and Blofeld disagree. However, Blofeld could not retract his epistemic modal claim in light of Leiter’s more informed perspective because he is unaware of Leiter’s perspective. Retraction data is not readily available in eavesdropping cases. Nevertheless, states of disagreement between two parties can be evaluated even if the parties are unaware of each other. MacFarlane (2011) uses pre-theoretic intuitions about such cases to argue that contextualism is flawed since it cannot explain modal epistemic disagreement.

Jonah Katz and Joe Salerno, in their contribution to this volume, discuss the issue of disagreement data, of which eavesdropping cases are a special case, to dispute the robustness of John MacFarlane’s (2011) data, and defend contextualism. Their discussion is based on a set of experiments they constructed to capture the kind of disagreement MacFarlane had in mind. The results suggest that competent subjects do not take epistemic modal disagreement to be as widespread as MacFarlane claims. Their experiments also uncovered some interesting situational effects that bias epistemic modal judgments. The methodological point suggested by the data is that it is very important to consider more than a few sentences and/or scenarios when attempting to draw broad conclusions about entire classes of linguistic structures.

According to Katz and Salerno, what makes eavesdropping cases special is that they put the speakers in distinct conversations, thereby pulling apart the point of assessment from the context of utterance. To see this suppose that Blofeld utters (U*) the following statement:

(U*): Bond might be dead.

Now suppose that Leiter, while he is eavesdropping, says to a colleague:

(L): Blofeld is wrong. Bond couldn’t have been dead. Bond and I planted deceptive evidence.

Relativism claims that the data is that our eavesdropper, Leiter, is denying Blofeld’s epistemic modal claim. Leiter

and Blofeld genuinely disagree; they cannot simultaneously speak the truth. However, Katz and Salerno argue that since the data is not robust, MacFarlane’s argument loses its force.

Whether eavesdrop cases can be used to argue for or against the merits a semantic account of modals depends on whether such cases involve *epistemic* modals. In his contribution to this volume, Peter Ludlow argues that the Blofeld case involves an apparent modal that may not be an epistemic modal; it could be a scalar modifier that merges or “incorporates” with the matrix verb, weakening the meaning of the matrix verb. According to Ludlow, if apparent modals are used as scalar modifiers and are subject to movement and incorporation, then the surface language of modality may lead us to draw false conclusions. Ludlow is asking us to consider the following case. Imagine that we create an elaborate deception to convince Blofeld that James Bond might have died. While we monitor Blofeld as he comes upon the deceptive evidence, you utter the following:

(U) Blofeld just realized that Bond might be dead.

Ludlow agrees with the conclusion that von Stechow and Gillies (2008) draw, namely that (U) is true but the context of assessment says it should be false. After all, we know that Bond is not dead since we manufactured the evidence Blofeld is using to arrive to the conclusion that Bond might have died. However, Ludlow argues that their conclusion, namely that this case counts as good evidence against context of assessment accounts, may be hasty. According to Ludlow, the term ‘might’ in (U) is not behaving as it would in a standard utterance because it is incorporated into another verb, possibly operating as a “scalar modifier” on the matrix verb “realized.” The result is that the meaning of “realized” is weakened and the verb is no longer a factive.

Even if we were to ensure that we use cases that involve epistemic modals, numerous complications arise. One such complication arises when modals are accompanied by descriptive uses of indexicals, which are uses where indexical utterances express general propositions. For example, suppose that while pointing to John Paul II you utter “He is usually an Italian, but this time they thought it wise to elect a pope.” In this case, you are expressing not a singular proposition about John Paul II, but a general one, concerning all popes. A descriptive interpretation is triggered in this case by the tension between the generality of the quantifier, i.e., ‘usually’, and the singularity of the indexical, i.e., ‘he’, in its standard interpretation.

A descriptive interpretation is sometimes also triggered when the singular proposition that would be expressed if the indexical were interpreted referentially comes in

conflict with the pragmatic purpose of expressing it. For example, suppose that you are an undercover police officer attempting to get information about a drug deal that it is about to occur. While you are talking to a person you take to be another undercover police officer, she gives you a warning:

(1): I am not a drug dealer. But I might have been.

In this case, the semantic value of the indexical ‘I’ in (1) is not the speaker herself, which would be the case if the indexical was interpreted referentially, since the speaker is merely warning the hearer that he should be more careful about who he is talking to. Some have argued that interpreting this modality as epistemic would allow us to retain the referential interpretation of ‘I’ in (1); accordingly, there is no need for a descriptive interpretation of indexicals in such modal contexts (Recanati 1993).

Katarzyna Kijania-Placek, in her contribution to this volume, argues that, contrary to Recanati, a non-referential interpretation is needed for some uses of indexicals embedded under epistemic modals and proposes treating descriptive uses of indexicals as a special kind of anaphoric use. Accordingly, in (1), the mechanism of descriptive anaphora is triggered by the irrelevance of an interpretation that would retain the referential reading of the indexical ‘I’. The fact that (1) is uttered as a warning excludes properties uniquely identifying the speaker in the actual world because the speaker says that she is not a drug dealer.

Another complication arises for semantic accounts that treat disjunctions as a modal operator. Such theories are potentially motivated from the way in which modals, including epistemic modals, are embedded within disjunction, e.g., “Tess may be in her office or in the conference room.” Various semantic accounts are evaluated in this volume by Fabrizio Cariani, who uses pairs of conflicting desiderata to show that proponents of modal theories (a) ought to prefer theories that are *both* existential and indexical; (b) need a more complex notion of acceptance; (c) should favor truth-based theories; and (d) must either develop systematic pragmatic principles that can retrieve the asymmetric data within a symmetric theory or address the difficulties pertaining to asymmetric accounts.

In addition to epistemic modality, there is deontic modality. This concerns what may or must be so in the

sense of permission or obligation. Thus “Tess may be in the office” might be used to convey that Tess is permitted to be in the office. It is customary to distinguish between a weak and strong sense of ‘may’, according as to whether or not the permission has been explicitly granted. Katrina Przyjemski, in her contribution to this volume, distinguishes between an analogous weak and strong epistemic possibility and argues that this distinction is the key to solving some of the most vexing problems about the use of epistemic modals. Katrina Przyjemski tragically died just before she was about to enter the job market in the Fall of 2014. She had been writing a thesis on epistemic modals under the supervision of Kit Fine and had intended to use the present paper as her writing sample. We believe that it bears testimony to the exceptional power and promise of this young philosopher and were very happy, once Kit Fine brought the paper to our attention, to include it in the volume.

References

- Brogaard B (2008) In defense of a perspectival semantics for ‘know’. *Australas J Philos* 86:439–459
- DeRose K (1991) Epistemic possibilities. *Philos Rev* 4:581–605
- Egan A (2007) Epistemic modals, relativism, and assertion. *Philos Stud* 133:1–22
- Egan A, Hawthorne J, Weatherson B (2005) Epistemic modals in context. In: Preyer G, Peter G (eds) *Contextualism in philosophy*. Oxford University Press, New York, pp 131–169
- Kratzer A (1977) What ‘must’ and ‘can’ must and can mean. *Linguist Philos* 1:337–355
- Lewis D (1986) *On the plurality of worlds*. Blackwell Press, Oxford
- MacFarlane J (2011) Epistemic modals are assessment-sensitive. In: Egan A, Weatherson B (eds) *Epistemic modals*. Oxford University Press, Oxford, pp 144–178
- Portner P (2009) *Modality*. Oxford University Press, Oxford
- Recanati F (1993) *Direct reference: from language to thought*. Blackwell Press, Oxford
- Stephenson T (2007) Judge dependence, epistemic modals, and predicates of personal taste. *Linguist Philos* 30(4):487–525
- von Fintel K, Gillies AS (2008) CIA leaks. *Philos Rev* 117(1):77–98
- von Fintel K, Gillies AS (2011) Might made right. In: Egan A, Weatherson B (eds) *Epistemic modals*. Oxford University Press, Oxford, pp 108–130