A POSITIVE EVIDENTIALIST ACCOUNT OF EPISTEMIC POSSIBILITY

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16. OCTOBER, 2016

ABSTRACT: In spite of an evolving contemporary debate over the concept of "epistemic possibility," nearly every philosopher assumes that the concept is equivalent to a mere absence of epistemic impossibility, that a proposition is epistemically possible as long as it is not inconsistent with some relevant body of knowledge. I suggest that we challenge this deeply entrenched assumption. I assemble an array of data that singles out the distinctive meaning and function of the attitude of taking propositions as epistemically possible, and suggest that this data is best explained by a positive evidentialist conception of epistemic possibility. On this conception, a proposition is epistemically possible to a subject if and only if the subject has cognitive access to evidence that specifically supports that proposition.

1   Introduction

To say that something is possible, from an *epistemic* perspective, is to say that the claim is possibly true in light of what we know. We assess epistemic possibilities when we ask and answer questions and when we make or dispute knowledge claims. These possibilities differ from logical, metaphysical, nomological and other possibilities in ways that have been widely acknowledged.[1] But nearly all philosophers make an uncritical assumption about *how* epistemic possibility is to be understood, which I will challenge in this paper.

In an early exploration of the concept of epistemic possibility, G.E. Moore identifies the consensus view about the meaning of the concept, which denotes any proposition that is "*not logically incompatible with anything you know immediately*" (Moore 1959: 224-25). More recently, philosophers have followed Moore's lead by more systematically distinguishing epistemic possibility from other kinds of modality. Kent Bach gives an especially elegant statement of this definition: "a state of affairs is epistemically possible for someone at a time if it is not ruled out by information available to that person at that time" (2011: 22).[2]

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[1] G.E. Moore (1959, p. 224) points out that we may know for certain that there is a white visual percept now, even though this proposition is not logically necessary. Epistemic possibility is also distinct from what is called metaphysical possibility. "Hesperus is not Phosphorus" was at one time epistemically possible, even though it was clearly metaphysically impossible: "Hesperus is Phosphorus" is a necessary identity. Finally, epistemic possibility is distinct from nomological or causal possibility, or consistency with the laws of nature. Any scientific theory that is now no longer judged to be nomologically possible (e.g., geocentric astronomy) might still have been epistemically possible in an earlier era. Epistemic possibility is also distinct from what is called metaphysical possibility. "Hesperus is not Phosphorus" was at one time epistemically possible, even though it was clearly metaphysically impossible: "Hesperus is Phosphorus" is a necessary identity. (I owe this example to Egan and Weatherson (2011, 2). Finally, epistemic possibility is distinct from nomological or causal possibility, or consistency with the laws of nature. Any scientific theory that is now no longer judged to be nomologically possible (e.g., geocentric astronomy) might still have been epistemically possible in an earlier era.

[2] Andy Egan and Brian Weatherson have defined it this way: "A possibility is an epistemic possibility if for every *p* such that *p* is true in that possibility, we do not know that *p* is false" (2011, 1) Michael Huemer's definition is also representative: "*p* is epistemically possible for S = It is not the case that *p* is epistemically impossible for S" (2007, 129).

While there are many variations on this theme, most philosophers assume that epistemic possibility is defined in terms of some negated predicate. What's epistemically possible is whatever is *not ruled out* by some relevant body of knowledge or evidence. Typically, philosophers then debate about which body of knowledge or evidence that is and how accessible it needs to be. The orthodox assumption among epistemologists is what we might call, for lack of a better turn of phrase, a *negative* account of epistemic possibility:

> *The orthodox negative account of epistemic possibility (NEP):*
> It is epistemically possible that *p* for S if and only if *p* is not logically incompatible with some relevant body of *S's* knowledge.

While philosophers generally recognize that epistemic possibility is distinct from logical possibility, they still regard it, in effect, as definable in terms of logical possibility.[3] The property Moore picks out is what is "not logically incompatible" with what is known. Epistemic possibility, on this view, is roughly just what is *logically possible* (or at least conceptually possible) in relation to one's knowledge or evidence.[4]

I will offer reasons for rejecting this orthodox account of epistemic possibility. I will make the admittedly philosophically revisionary and thus controversial proposal that epistemic possibility should be defined in terms of a *positive* property.[5] As an alternative to the orthodox NEP view, I offer the following *positive evidentialist* account of epistemic possibility:

> *The positive evidentialist account of epistemic possibility (PEEP):*
> It is epistemically possible that *p* for S if and only if there is some (undefeated) evidence cognitively accessible to S that specifically supports *p*.

This account offers a (far) narrower definition of epistemic possibility than NEP: in virtue of the "undefeated" evidence requirement, it rules out as possible what is contradicted by existing evidence, just like NEP. But the remainder of the account also requires positive evidence in

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[3] Dougherty (unpublished) has noticed that NEP is in effect modelled on modal logic's definition of *possibly p* ($\Diamond p$) as *not necessarily not p* ($\neg\Box\neg p$). This is essentially parallel to the epistemic modal *possibly p* defined as *not known that not p*. Arguably, advocates of NEP might admit the need to narrow their definition from claims not logically incompatible with what is known to claims that are not conceptually incompatible.

[4] Philosophers with this view see belief-formation as essentially a process of possibility-elimination, making it sensible to assume what David Chalmers makes explicit: "If a subject did not know anything, all scenarios would be epistemically possible for the subject" (2011, 61). And conversely, as Kent Bach puts it, "For an omniscient being nothing is merely epistemically possible: the only epistemic possibilities there are those that actually obtain" (2011: 25).

[5] It's true that one could reformulate the orthodox theory in terms of a positive predicate, by defining the epistemic possibility of *p* in terms of the existence of a logically possible scenario in which all of one's knowledge obtains and so does *p*. Of course "logically possible" here would still need to be defined in terms of the absence of formal contradiction. Anyone can take any negation of a predicate and formulate a positively-stated notational variant. But there is a real and epistemically relevant difference between the presence of evidence and the absence of contradictory evidence.

support of *p*.[6] On this account, epistemic possibilities are not only defaults we must eliminate in order to form beliefs; they themselves need to be ruled in before they can be ruled out.

Because this is a revisionary account, counterexamples to both the "if" and the "only if" direction of the biconditional easily spring to mind for many philosophers. I am aware of these alleged counterexamples and will directly address them and their relevance in §5, but only after first making a positive case for the proposal. Just like epistemic possibilities (as I see them), philosophic theories need positive support too, not just success at avoiding counterexamples.

Although a positive evidentialist theory of epistemic possibility has been underappreciated for too long, it has not been without serious support from notable figures in the history of philosophy. Arguably, we can see early glimmers of it in the works of Locke and Hume.[7] In the last century, several prominent ordinary language philosophers, including J.L. Austin (1946, p. 159) and most prominently, Norman Malcolm (1963, pp. 26-53), seem to have embraced some version of a positive evidentialist theory.[8] Malcolm explicitly described and advocated for a conception of epistemic possibility he understood as follows:

> 'It is possible that so-and-so' means 'There is some reason to believe that so-and-so.'" (31)

More recently, Jonathan Adler (2002: 103-133) argued for a version of positive evidentialism in service of a robust evidentialist ethics of belief, often making reference to Malcolm's work. Most recently, Katrina Przyjemski (forthcoming) has argued that the

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[6] Please note that PEEP does not require that S *knows* that S has cognitive access to the specific supporting evidence, it only requires that one has this access. For a version of accessibilist internalism that identifies a criterion of accessibility permissive enough to account for most ordinary judgments of justification, see Bayer (2012).

[7] John Locke advocates an ethic of belief that governs *assent*, of believing or disbelieving "according as Reason directs" (Locke 1690/1975, 688). Elsewhere in the *Essay* Locke explains how this doctrine applies when evidence does not support full belief:

> [W]hen testimonies contradict common experience, and the reports of history and witnesses clash with the ordinary course of nature, or with one another; there it is, where diligence, attention, and exactness are required, to form a right judgment, and to *proportion the assent to the different evidence and probability of the thing: which rises and falls, according as those two foundations of credibility . . . favour or contradict it. . . . .* [A]s the arguments and proofs pro and con, upon due examination, nicely weighing every particular circumstance, shall to any one appear, upon the whole matter, in a greater or less degree to preponderate on either side; so they are fitted to produce in the mind such different entertainments, as we call *belief, conjecture, guess, doubt, wavering, distrust, disbelief*, &c. (Locke 1690/1975, 663, my emphasis)

Locke portrays the attitudes ranging from belief and disbelief as forming a continuum of *degrees* of assent which should be held in proportion "to the different evidence and probability of a thing." If his middle states of doubt and wavering express the entertainment of epistemic possibility, this suggests Locke would maintain that epistemic possibility is also sensitive to this continuum of evidence. David Hume uses similar language: "A wise man, therefore, proportions his belief to the evidence" (Hume 1748/1975, 110).

[8] Arguably Michael Scriven's (1966) view on likelihood has also developed out of ordinary language considerations. Scriven (1966) suggests that we should treat claims that are disprovable and claims that are wholly unsupported by evidence as equally unworthy of consideration, such that "the absence of such evidence means there is *no* likelihood of the existence of the entity [and] this, of course, is a complete justification for the claim that the entity does not exist, provided that the entity is not one which might leave no traces . . . . , and provided that we have comprehensively examined the area where such evidence would appear if there were any" (102).

orthodox NEP account is inadequate to understand various semantic puzzles about disagreement about epistemic modals, and urges a version of positive evidentialism as a superior alternative.[9] (In §3.4 in particular I will review some of Przyjemski's arguments.)

To give my positive case for positive evidentialism, in §2 I will first present data about the concept of epistemic possibility that I think any account of it should accommodate. In §3 I will then argue that positive evidentialism offers the best explanation of this data. In some cases to do this I will report arguments of other philosophers; my chief contribution will be to show how their underappreciated arguments help show that PEEP offers the best explanation. With regard to other data I will offer arguments of my own. I will end in §4 by addressing alleged counterexamples to the account.

2   Data for an account of epistemic possibility

I begin with a list of observations about data about the use of epistemic modals, often including data about how ordinary speakers use them. It is not my view that a proper theory of a concept should account for every ordinary usage. And in not every case do I think that the data always survives scrutiny as data.

2.1   *Epistemic possibility attributions relate to propositions*

We ask questions because we are looking for answers. Before knowing the answer, what occurs to us is a list of epistemic possibilities.[10] If I wonder who killed Mustard, I could simply answer "Either Scarlet killed Mustard, or Peacock did, or Orchid did," etc. Put in more explicitly modal terms, this would be considered as: "*Maybe* Scarlet killed Mustard, but also *maybe* Peacock killed Mustard. . ." Most explicitly, it would be considered as: "it is epistemically possible that Miss Scarlet killed Mustard," etc.

It is interesting that these propositions can be considered with or without the use of explicitly modal language. A proper account of epistemic possibility should explain not only

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[9] Other philosophers go further and contend that "possibilities" raised without evidence lack fully cognitive meaning. See especially Peikoff (1981), (1991, 163–171) and Binswanger (2014, 279-292). I am sympathetic to this fuller account, but cannot pursue it here. Przyjemski also cites von Gintel and Gilles (2008, 83) as having claimed that epistemic possibility claims often depend on positive evidence, but only for pragmatic reasons and not as a matter of semantics.
[10] See also Bach (2011, p. 19).

why epistemic possibilities attributions are presented with regard to propositions, but also why modal language is not needed to state them.

2.2   *Epistemic possibilities come in degrees*

Norman Malcolm drew attention to the fact that possibility seems to come in degrees, to the extent that ordinary speakers will claim that "there is a greater possibility that so-and-so than that such and such," or that some state of affairs is "very possible" (1963: 30).[11] Angelika Kratzer (1981, p. 46; 1991, pp. 643-645) also noted that speakers describe some propositions as being merely "slight possibilities," while others are "good possibilities," even that one proposition can be "more possible" than another (1981, p. 48). She illustrates the difference using an example of a detective who begins by thinking that there's a good possibility that one person (Michl) committed a murder while there's only a slight possibility that another person (Kastenjakl) did. Not only does epistemic possibility seem to be gradable in the way that probability is, but speakers also seem to regard possibility and probability as referring to different ranges on the same spectrum. In Kratzer's detective example, the detective, after investigating the murder more thoroughly, goes from thinking that there's a slight possibility that Michl committed the murder to thinking that it is probable.

A proper account of epistemic possibility should not only account for why epistemic possibility itself is ascribed in degrees, but also why it seems to fall on the same spectrum as probability.

2.3   *Epistemic possibilities justify investigation*

Although Michael Huemer (2007) adopts an orthodox view of epistemic possibility, he proposes the following criterion of adequacy for a proper account of the concept:

> [A]n account of epistemic possibility . . . should illuminate the uses of epistemic possibility talk—it should be intelligible in terms of the account why, for example, it is appropriate for one who has recently lost his wallet to be concerned about the epistemically possible locations of the wallet, as opposed, say, to its logically or nomologically possible locations. The account should likewise put us in a position to understand why the judgment "The wallet might be in the car" results in a trip out to search the car, while the judgment "The wallet is definitely not at the movie theater" forestalls a similar trip to the theater. (2007, 121)

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[11] But see Hacking (1967: 160-4) for a reply.

I agree with Huemer and would also suggest that we assess epistemic possibilities not only to justify the physical act of investigation but also an array of other mental acts. We regard as irrational or neurotic those who dwell on fantastic possibilities, who muse about unfounded suspicions. An adequate account of epistemic possibility should account for how epistemic possibility assignments explain our acts of inquiry.

2.4   Epistemic possibilities can be denied, retracted, or questioned

Consider some summaries of cases that have posed problems for various theories of epistemic possibility.

> *DISAGREEMENT: Watson/Sherlock:*[12]
> WATSON: Moriarty might be in Beijing.
> SHERLOCK: That's false. He's in London.
> WATSON: Oh, I guess I was wrong.
>
> *RETRACTION: Salvage Ship:*[13]
> [Looking for a sunken ship, the mate of a salvage ship works from an old log and makes mistaken calculations, and concludes:]
> MATE: It is possible that the ship is in this bay.
> [After more careful examination of the log, he concludes:]
> MATE: I was mistaken when I said it was possible that the ship is in this bay.
>
> *QUESTIONING: Cancer test:*[14]
> John has some symptoms of cancer and has just completed a preliminary test for the disease. Awaiting these results, his friend asks him if he has cancer. He replies:
> JOHN: I don't know whether I might have cancer.

The denial, retraction and questioning of epistemic possibilities is an ordinary and seemingly acceptable practice. An adequate account of epistemic possibility should be able to explain the propriety of these usages, or explain why some count as improper when they do.

2.5   Epistemic possibilities asserted without evidence can be infelicitous

Everyone is agreed that the assertion of some epistemic possibilities can be inappropriate when evidence is lacking. Consider one case from the literature:

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[12] From MacFarlane (2011).
[13] From Hacking (1967).
[14] From DeRose (1991).

Topeka:[15]
[Hank lives in Rotterdam and has heard of Topeka, but doesn't think about it and hasn't checked the weather there. Nevertheless he can assert:]
HANK: It might be raining in Topeka.

And consider one from recent real-life political discourse:

Political candidate:
CANDIDATE: Refugees from Syria are now pouring into our great country. Who knows who they are - some could be ISIS. Is our president insane?[16]
CANDIDATE: She's saying Russia, Russia, Russia. Maybe it was. It could also be China, it could be someone sitting on their bed that weighs 400 pounds. You don't know who broke into DNC, but what did we learn?[17]
CANDIDATE: His wife, if you look at his wife, she was standing there. She had nothing to say. She probably, maybe she wasn't allowed to have anything to say. You tell me.[18]
CANDIDATE: Our government has no idea. It could be 3 million. It could be 30 million. They have no idea what the number is.[19]

Either Hank or the Candidate can pick from among an infinite number of possibilities to assert, without being bound by the evidence in doing so. Often this seems inappropriate. An adequate theory of epistemic possibility should allow that this is improper and an even better theory will explain the impropriety.

3   The positive evidentialist criterion of epistemic possibility

As an alternative to the orthodox negative account of epistemic possibility, I propose a positive *evidentialist* criterion for epistemic possibility, one which also requires that epistemic possibilities be ruled *in* by at least minimal evidence before they can or should be ruled out. My formulation of the account, once again, runs as follows:

The positive evidentialist account of epistemic possibility (PEEP):
It is epistemically possible that *p* for S if and only if there is some (undefeated) evidence cognitively accessible to S that specifically supports *p*.

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[15] From Yalcin (2011) via Przyjemski (forthcoming).
[16] Donald J. Trump, https://twitter.com/realdonaldtrump/status/666615398574530560
[17] Donald J. Trump, http://www.vox.com/2016/9/26/13065174/first-presidential-debate-live-transcript-clinton-trump
[18] Donald J. Trump, https://www.donaldjtrump.com/press-releases/setting-the-record-straight
[19] Donald J. Trump, http://www.latimes.com/politics/la-na-pol-donald-trump-immigration-speech-transcript-20160831-snap-htmlstory.html#annotations:10316391

I will now argue that PEEP offers the *best* explanation for each of the pieces of data I have presented above. Even when versions of NEP accommodate the data above, PEEP's explanation is superior, usually for reasons of parsimony.

3.1   *How epistemic possibility attributions relates to propositions*

Attributions of epistemic possibility are always in relation to a proposition, and they can be expressed without explicitly modal language. A natural explanation of this set of facts is that epistemic possibility attribution is a kind of *attitude toward a proposition*, not primarily a component of the content of a proposition. "*Maybe*" operates on "Scarlet killed Mustard" just as "*Definitely*" and "*Hopefully*" do. Just as subjects can express their beliefs without explicitly attributing beliefs to themselves, so subjects can express the attribution of an epistemic possibility without explicitly attributing it ("Either Scarlet killed Mustard or Peacock did" vs. "Maybe Scarlet killed Mustard, and maybe Peacock did it").

Although orthodox NEP accounts of epistemic possibility can account for the idea that epistemic possibility is a kind of propositional attitude, they have less to say about what kind of attitude it is, how it compares to others, and how and whether it can be evaluated. PEEP, by contrast, directly accounts for all of these considerations.

NEP defines an epistemic possibility as the sheer absence of impossibility: *p* is possible just in case it is not ruled out by one's knowledge or evidence. It is not obvious what attitude if any corresponds to "possibility" so construed. One could describe this as a kind of attitude of indifference, but it is not clear that indifference is actually an attitude, or simply the absence of an attitude. Some advocates of NEP admit as much. Consider the views of Yalcin, who is an expressivist about epistemic possibility, and who thinks (with us) that epistemic possibility is not always an explicit *description* of one's relationship to the evidence (it is a "first order" state of mind, not "second order"):

> *To believe Bob might be in his office is simply to be in a doxastic state which fails to rule out the possibility that Bob is in his office. . . .* Note that on the first-order model, 'epistemic modal' is an unfortunate moniker, for there is no special role for a state of knowledge in this picture (emphasis added, 2011: 309).

The fact that orthodox NEP doesn't describe epistemic possibility as an identifiable propositional attitude isn't *by itself* a deal breaker for the view. NEP advocates can simply maintain that epistemic possibility attributions include many cases of active consideration as well

as some cases of mere epistemic indifference. But later in §3.3, NEP's neutrality will be a stumbling block.

If, however, a theory of epistemic possibility should identify a real propositional attitude, this lends support to PEEP. PEEP, of course, defines the epistemic possibility of *p* in terms of positive evidential *support* for *p,* not just consistency with what one knows.[20] This makes attribution of epistemic possibility a kind of *pro*-attitude toward a proposition. Evidential support is not synonymous with justification. To treat *p* as an epistemic possibility is to think *maybe p*; to fully believe *p* is simply to think *p.* We do not need evidence supporting *p* to *imagine* that *p* or to *suppose p for the sake of argument*. But to treat *p* as an epistemic possibility is to *seriously* consider *p*, to sincerely treat it as a candidate for belief, to treat it as possibly *true*.

This account implies definite norms for proper and improper assumptions of the attitude in question. Beliefs can be true or false, desires can be healthy or not, feelings can be apt or not, etc. Some attitudes are cognitive; others are not. According to PEEP, epistemic possibility, like belief or judgment, is a cognitive pro-attitude toward a proposition, and would be assessable by epistemic standards. Arguably, if the aim of belief is truth, we should judge which propositions we are to consider seriously by reference to the same aim, by considering only those propositions for which there is evidence of being true. We *should not* assert epistemic possibilities without evidence. PEEP simply extends the evidentialist ethics of belief governing *belief* to also govern *serious consideration.* We can think of epistemic possibility as *admissibility* for cognitive purposes. If we attempted to admit and rule out every logical or metaphysical possibility, we could not function cognitively. Evidence is what helps constrain the number of admissions, and helps us to function as cognitive agents.[21]

3.2   *Why epistemic possibility is continuous with other epistemic modalities*
Epistemic possibility, unlike other kinds of modality, seems to be ascribed in degrees by ordinary speakers, who often see it as commensurable with ascriptions of probability. If PEEP is

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[20] Here the kind of evidence capable of supporting *p* exhausts the epistemologist's usual categories: it may be evidence that arises from perceptual or introspective sources and that supports *p* deductively, inductively, abductively, etc.

[21] Here I owe the language of "admissibility" to Gregory Salmieri (private conversation). This consideration also helps explain when knowledge of nomological possibilities provides positive evidence for claims. For the most part only heads and tails are nomologically possible coin flip outcomes. Because there are so few of these possibilities, knowledge of them is sufficient to consider either heads or tails as epistemically possible before flipping a coin. Two possibilities can be cognitively processed. But we cannot process 7 billion possibilities when considering all of the people who are physically capable of committing murder.

correct and epistemic possibility is a propositional attitude toward a proposition *p* taken up in relation to supporting evidence for *p,* we can easily account for these facts.

Here, roughly, is how epistemic operators would categorize different attitudes towards increasing amounts of evidence according to the two theories under consideration:

degrees of evidence = x	Orthodox NEP	PEEP
x = 100%	Probable / Possible / *Merely possible*	Certain / Probable / Possible / *Merely possible*
x > 50%		
0% < x < 50%		
0%		No epistemic status

NEP, stated in its raw form, merely divides the possible from the not possible. Here I indicate where NEP theorists could place the probable, but it's important that without further explanation, this inclusion is an *ad hoc* grafting: it's not clear how one could characterize probable propositions are ones that are "more consistent" with one's knowledge than others. This is in contrast to the attitude of normal inquirers who see highly probable propositions as having simply more of whatever makes some propositions "more possible" than others.

By contrast, PEEP's account of possibility naturally suggests an approach to other epistemic modals: if a proposition is *possible* because there is at least *some* evidence supporting it, then a proposition is *probable* if the preponderance of evidence (>50%) supports it, and *certain* if all of the evidence supports it. This is no *ad hoc* grafting but an elaboration of the underlying evidentialism.

NEP's shortcoming here is what seems to have prompted Angelika Kratzer, who observed the graded nature of epistemic modality, to construct a semantics for epistemic modality that incorporated finer grained distinctions, by reference to the number of epistemically accessible possible worlds, where to be "accessible" means to be compatible with what one knows. Kratzer (1981, p. 46) proposes an account in which degrees of epistemic possibility are determined by functions quantifying over similar accessible possible worlds, drawing on an analogy to David Lewis' (1973) theory of counterfactuals. This theory does permit at least three grades of possibility. In order from highest grade to lowest, these are: *humanly necessary* propositions (roughly, those that are true in the accessible worlds that are nearest, i.e. most

similar to the actual world), *humanly possible* propositions (those that are not humanly necessary, i.e. propositions that are true in at least one of the nearest accessible worlds), and finally, *slight possibility* (those that are in any way compatible with what we know in the actual world, even if is not humanly necessary).

But as Trent Dougherty has observed (unpublished), this scheme leaves quite a gap between human possibility and human necessity, the gap between being true in at least one of the nearest possible worlds and being true in all of the nearest possible worlds. He notes that this stands in contrast to Kratzer's own presentation of degrees of possibility varying in accord with mounting evidence as described in her detective case. Kratzer could still generate a finer grained continuum by drawing on her definition of comparative possibility, in which one proposition counts as more possible than another just in case (roughly) there are more accessible worlds compatible with the first than with the second. Still, this notion does not permit Kratzer to define a *metric* for comparing natural language epistemic modals, permitting us to express *how* much more possible some propositions might be than others. So Dougherty proposes an evidentialist theory of epistemic possibility in the tradition of PEEP, according to which "a proposition is epistemically possible to the degree that it is evidentially probable," and "it is epistemically possible *simpliciter* for A that *p* is true if and only if *p* has probability on A's total evidence" (unpublished, 11-2). If having *supporting* evidence for *p* can be translated in terms of having probability on one's evidence, then this proposal is substantially the same as mine.[22]

Another philosopher who takes seriously the graded nature of epistemic modals is Daniel Lassiter (2010). Like Dougherty, Lassiter is impressed by the work of Angelika Kratzer, and also argues that graded epistemic modals are best understood in terms of degrees of probability. He

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[22] It is not entirely obvious that Dougherty's view is the same as PEEP, given the use he makes of his account later in (Dougherty and Rysiew, 2009). There (p. 127) he claims that *p*'s having non-negligible probability on a subject's total evidence is equivalent to the negation of *p*'s not being entailed by that evidence, which sounds again like NEP. I would suggest that this concession undermines Dougherty's overall case: if the subject has no evidence for anything at all, the negation of *p* would trivially fail to be entailed by the subject's evidence. If propositions entertained by completely ignorant subjects still have some degree of probability, this would require a far-fetched solution to the problem of the priors (as discussed by Bayesian epistemologists). Whether one adopts an objective or subjective account of prior probability, subjects must still have access to some awareness of the variables that will determine which rival initial hypotheses to treat as equally probable. But this would make it difficult for Dougherty and Rysiew to explain how hypotheses could have prior probability for completely ignorant subjects—which it seems they must explain, given the way they define epistemic possibility along lines complementary to NEP.
    (Regarding the point about the requirements of assigning prior probabilities: William Talbot (2008) puts this point well in the *Stanford Encyclopedia of Philosophy:* "However, it is generally agreed by both objectivists and subjectivists that ignorance alone cannot be the basis for assigning prior probabilities. The reason is that in any particular case there must be some information to pick out which parameters or which transformations are the ones among which one is to be indifferent. Without such information, indifference considerations lead to paradox. Objective Bayesians have been quite creative in finding ways to resolve many of the paradoxes (e.g., Jeffreys' solution to Bertrand's Paradox, Jaynes's solution to Buffon's Needle Paradox, or Mikkelson's solution to van Mises' Paradox). But there are always more paradoxes. Charles, Höcker, Lacker, Le Diberder, and T'Jampens . . . provide an actual example from physics where maximum entropy yields conflicting results depending on parameterization and where a frequentist approach seems to be superior to any Objective Bayesian approach that employs any form of Conditionalization.")

supplements his case with data from the linguistics of degree modifiers for graded adjectives (words like "completely" and "slightly.[23] If "slightly" can modify an adjective, for example, that adjective counts as a "minimum standard adjective." It makes sense to say that a rod is *slightly bent*, but not that a room is *slightly full*. "Bent" is associated with a *standard* that must be fulfilled before something can count as bent, and not everything does. By contrast it makes sense to say that a room is *completely full*. "Full" is a "maximum standard adjective," and involves an upper closed scale. Lassiter argues that "possible" is also a minimum-standard adjective, because it does make sense to say that certain claims are slightly possible, is also a minimum-standard adjective, because it does make sense to say that certain claims are slightly possible. This means that, as with all minimum standard adjectives, there should be a minimum threshold to be passed before something is possible. Lassiter suggests that "probable" actually *entails* "possible" (and "not possible" entails "not probable,") which suggests that they are on the same gradable scale. It makes little sense to say, by contrast, that a claim can be *slightly certain*, though it does sound right to say it can be *completely certain,* which suggests that certainty relates to a maximum standard on a scale. And since "completely certain" does entail at least being likely, it again seems to fall on the same scale as possibility and probability. Just like Dougherty, Lassiter notes that Kratzer's semantics don't allow for quantitative comparisons of grades of modality ("twice as likely," "half certain," or "95% certain"), among other problems with its semantic details. And like Dougherty, Lassiter suggests tying the semantics for epistemic modals to probability: a claim φ counts as possible, he says, just in case it has a non-zero probability, and it is certain if its probability is 1.

NEP traditionally has no way to understand "certainty" as an epistemic concept at all. Because certainty that *p* is understood as implying the absence of possibility that *not p*, and because possibilities don't require positive evidence, no concept of certainty defined in epistemic terms could ever apply to human subjects. Of course ordinary speakers use the concept all the time, and NEP theorists must dig around for some non-epistemic version of the concept, e.g. treating it as merely pragmatic. But such theories fail to account for the way subjects ordinarily see certainty as on the same commensurable spectrum as possibility and probability. PEEP, by contrast, naturally allows for this by counting certainty as the maximum point on the evidential spectrum. I would add that Kratzer's account, although it does contain "human necessity," also

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[23] Here he draws from the work of Kennedy (2007) and Kennedy and McNally (2005)

has trouble with the idea of "*complete* certainty," since it is defined in terms of what is compatible with what's true *nearby* possible worlds. To be completely certain in this sense, presumably, something would need to be true in all nearby possible worlds. But it is hard to see how we could make a *complete* survey of these *nearby* worlds when "nearby" is notoriously vague.

3.3 Why epistemic possibility justifies investigation

In §2.3, I referenced Michael Huemer's point that attributions of epistemic possibility should help us understand why we investigate some claims but not others. NEP defines epistemic possibility in terms of a proposition's not being ruled out. If, with Huemer, we say that our knowledge or evidence rules out the claim that our wallet is in the movie theater, NEP does explain why we do *not* investigate the hypothesis that it is in the movie theater. But of course it does not so easily explain the hypotheses we *do* investigate. There are a great many hypotheses that are not contradicted by our evidence, and so *possible* hypotheses according to NEP, and yet most of these we do not investigate.

Advocates of NEP can appeal to other factors to explain the further difference between the possibilities we investigate vs. the possibilities we don't. They can even agree that what makes the difference is evidence (while maintaining that possibility and evidence come apart), or other pragmatic factors. But this explanation involves more moving parts and is far less parsimonious than PEEP's explanation. Since NEP's concept of "possibility" does not do most of the explanation, it seems to fall short of Huemer's criterion of adequacy for a theory of epistemic possibility. [24]

NEP advocates might respond that the notion of the epistemically *impossible* still has some explanatory value: it always explains why we do *not* investigate some hypotheses (they are contradicted by our knowledge). But even if there is reason to conceptualize the epistemically

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[24] Advocates of NEP implicitly acknowledge that we explain our investigations by reference to an evidence-based concept of epistemic possibility when they attempt to defend a contextualist view of epistemic possibility attribution against relativism. On anybody's theory of epistemic possibility, propositions count as possible by reference to someone's body of knowledge, and relativists allege it is the attributor's, even when the attributor evaluates the epistemic possibility claims of another. But relativists have difficulty with epistemic modals embedded in that- clauses, especially in those reporting the speech or thinking of another party. If I know that Anne is innocent, I can still think "Scarlet thinks I might suspect Anne." Contextualists point out that relativists have a hard time explaining how I, the assessor, can use this "might" when my own knowledge contradicts it. But their examples routinely point to ways in which we justifiably explain the actions of others (say, Scartlet) using such "might" clauses, because we are aware of the evidence Scarlet has gathered of our suspicion. J.L. Dowell (2011) is a good example here. In addressing the variety of counterexamples against relativism, *all* of her examples of "might" explanation are ones involving more than the simple absence of contradictory information, and some explicitly involve appeals to evidence, e.g. a spy overhears another discovering misleading evidence that Bond is in Zurich, and this is offered as the reason for thinking that this spy realizes Bond might be in Zurich (p. 19).

impossible, it doesn't follow there is reason to conceptualize the *not-epistemically-impossible* as the "possible." By analogy: there is reason to form the concept "dead," but it doesn't follow that there is reason to form a concept of the "non-dead" which includes not only living things, but also stones and sunrays and supernovas. Not every stipulated class is worthy of conceptualization. Definitions of concepts should be evaluated according to whether they condense information worthy of some cognitive purpose, such as prediction and explanation. Concepts formed along such lines, on the basis of perceptually or theoretically important similarities help organize our knowledge and enable its application to life.[25] There is such a thing as a useless cognitive grouping, which when designated by a word forms only a half-baked "concept." To invoke an example from Nelson Goodman, while it is possible to group together things that are either a bag or a naval fleet (a "bagleet"), "bagleet" is not a "projectible predicate." Likewise, it would be cognitively purposeless and destructive to define a concept subsuming all non-dead things, because there is nothing to be learned by comparing living things with sunrays to the exclusion of dead things.

Or consider the useful analogy to the concept "permissible." There is very good reason to form the concept of the "forbidden," but it does not follow that we should define "permissible" (or any concept) to mean "*not forbidden.*" That this isn't sensible is the point of the joke in *Fiddler on the Roof* when the rabbi is asked if it is permitted for men and women to dance: "Well, it's not exactly *forbidden*," says the rabbi. It's funny because it's a rationalization for libertine behavior in an otherwise tradition-bound society. The primary sense of permissible is associated with what we are given explicit *permission* to do, say by our parents (or for the rabbi, God). A permission slip says we *may* go on a trip. The universe of things that are merely not forbidden have little in common with each other: they may not be forbidden because the parent would find nothing unacceptable about them, but they may also not be forbidden because no child would ever think to do them in the first place, or because they would not even be possible for a child to do.[26]

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[25] See Gotthelf and Lennox (2013) for an excellent collection of essays that develops this account of concepts and definitions in relation to a number of topics in the sciences. See the Salmieri (2013) contribution to the volume, in particular, for an especially well-developed generalization of this account that would apply to philosophic concepts as much as it would to scientific ones.

[26] For this reason, I distinguish my view even from that of Przyjemski (forthcoming), who, unlike many others, maintains with me that there is a useful positive evidentialist concept of epistemic possibility. Przyjemski also holds that the positive evidentialist concept corresponds to a notion of "strong epistemic possibility" but allows that the orthodox NEP view corresponds to an equally legitimate notion of "weak epistemic possibility." She supports the legitimacy of each via an analogy to strong and weak "deontic possibility," as in strong or weak legal or moral permissibility. But the weak notion of deontic possibility, of not being forbidden, strikes me as just as indefensible as weak epistemic possibility. Przyjemski's examples of weak deontic possibilities are also not convincing: it sounds quite out of key to say that the right to vote, simply

The *not epistemically impossible* comprises a disparate group similar to the group of *not dead* and the *not forbidden.* It would include the attitude we have toward those propositions for which we have some but not conclusive evidence, and those for and against which we have no evidence at all. It is not epistemically impossible that Scarlet killed Mustard, let's say, because detectives *do* have evidence that Scarlet knew Mustard and had access to his chamber at the time of the murder. It is not epistemically impossible that Anne killed Colonel Mustard, but only because detectives have nothing ruling her out (she is a human being and capable of murder). There is nothing theoretically important linking Scarlet and Anne.

NEP advocates can go on to explain why we *do* investigate what we do by reference to evidence or pragmatic factors. But this explanation is less elegant than the one favored by PEEP. Once again it grafts additional assumptions onto the theory of epistemic possibility to explain the array of behavior. PEEP, by contrast, explains what we do and don't (rationally) investigate by reference to the concept of epistemic possibility alone: we only investigate those claims for which there is evidence, and not those for which there is none. There are too many mere non-impossibilities to consider or investigate. We cannot investigate and eliminate everyone in the world as a suspect in a given murder. So *evidence* guides us in narrowing the number of candidates to something manageable.[27] These are what we consider *epistemically permissible,* i.e. *possible* to explore.

3.4 *How epistemic possibility claims are affirmed, denied, and questioned*

Consider again the first case, *Watson/Sherlock*:

DISAGREEMENT: Watson/Sherlock:
WATSON: Moriarty might be in Beijing.
SHERLOCK: That's false. He's in London.
WATSON: Oh, I guess I was wrong.

One orthodox NEP view that is the *speaker-oriented contextualism* popularized by Kratzer (1981, 1991), which maintains that epistemic possibilities are those states of affairs consistent with the *speaker's* knowledge. Przyemski (forthcoming) argues that while this theory

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because it is allegedly an unenumerated right, is a *weak permission*. (And I think this allegation is incorrect, since mention of a right to vote is quite explicit in, among others, the 15th amendment.)

[27] For this reason detectives will usually work with whole categories of suspects (family, friends, coworkers, etc.) before naming individuals, as doctors using the process of differential diagnosis will eliminate categories of pathology (vascular, infectious, environmental, congenital, etc.) in order to diagnose the cause of an affliction. These categories, being limited in number, are formed by knowledge of *nomological* possibilities that are relevant to consider in a given context by virtue of their cognitive processability. I owe this point to Gregory Salmieri.

makes sense of Watson's warrant in asserting that Moriarty might be in Beijing, it has a harder time accounting for how Sherlock is warranted in claiming that what Watson says is false, and for Watson's warrant in retracting his own claim. If epistemic possibility is indexed to the speaker's knowledge, Sherlock should be acknowledge that Moriarty's being in Beijing is compatible with *Watson's* original knowledge, and so Watson spoke correctly at first.

A second version of Orthodox NEP, *group contextualism*, portrays epistemic possibility claims as expressing propositions about what is consistent with what a salient group knows, where the group includes the speaker. If the group in this case includes Sherlock, then Watson learns that he is mistaken about what is compatible with the group's knowledge, and this explains both Sherlock's disagreement and Watson's retraction. But Przyemski notes that the group contextualist view has a harder time accounting for the retraction in the *Salvage Ship* case:

> *RETRACTION: Salvage Ship:*
> [Looking for a sunken ship, the mate of a salvage ship works from an old log and makes mistaken calculations, and concludes:]
> MATE: It is possible that the ship is in this bay.
> [After more careful examination of the log, he concludes:]
> MATE: I was mistaken when I said it was possible that the ship is in this bay.

In this case, to explain why the mate would be justified in retracting his original statement group contextualism would that his original statement was false in light of the group's knowledge as it would later develop. But Przyemski notes MacFarlane's (2011) point this makes it difficult to see how the mate would have been *warranted* in asserting the possibility in the first place: he knows nothing about what the group will know in the future, and is in no position to assert what is compatible with it.[28]

Przyemski makes the case that her positive evidentialist conception easily accounts for the first two cases. Regarding *Watson/Sherlock* she claims that disagreement about epistemic possibilities can be understood as a form of disagreement about evidential support. When Watson learns new information from Sherlock, he realizes that his previous evidence that Moriarty is in Beijing was not real, but merely apparent, so he rejects his previous claim that his evidence supported Moriarty's being in Beijing. The same point accounts for how the Mate in

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[28] Przyemski also discusses the shortcomings of the orthodox attempt to distinguish contexts of assertion and contexts of assessment ("relativism" about epistemic modals). I will not explore that here, primarily because contextualism is the more popular proposal and if I can illustrate PEEP's advantages vs. contextualism, the fight with relativism can happen at another time.

the *Salvage Ship* case comes to disagree with his own previous assessment: the mate also comes to see that he only possessed apparent evidence for the location of the ship, not real evidence.

I think that Przyjemski's account here is a breath of fresh air, but that an even more effective positive evidentialist explanation is available. It is extremely awkward to suggest that in every case of retraction resulting from disagreement, a possibility claim is retracted because the supporting evidence in question is now seen to be merely apparent. After all, PEEP is a form of evidentialism, and a robust evidentialist ethic should say that attitudes are justified by the *evidence,* not just by the *apparent* evidence. Perhaps the presence of merely apparent evidence can *excuse* someone for taking up some attitude, but it hardly seems to *justify* it. If only non-misleading evidence forms the basis of epistemic possibilities, the set of epistemic possibilities is equivalent with the set of true propositions. But it seems that the whole of giving an account of epistemic possibility is to explain how there can be multiple epistemic possibilities at a given time.

Let's suppose that Watson himself is no NEP theorist and so has some misleading and so merely apparent evidence in favor of Moriarty's being in Beijing. It is merely apparent, let's say, because Watson is being sloppy: he heard a rumor from a source known to spread falsehoods, and uncritically accepts it as a source worthy of consideration, when he should have known better. In such a case, I agree with Przyjemski that Watson retracts his earlier claim because it was based on merely apparent evidence, not real evidence. Watson is, in effect, blaming himself for not living up to the evidentialist norm. Of course, in such a case, he wasn't exactly warranted in asserting it in the first place.

The more interesting case is where Watson really is justified because his evidence is real. Suppose instead that Watson hears a report from a reliable source he has no reason to doubt. Of course he knows that informants can make mistakes, and this is why he is only considering this as a possibility, not even a probability. But let's suppose that the source has been compromised: Moriarty himself has forced the source to spread false rumors about his whereabouts, to distract Watson and Holmes from the fact that he is in London. In such a case, Watson is quite justified in considering it as possible that Moriarty is in Beijing. He has *real* but admittedly *defeasible*, but still undefeated evidence for his claim at this time. Why, then, when he receives more credible information about Moriarty's whereabouts in London could he say he was mistaken? First, Watson may be targeting the *propositional content* that he had urged was possible at the

time (the "prejacent proposition"): with Sherlock's information, he may now know that Moriarty *was not* in Beijing, even if he was justified in thinking he might be. Second, even if we ask Watson what he was wrong about, and he says it is the modal claim itself, it may be because he is confused about how epistemic possibilities, in being defeasible, are indexed to time. Epistemologists are apparently confused about the meaning of epistemic modals, so if a non-epistemologist like Watson (or a student subject evaluating his case in an X-phi experiment) sees his rejection of this possibility now as reason to reject his earlier possibility claim, this is excusable. Nevertheless a more philosophically sophisticated Watson, who appreciated that evidence is defeasible, would stand by his claim that he was justified *earlier* in making a possibility claim based on the available evidence, while acknowledging that in the present context that evidence had been defeated and no longer supported the proposition in question. So while there is an aspect of the *Watson/Sherlock* disagreement case that stands as data in need of explanation, we should not accept every possible way of reading it as data that needs to be explained.[29] Similar considerations apply to the *Salvage Ship* case.[30]

That advantage will emerge in the final case:

QUESTIONING: Cancer test:
John has some symptoms of cancer and has just completed a preliminary test for the disease. Awaiting these results, his friend asks him if he has cancer. He replies:
JOHN: I don't know whether I might have cancer.

Przyjemski first relays Yalcin's (2011) comment that John could say that he might have cancer in this case, but it seems preferable for him to say he doesn't know. But Przyjemski goes further and notes that according to an orthodox NEP framework, John's statement would not be "preferable" but downright *false*, because NEP says that epistemic possibility is in effect a report of our ignorance, of whatever states of affairs are consistent with what we know, and yet "it is common knowledge that all parties are suitably ignorant of the results of John's test" (forthcoming, p. 7). As Kent Bach expresses the point: "If you are asking about this possibility, presumably it is not ruled out by the information you already have. So it is possible for you that

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[29] Indeed, von Fintel and Gilles (2008, p. 6), who defend a version of contextualism, give data that speakers do not always retract their earlier possibility claims in such circumstances.
[30] In his original description of the case, Hacking says that the mate makes mistakes in his calculations using an old log. Here again how we explain the case depends on how we read it. If the mistakes were avoidable and the mate should have known better than to use an old log, then here we can surely agree with Przyjemski that the mate did not have real evidence in the first place. By contrast, if they were unavoidable mistakes, slips of the pen that he couldn't have avoided, then he may have had real but defeasible evidence for his view about the location of the ship, in which case we would treat it like Watson's trust in a reliable but compromised source.

you have lung cancer. But, then, why are you asking the question?" (2011, p. 42). Bach suggests that a solution to this puzzle might be offered by some form of group contextualism: John doesn't know what is compatible with his doctor's knowledge. But Przyjemski has a ready reply: the test may not have been processed yet, or even if it will be, its results may be lost. In such case, *no one* will learn the results. In such a case, it is still totally natural to say we don't know if it's possible that John has cancer. And this is *easily* explained by positive evidentialism: John doesn't know if there is evidence supporting the idea that he has cancer.

The superiority of PEEP can be brought out further by comparing it to a more sophisticated version of the orthodox contextualist view. J.L. Dowell (2011) applies a Gricean view of pragmatics to explain how the relevant aspects of a speaker's context select the relevant bodies of knowledge against which compatibility judgments are to be made. On her view, the relevant body of knowledge in relation to which possibilities are judged are determined by "a speaker S's publicly manifestable intentions in a context of use." Because speakers can have different intentions in different contexts, epistemic modals can apply in relation to different bodies of knowledge, hence Dowell calls her view "flexible contextualism." So, in a case like *Watson/Sherlock,* the context in which Watson asserts that maybe Moriarty is in Beijing, which involves a joint undertaking between himself and Sherlock, gives us every reason to think that he intends to make a claim about what is possible in relation to what the group knows. At first, he has no reason to think anything Sherlock knows rules out Moriarty's presence in Beijing, so he is warranted in asserting it. But when he learns of Sherlock's information about London, by the same standard of the group reading, he takes it back: his initial assertion was warranted but false. Similar reasoning could explain the *Salvage Ship* case.

Dowell does a good job showing how other, even trickier cases can be easily explained by her flexible contextualist semantics as well. However, her solution to *Cancer test* is extremely unsatisfying. She suggests, with Bach, that someone asking whether it is possible that John has cancer intends a group reading to include John's doctors, and given this, there is uncertainty about whether John's having cancer is compatible with what his doctors know. But this fails to take into account the scenarios envisioned by Przyjemski: *if the test results are lost or if no one ever learns about them, no one will have any knowledge with which John's cancer is compatible or not.* Yet even in such a case, it still makes sense to ask whether it is possible, whether the evidence that exists (but is presently unknown) supports a diagnosis of cancer. Positive

evidentialism, by contrast, still makes ready sense of the response here: we say we don't know if it's possible that John has cancer, because we don't know if any evidence supports this diagnosis.

Another case described by Dowell, perhaps accidentally, gives further support to the positive evidentialist theory. Dowell considers a case proposed by MacFarlane (2011, p. 152), in which two groups of researchers are looking into whether or not a species of snail lives in Hawaii. MacFarlane thinks it is implausible that contextualism could accommodate the sense of the question, asked by a member of one group, of whether it is possible that snails are on the big island. Interestingly, Dowell changes the subject from whether it makes sense to ask the *question,* to whether it makes sense to simply assert the possibility. She suggests that if one group leader says it *is* possible that there are snails on the big island, this will be warranted if she intends to include all snail investigators in her group, but doesn't know that the rival group is included in that group of all investigators. She can retract her claim if she finds out it is included that the rival group's information rules out that possibility. But nothing here makes sense of the point of *asking the question* of whether it is possible. Suppose that neither group has anything ruling out the existence of such snails. Wondering what a group knows is hardly the reason scientists ask such questions! A snail hunter might be the only person in the world and still have reason to ask this question. And it is difficult to imagine what kind of evidence could *rule out* the existence of a tiny creature like a snail on a tiny island. People who ask such questions aren't wondering whether there is highly improbable infallible knowledge somewhere that rules out such difficult to find creatures. They are wondering *if there is evidence* of the creatures in the first place.

3.5   Why the assertion of epistemic possibilities without evidence can be infelicitous
Consider again a case from the literature:

Topeka:
[Hank lives in Rotterdam and has heard of Topeka, but doesn't think about it and hasn't checked the weather there. Nevertheless he can assert:]
HANK: It might be raining in Topeka.

Yalcin (2011), who is otherwise a defender of the orthodox NEP, admits that it would be strange for Hank to assert that it might be raining Topeka. It is more natural for Hank to say that

he simply *doesn't know* whether it might be raining or not. To accommodate the infelicity of Hank's assertion to NEP, Yalcin claims that to be epistemically possible, a proposition must not only be compatible with S's knowledge, but also "appropriately sensitive to information which speaks to a question" (2011, p. 317). But as Przyjemski (forthcoming) points out, Yalcin does not give much of an account of this notion of question-sensitivity.

Dougherty and Rysiew (2009, 2011) have suggested that certain assertions of epistemic possibility without evidence can be accounted for as merely pragmatically infelicitous by means of Gricean considerations: the speaker's *saying* "possibly p" implies that the speaker has *grounds* for supposing *p*. To do this is to violate a norm of assertion: one should only imply that one knows when one knows (2011, p. 128).[31] These pragmatic explanations are plausible, but they do not explain the impropriety of all such uses, and their explanation is not as simple as PEEP's. First, on the conventional view, considering these possibilities in one's own thinking would not be inappropriate, as long as one does not assert them to others. Consider especially the wild "possibilities" entertained by CANDIDATE. I would suggest that even if CANDIDATE could keep his mouth shut and merely consider them in private, they would still be epistemically inappropriate.[32] PEEP's explanation of the impropriety is also much simpler, and is intrinsic to the account, as opposed to an additional norm of assertion grafted onto the account of modality. And a claim that it is inappropriate to *assert* ungrounded possibilities owes us an explanation for *why* it is inappropriate. One might say there is no point wasting time asserting possibilities that are groundless. But to explain why there would be no such point, one would have to explain what it is better to spend one's time asserting, why some truths should be asserted but others shouldn't. It is far simpler simply to say one should not assert what one does not know to be true in the first place. And PEEP entails that if there is no evidence to support *p*, it's just not *true* that *p* is possible.

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[31] Interestingly, Hacking (1967: 161) draws on a nearly identical explanation when he critiques Malcolm's classic statement of the positive evidentialist view. If we can answer Dougherty and Rysiew's explanation, we can also defend Malcolm against Hacking. A similar pragmatic account is also offered by von Fintel and Gillies (2008, 83).

[32] In case there is any doubt as the distinctively epistemic impropriety here, readers would do well to consider the case of so-called "concessive knowledge attributions" (CKAs), statements of the form "S knows *p*, but it's possible that not *p*." Dougherty and Rysiew's account was originally developed to explain the apparent contradiction involved in such assertions via mere pragmatic infelicity as opposed to semantic contradiction. This pragmatic account also fails to explain the incoherence of private consideration of CKAs. If there is any doubt that there is an epistemic error in CANDIDATE's assertions, would critics acknowledge that there is in CKAs, especially if they cannot be accounted for by mere pragmatic infelicity?

4   Counterexamples

Before we consider counterexamples, some general methodological considerations are in order. The present account is an *evidentialist* one. If even the weakest of our cognitive pro-attitudes need to be supported by evidence, then surely *philosophic* theories should be grounded in evidence as well. So I have offer a considerable amount of data which I think the positive evidentialist account helps best to account for. The absence of disconfirmation is not to be equated with actual confirmation. A theory of epistemic possibility needs more than to simply avoid counterexamples.

As a consequence of this approach, anyone who seeks to refute the positive evidentialist view of epistemic possibility by the method of counterexample should also challenge the positive evidence offered for the theory. If critics present counterexamples, they should at least try to explain why the data I've presented about epistemic modals is not authentic, or why mine is not the best explanation of the data. Without this discussion, simply presenting alleged counterexamples verges on question-begging. My theory is an avowedly revisionary and therefore controversial account, so it should be no surprise that it goes against the grain of many philosophers "intuitions" about what is or what is not epistemically possible. The upshot of my argument is that the balance of evidence suggests that these intuitions are mistaken.

With that said, I will still try to explain what has gone wrong with the intuitions of critics who propose counterexamples.

First let's consider counterexamples to the claim that the there being some (undefeated) evidence cognitively accessible to S that specifically supports *p* is *sufficient* for *p*'s being possible. It has been suggested that cases of known misleading evidence are counterexamples here. For example, suppose that Scarlet is found near the scene of Mustard's murder, and is in possession of the murder weapon. This is at least prima facie evidence that she is guilty of his murder. But later we learn that Orchid has confessed to the murder, and to having left the weapon in the place where Scarlet found it. The misleading evidence pointing to Scarlet still exists, but since the evidence from Orchid would rule out that Scarlet did it, it is not possible that Scarlet did it.

These counterexamples are easily acommodated by noting that PEEP only claims that accessible *undefeated* evidence in support of *p* is sufficient for the possibility of *p*. Coming to know that evidence is misleading defeats that evidence, making it no longer sufficient to render

any *p* possible. However, as we discussed previously in §3.4, even misleading evidence still counts as evidence *before* it has been defeated.

The more serious challenges to the positive evidentialist account come from the claim that the there being some (undefeated) evidence cognitively accessible to S that specifically supports *p* is *necessary* for *p*'s being possible.

For example, Michael Huemer proposes that we take as *data*, i.e. as "examples of intuitively correct and appropriate ascriptions of epistemic possibility," that philosophy students are wrong to dismiss as epistemically possible various skeptical doubts, e.g. that we might have no hands, because in the context of an epistemology class, "skeptical scenarios are particularly salient and relevant to the conversation" (2007, 135). Clearly if we should take Cartesian skeptical possibilities as genuine possibilities, even though they are (*ex hypothesi*) unsupported by evidence, then PEEP fails in its assertion that evidence is *necessary* for epistemic possibility. Here, however, PEEP has an error theory for the fact that Cartesian scenarios seem possible: subjects are confusing of one type of modality for another. It is clearly *metaphysically* or *nomologically* possible for subjects to make mistakes. However, these are distinct from epistemic modality.[33] We should avoid equivocation between "it is possible for *s* to be ϕ" and "it is possible that *s* is ϕ."[34] For instance, it is nomologically possible for human beings to be murderers, and so nomologically possible *for* Anne to commit murder. But is it possible *that* Anne committed a particular murder, e.g. that she murdered Colonel Mustard, even if she lives in a different city, had no motive to kill him, and is not well-trained in the use of a revolver? We cannot always (or usually) infer epistemic possibility from metaphysical possibility. We should not confuse modal operators on propositions with narrower scope modal concepts in the content of a proposition, e.g.:

Maybe Anne killed Mustard: E$\lozenge_S$<Anne killed Mustard.>
Anne could have killed Mustard: Anne had the power to kill Mustard.

The first involves a modal operator that expresses an attitude toward the entire proposition "Anne killed Mustard." The second is a straightforward assertion of a proposition, or the expression of an attitude of belief, about the existence of a causal power. Notably, the second but

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[33] See footnote 1.
[34] I owe this distinction to Peikoff (1981). For similar use of the distinction, see DeRose (1991: 601-605) and Adler (2002: 106).

not the first supports counterfactuals: Anne did not kill Colonel Mustard, but she could have if she had wanted to. There is a difference in what *s* **can** do, and what **might be true** of *s*.[35]

Other counterexamples to the necessity requirement point to claims that seem possible but which are not based on what is conventionally regarded as evidence. Mathematical hypotheses like Goldbach's conjecture are offered here. It seems distinctly possible that every integer greater than two can be analyzed into the sum of two primes, yet this has never been proved. Here I would argue that there clearly is *some* kind of evidence supporting the conjecture, of a kind that usually accompanies unproved mathematical hypotheses. For example, mathematicians have plugged away and found numerous examples that conform with the hypothesis, surveying examples of numbers as high as 4×10^{18}.[36] Granted, everyone knows that mere examples do not prove mathematical equations, but we are not here looking for proof, only some supporting evidence, to regard it as possible. Critics may contend that examples of conforming cases do not count as *any* form of support in mathematics, if mathematical evidence is necessarily *a priori*. I myself think this assumption about mathematics is dogmatic, and I would point out that if *a priori* deduction is the only source of mathematical evidence, there will be *no* mathematical evidence short of proof. And yet Goldbach's conjecture has something going for it without yet being proved. A mathematical proposition I pick out of a hat does not. Even if my random proposition could be proved to be contradictory, it hasn't yet, and NEP would count it as equally "possible" as Goldbach's. This seems mistaken.

A final sort of counterexample stems from certain assumptions about bivalence of modal claims. For instance, suppose I have no evidence that it is *not* raining. Then by PEEP it is not possible that it is *not* raining. It is then inferred that since it's not possible that it is *not* raining, it must be possible that it *is* raining. But if it's also false that it might not be raining, it *must* be that it is raining. But this seems like a strong claim to base on very little evidence. So PEEP must be mistaken.

All of this rests on the underlying assumption that we can validly infer *it's possible that* p from *it's not possible that not* p. But this inference begs the question in favor of the orthodox NEP theory. Yes, if in epistemic possibility, $\lozenge p$ is assumed to be equivalent to $\neg\square\neg p$, then some

[35] I owe this distinction to Harry Binswanger (2014), p. 277.
[36] http://sweet.ua.pt/tos/goldbach.html

quick deduction yields that inference.[37] But the whole point of the present theory is to reject that equivalence. Of course alethic modality can safely retain classical bivalence. It is either raining or it isn't. But the law of the excluded middle in logic by itself doesn't help us infer the certainty of p from the absence of evidence that $\neg p$.[38] Some claims are neither epistemically possible nor impossible. They have no epistemic status. Of course it is normally implausible to think that whether or not it is raining has no epistemic status for us. But that's because we usually have a great deal of *background evidence* that bears on it. We almost *always* have evidence that it is not raining that comes from periodically looking out the window. Now if we are in the basement and have been for a while, we lack that evidence. But the longer we stay in the basement, the more plausible it becomes that we *don't know whether it is raining or not.*

5   Conclusion

I have argued that there is an array of data about the ordinary use of epistemic modals supporting a radical revision in philosophers' views of epistemic possibility. Most of this data can be agreed upon even by advocates of the orthodox view that epistemic possibility is the mere absence of epistemic impossibility. Philosophers rarely argue for this orthodox view: it is assumed by most every party to every debate about epistemic possibility. I can only conclude that it has been accepted as a matter of inertia, perhaps because it is easily modeled on other forms of possibility (especially logical possibility). Yet I think we should identify the distinctive *epistemic* purposes served by epistemic modals. Doing this requires identifying the overall purpose of epistemology as a discipline. In my view, epistemology is concerned primarily with offering first-person guidance to individual knowers. Individual knowers *need* to know which hypotheses are worthy of investigation. This need highlights the need to conceptualize the epistemic spectrum continuously. It also necessitates the refusal to package together those claims that have no evidence for or against them with those that have some for them. That is the

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[37] Namely:

1. $\neg \Diamond \neg q$ (Assumption)
2. $q \equiv \neg p$
3. $\Diamond p \equiv \neg \Box \neg p$. (Axiom)
4. $\Box p \equiv \neg \Diamond \neg p$ (Axiom)
5. $\neg (\neg \Box \neg q)$ (Substitution of equivalents: 1,2)
6. $\neg (\neg \Box \neg (\neg p))$ (Substitution of equivalents: 2,3)
7. $\Box p$ (Double negation elimination: 4)
8. $\neg \Diamond \neg p$ (Biconditional elimination: 3, 7)

[38] This means that Huemer (2007: 119) is mistaken when he says that "it is impossible that p" is the *contradictory* of "it is possible that p" in epistemic logic: these two attitudes towards propositions are not jointly exhaustive.

cognitively counterproductive package suggested by the NEP. We must adopt a positive evidentialist conception of epistemic possibility that shatters the conventional package deal and offers individuals meaningful epistemic guidance, allowing us to dismiss as baseless purveyors of arbitrary "maybes"—whether in law, philosophy, or politics.

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