Assertion, Implicature, and Iterated Knowledge

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The present paper argues that there is a knowledge norm for conversational implicature: one may conversationally implicate *p* only if one knows *p*. Linguistic data about the cancellation behavior of implicatures and the ways they are challenged and criticized by speakers is presented to support the thesis. The knowledge norm for implicature is then used to present a new consideration in favor of the KK thesis. It is argued that if implicature and assertion have knowledge norms, then assertion requires not only knowledge but iterated knowledge: knowing that you know that you know that . . . you know. Such a condition on permissible assertion is argued to be plausible only if the KK thesis is true.

1. Introduction

Both assertion and conversational implicature can be used to convey information. Many accept the idea that permissible assertion has some epistemic condition. But are there any such epistemic conditions on permissible implicature? It may seem that implicatures do not commit us to much—they are, after all, easily cancellable. But, as I shall argue, this appearance is misleading. The primary aim of this paper is to defend the thesis that epistemically permissible implicature requires knowledge: one may implicate *p* only if one knows *p*.

In the case of assertion, an increasingly popular view is the knowledge account, according to which permissible assertion requires knowledge.[1] Discussions of

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1. For the classic defense, see Williamson (2000: ch. 11). Other defenses of the knowledge norm or close variants include Unger (1975), Slote (1979), DeRose (2002; 2009), Adler (2009), Benton (2011; 2016), Turri (2011; 2016), Blaauw (2012), Simion (2016), and Kelp (2018). For arguments

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the norms of assertion have mostly focused on its explicit propositional content, and on what is epistemically required to permissibly convey that content. But as is well-known, assertions often convey much more than that—most notably, implicatures. Is it epistemically permissible to assert what I know to be true but implicate by that assertion what I know to be false? If not, epistemically permissible assertion might in fact require more than knowledge. A number of philosophers have directed their attention to such questions in recent years,[2] but none have argued that implicature requires knowledge, even when they endorsed a knowledge norm in the case of assertion.[3] As I shall argue, however, anyone who accepts a knowledge norm for assertion should accept a knowledge norm for implicature, as similar considerations support both.

The knowledge norm of implicature entails that assertion requires not only knowing its explicit content but also its implicatures. This has a significant consequence: it supports the KK thesis, according to which if one knows p then one knows that one knows p. Some may simply take this as evidence against the knowledge norm of implicature, but a growing number of considerations have recently emerged in favor of the KK thesis, even from externalist quarters.[4] The second aim of this paper, then, is to rely on the knowledge norms of assertion and implicature to provide a new consideration for KK, and thus to join recent efforts to provide linguistic evidence in its favor.[5]

The plan of the paper is as follows. In §2, I make the case for a knowledge norm for implicature by appealing to data about the cancellability behavior of implicatures in the presence of explicit and implicit knowledge denials, patterns of epistemic challenges to implicature, and the criticizability of speakers who convey implicatures for which they lack knowledge. In §3, I argue that there are knowledge implicatures: an assertion of p conveys the implicature that the speaker knows p. In §4, I argue that the results of §2 and §3 provide a new case for the KK thesis.

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for an essential but non-normative link between assertion and knowledge, see McCammon (2014), Black (2019), van Elswyk (in press).

2. See Fricker (2012), Hawthorne (2012), Green (2017), Gerken (2017: ch. 7), Gerken and Petersen (2020) for discussions of epistemic norms of conversational implicature. See García-Carpintero (2020) for an epistemic norm of the related pragmatic phenomenon of presupposition. See also Stainton (2016) who defends, among other things, the claim that assertion and implicature share the same epistemic norm, but does not defend any particular norm.

3. Both Fricker (2012), Green (2017) endorse a knowledge norm for assertion. Fricker argues that implicatures have no epistemic requirements, while Green argues that they require less than knowledge.

4. See, e.g., McHugh (2010), Greco (2014; 2015a; 2017), Das and Salow (2018), Dorst (2019).

5. For a recent specifically linguistic argument for KK see Dorst (2019).

2. Knowledge and Implicature

The present section defends the following thesis:

> **Knowledge Norm of Implicature (KNI)** One may conversationally implicate p only if one one knows p.[6]

First, some preliminaries. The corresponding norm of assertion widely but not universally accepted is:

> **Knowledge Norm of Assertion (KNA)** One may assert p only if one one knows p.

I take the 'may' in both KNA and KNI to denote epistemic permission. That is, it is not epistemically permissible to assert p, according to KNA, without knowing p.[7] On the other hand, if one does know p, KNA does not issue an epistemic permission to assert p, although some authors have argued for the claim that knowledge is also sufficient for epistemic permission to assert.[8] Similarly, KNI does not entail that knowledge is sufficient for epistemically permissible conversational implicature, although it may well be so. The permissions in question are *epistemic*. Thus, it may be epistemically impermissible to assert p but at the same time be prudentially permissible to assert it, for example, because doing so would save one's life. It may also be epistemically permissible to assert p, but not permissible simpliciter, for example, because asserting p would be offensive. The same is true, according to KNI, for implicature.

Some defend a claim stronger than KNA and argue that the knowledge norm is *constitutive* of assertion.[9] In contrast, some theorists only take KNA to be about what is required for epistemically permissible assertion and take no stance on the issue of constitutivity.[10] I take KNI similarly to be only about what is required for epistemically permissible implicature, and take no stance on the issue of its constitutive rules, or whether it is the sort of thing that can have constitutive rules at all.[11] Finally, I assume a broadly Gricean account of implicature,[12] and

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6. One might already worry at this point that this thesis presupposes that all implicatures express determinate propositions, which some reject. I address this worry in §2.4.

7. Some discussions are not very precise regarding what kind of normative category is involved in the norm of assertion. Some talk about 'warrant', 'propriety', 'appropriateness'. I follow, e.g., Turri (2011), Benton (2016) in talking about epistemic permission.

8. See Brown (2010) for discussion. For a recent defense, see Simion (2016).

9. See, e.g., Williamson (2000: 241), Benton (2016)

10. See, e.g., Kelp and Simion (2018). See Marsili (in press) for a recent discussion.

11. See Stainton (2016) for discussion of differences in conventionalization and constitutivity between assertion and conversational implicature.

12. Grice (1989).

the paper will be concerned with *conversational* implicature (henceforth simply 'implicature').

2.1. *Moorean Phenomena*

I begin by introducing two implicature-related Moorean phenomena. Consider the following cases of implicature (I use '⇝' to mean 'conversationally implicates'):

(1) Ann: Shall we try this wine?
    Bob: I don't drink cheap wine.
    ⇝ This wine is cheap.

(2) I ate some of the pizza.
    ⇝ I didn't eat all of the pizza.

The phenomena in question involve the cancellation behavior of implicatures. It is well-known that implicatures can be cancelled by explicitly denying them. The implicatures in (1) and (2) can be cancelled as follows (I use '⇝̸' to mean 'does not conversationally implicate'):

(3) Ann: Shall we try this wine?
    Bob: I don't drink cheap wine, but this wine isn't cheap.
    ⇝̸ This wine is cheap.

(4) I ate some of the pizza. In fact, I ate all of it.
    ⇝̸ I didn't eat all of the pizza.

What is less often noted is that implicatures can also be cancelled by denials of knowledge or belief:

(5) Ann: Shall we try this wine?
    Bob: I don't drink cheap wine, but I don't believe this wine is cheap.
    ⇝̸ This wine is cheap.

(6) Ann: Shall we try this wine?
    Bob: I don't drink cheap wine, but I don't know if this wine is cheap.
    ⇝̸ This wine is cheap.

(7) I ate some of the pizza. In fact, I believe I ate all of it.
    ⇝̸ I didn't eat all of the pizza.

(8) I ate some of the pizza, though I don't know if I ate all of it.
    ⇝̸ I didn't eat all of the pizza.

In examples (5) through (8), denials of knowledge or belief cancel the implicature. For instance, in (6), Bob cannot be taken to mean that this particular wine is cheap when he explicitly denies knowledge of that implicature. The implicature is thus cancelled. But why would denials of knowledge and belief cancel implicatures? There is something analogous here to Moore's paradox. Consider the difference between the following:

(9) # It's raining, and it's not raining.

(10) # It's raining, and I don't know if it's raining.

Asserting either one of (9) or (10) results in infelicity. It's easy to explain why we find (9) infelicitous: it's a contradiction. The infelicity of (10) is trickier to explain: it is consistent—both conjuncts could be true—but it sounds in some way inconsistent. This is Moore's paradox. The KNA explanation of it goes as follows: Since there is a knowledge norm of assertion, in asserting the first conjunct of (10), one commits oneself to knowing that it's raining, which is inconsistent with what one asserts with the second conjunct. So (10) involves an inconsistency as well. It's not a logical or semantic inconsistency, but a pragmatic one: an inconsistency between what one is committed to and what one asserts.

There is a similar difference between the cancellations in (3) and (6), reproduced here:

(11) Ann: Shall we try this wine?
  Bob: I don't drink cheap wine, but this wine isn't cheap.
  ↝̸ This wine is cheap.

(12) Ann: Shall we try this wine?
  Bob: I don't drink cheap wine, but I don't know if this wine is cheap.
  ↝̸ This wine is cheap.

The cancellation in (11) is easy to explain: there is a contradiction between the putative implicature of the first conjunct and the second conjunct. The cancellation in (12), on the other hand, is more similar to Moore's paradox. The putative implicature and the asserted second conjunct are consistent—both could be true—but the implicature disappears as if it were inconsistent with the asserted content. This can be explained along the lines of the KNA explanation of Moore's paradox: By implicating p, one commits oneself to knowing p, and if one asserts that one does not know p, that assertion is inconsistent with what one would be committed to if one were to implicate p. Since in the case of conflict between assertion and implicature the implicature is always cancelled (as standard cases of denial such as (11) show), any putative implicature is cancelled when knowledge of it is denied.

The key point here is that by implicating p one takes a commitment to knowing p. This commitment comes about because of a knowledge norm for implicature: An epistemically permissible implicature requires knowledge. Cancellation by denial of belief is explained by KNI in a similar way, on the assumption that knowledge entails belief.

The second phenomenon is that it is impossible to convey a Moorean implicature of the form "p and I don't believe p" or "p and I don't know p". Consider the following two exchanges, where the context is that Ann is hosting a party in her apartment, to which Bob has just arrived:

(13) Ann: Is Carlos coming to the party?
     Bob: He's downstairs.
     ↝ Carlos is coming.
(14) Ann: Is Carlos coming to the party?
     Bob: He might be.
     ↝ I don't know if Carlos is coming.

Bob's reply in (13) conveys a relevance implicature: it implies that Carlos is coming—that's how his reply is relevant to Ann's question. Bob's reply in (14) conveys a quantity implicature: it implies that Bob doesn't know whether Carlos is coming, for otherwise he would have given a more informative reply. Importantly, if Bob's answer is instead a conjunction of his answers in (13) and (14), the conjunction of the implicatures of (13) and (14) is *not* conveyed:

(15) Ann: Is Carlos coming to the party?
     Bob: He's downstairs, and he might be coming.
     ↝ I don't know if Carlos is coming.
     ↝̸ Carlos is coming.

More generally, if an utterance conveys the implicature that p, adding something like "and it might be that p", which implicates ignorance of whether p, removes the p implicature. It seems, then, that the Moorean proposition "p and I don't know if p" cannot be implicated. But why is that? The knowledge norm of assertion only explains why such a proposition is not assertible, not why it cannot be conveyed as an implicature. The knowledge norm of implicature, in contrast, can explain this. By implicating p, one commits oneself to knowing it. By implicating "I don't know if p", one implicates a contradiction of that commitment. Since contradictions at the level of implicature simply result in cancellation, one of the conjuncts is ultimately cancelled.[13]

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13. Why is it p that is cancelled and not "I don't know p"? Perhaps because the speaker is presumed to be more reliable with respect to the latter: we can trust that Bob knows that he doesn't know p more easily than we can trust that he knows p. A similar effect is at work in Moorean

2.2. *Challenges*

Assertions can be challenged. If one asserts *p*, a typically appropriate reply is to ask "How do you know that?". Such replies often constitute challenges, because if the speaker concedes that she doesn't, after all, know that *p*, the original assertion will have thereby been retracted, or at least not accepted by the hearer.[14] For instance:

> (16) Ann: Carlos is home.
>   Bob: How do you know that?
>   Ann: Actually, I don't know that.

Once Ann pleads ignorance, her assertion is no longer part of the conversational common ground. Otherwise, maintaining her assertion while denying knowledge of it would result in Moorean infelicity.

If implicature has a knowledge norm, we should expect to find a similar pattern. We should expect, that is, two things: (a) when one implicates *p* with some utterance, it is generally appropriate to reply: "How do you know *p*?"; (b) when the speaker admits to not knowing *p*, the implicature is thereby retracted.[15]

This is exactly what we find. Consider:

> (17) Ann: Shall we try this wine?
>   Bob: I don't drink cheap wine.
>   Ann: How do you know this wine is cheap?

> (18) Ann: Would you like to go for a walk outside?
>   Bob: Uh, I prefer not to go out in the rain.
>   Ann: How do you know it's raining?

Ann's replies to Bob seem appropriate. It would be odd if Bob responded to those questions with "What does that have to do with what I said?". It is clear how Ann's challenges are relevant: in each case Bob implicates a proposition that Ann may not immediately accept, and she wants to know whether she should accept it. Moreover, if Bob responds by admitting that he doesn't possess knowledge of the implicated proposition, the implicature is thereby retracted:

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assertions. When a speaker asserts "*p* but I don't know if *p*", it's easier to dismiss *p* than it is to dismiss that the speaker doesn't know *p*. The latter is more plausibly heard as retracting the former rather than the other way around.

14. See Williamson (2000: 252–53), Benton (2011), Turri (2010) for this line of argument for the knowledge norm of assertion.

15. I distinguish retraction from cancellation. (As do others; see, e.g., Geurts 2010: ch. 1.) When an implicature is cancelled, it simply doesn't arise. When an implicature does arise but denied later on, it is not cancelled but retracted.

(19) Ann: Shall we try this wine?
Bob: I don't drink cheap wine.
Ann: How do you know this wine is cheap?
Bob: Actually, I don't know that this wine is cheap.

(20) Ann: Would you like to go for a walk outside?
Bob: Uh, I prefer not to go out in the rain.
Ann: How do you know it's raining?
Bob: Well, I don't know that.

Challenges to implicature are not limited to imaginary cases. Here are two real-world examples:[16]

(21) MILLER: I think it's unfortunate that the media continues to describe this in- dividual as a whistleblower, an honorific that this individual most certainly does not deserve. A partisan hit job does not make you a whistleblower just because you go through the Whistleblower Protection Act.

WALLACE: Well, first of all, how do you know that this is a partisan hit job, and how do you know that this is not a whistleblower?[17]

(22) O'REILLY: Private Manning will be released in a few months. And join- ing us now from Washington, Senator John McCain. So, your reaction to the commutation?

SEN-JOHN-MCCAIN: Rage, frustration, and sorrow. Sorrow for the families of those individuals who [were] identified in these leaks in Afghanistan that the Taliban went after and murdered. And rage because this President is basically endorsing a proposal that allows someone to go free who is responsible for the needless deaths of those people who are allies. But [what] do you say to their families, Bill?

O'REILLY: How do you know that Manning's leaks directly led to a person's death?[18]

It's important to note that we shouldn't expect it to be appropriate to reply "How do you know?" to an implicature in *every* case, for two reasons. First, in some cases it is clear how the speaker knows, so the question is not appropriate. The same applies to assertion: if a speaker asserts that she lives in New York, asking "How do you know that?" seems odd. Second, in many cases speakers implicate not p but something weaker, such as "probably p" or "maybe p". For instance, if Ann

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asks Bob whether Carlos is coming to the party and Bob replies: "Well, he has a lot of work", the implicature is most plausibly that Carlos is *probably* not coming. In that case, it's inappropriate to reply "How do you know he's not coming?", just as it would be to so reply to an assertion that Carlos is probably not coming.

2.3. *Criticizability*

Some arguments for a knowledge norm of assertion appeal to intuitions about cases in which the speaker has a true belief that *p* that is strongly supported by the evidence, yet does not know *p*. In such cases, it seems impermissible for the speaker to flat out assert *p*. For instance, suppose Ann has a lottery ticket and the draw has been held, but neither Ann nor Bob knows the result. Bob then asserts to Ann:

(23) Your ticket lost.

Bob's assertion in (23) seems impermissible if Bob doesn't *know* it to be true. That's so even if he believes it, it's highly probable on his evidence, and it is in fact true. Perhaps he should assert instead that the ticket probably lost, or that it's almost certain that it did, but the flat out assertion that it lost seems inappropriate. The intuitive badness of lottery assertions has been taken to support KNA.[19]
    If (23) seems bad to assert, it also seems bad if merely implicated. Consider:

(24) Ann: Did my ticket win?
        Bob: Sorry. Better luck next time.

Here Bob does not assert, but clearly conveys the implicature that Ann's ticket lost.[20] Bob's utterance in (24) seems just as epistemically inappropriate as the assertion in (23). If Ann finds out that Bob was ignorant of the actual result, she may criticize him for what he said. In both (23) and (24) it would be appropriate for her to later reply "You shouldn't have said that". Again, it might be appropriate to imply that the ticket probably or even almost certainly lost—perhaps by saying "don't get your hopes up"—but implicating that the ticket in fact lost when the speaker lacks that knowledge sounds inappropriate. If so, and given that the badness (23) is evidence for a knowledge norm of assertion, the badness of (24) is evidence for a knowledge norm of implicature.
    There is a more general pattern here. Speakers who assert without knowledge may be criticized for making such assertions. This is part of what happens in the

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19. See, e.g., Williamson (2000: 246).
20. The implicature is cancellable. For instance: "Sorry. Better luck next time. You won, but the organizers absconded with the prize money."

lottery case. But speakers who convey implicatures without knowledge are just as criticizable. Here is an example from the wild. During the first weeks of the COVID-19 pandemic, President Donald Trump tweeted: "[President Xi] will be successful, especially as the weather starts to warm & the virus hopefully becomes weaker, and then gone." Trump was later criticized for implying that the virus was seasonal and could be affected by warm weather, while there was no scientific consensus that any such thing was true.[21] The criticism seems appropriate if indeed Trump lacked such knowledge. But what is criticized is not an assertion but an implicature—and it is clear why it is criticized: such an implicature conveys information to the audience, and conveying information without knowledge is epistemically inappropriate.[22] Similarly, if a speaker is criticizable for asserting that it's raining, she would seem just as criticizable if she said "Better take an umbrella", implicating rather than asserting that it's raining. More generally, then, implicatures seem criticizable in the same way that assertions do.

Granted, since implicatures are not explicit, speakers may in some cases plausibly deny that they intended to convey them to avoid criticism. But this does not tell against a knowledge norm for implicature. What the speaker denies is irrelevant—there's a fact as to whether there was an implicature, and if there was one that was made while lacking the relevant knowledge, the speaker has done something impermissible. Implicatures are harder to detect than assertions, and speakers can take advantage of that. But this only means that violating the epistemic norm of implicature may be easier to get away with—it does not mean that there is no such norm.

2.4. Objections

Before moving on, let us consider a number of objections to the thesis that epistemically permissible implicature requires knowledge.

The first is that some implicatures don't have determinate propositional content, and so cannot be the objects of a propositional attitude such as knowing. Consider Grice's famous example:

> Suppose that A and B are talking about a mutual friend, C, who is now working in a bank. A asks B how C is getting on in his job, and B replies, *Oh quite well, I think; he likes his colleagues, and he hasn't been to prison yet.* (Grice 1989: 24)

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21. https://www.cnn.com/2020/02/07/health/trump-coronavirus-weaker-warm-weather/.

22. It is implicated and not part of what is said by Trump that the virus is seasonal. The implicature could be cancelled, e.g., by adding "I don't mean that the virus is seasonal; I just hope that it becomes weaker when the weather warms, not as a result of the warm weather." This seems to be a manner implicature in which the causal connection is only implied, and it is somewhat similar to "Ann and Bob had a baby and got married [. . . but not in that order]."

There is clearly something that B implicates, but there may not be any particular proposition that is implicated. What does KNI say here? If it renders the implicature epistemically impermissible because it does not convey knowable content, it seems to deliver the wrong verdict for a broad class of implicatures. If it does not apply to such implicatures, then it's not clear to what it does apply, since we don't have a principled distinction between determinate and indeterminate implicatures.[23]

In reply, I do not deny that some implicatures may be indeterminate. But let me note a few points. First, this is a problem for any plausible view that allows for some epistemic norm for implicature, as such views will require some propositional attitude or property such as belief, truth, evidence, and so on. And there are grounds to think that implicature has at least *some* such norm, for there seems to be something improper about conveying false or disbelieved implicatures.[24] Second, as Buchanan (2010; 2013) argues, there are reasons to think that not all assertions have determinate contents either. One can assert "each dish is almost ready" such that there is nothing in the relevant context that is sufficient to fully determine a particular proposition that is being expressed. If Buchanan is right, accounts of the norm of assertion are susceptible to the same problem. But this should not deter us from theorizing about the normativity of assertion. Third, there are ways of dealing with the indeterminacy problem. For instance, Buchanan (2010; 2013) argues that an indeterminate assertion or implicature conveys a proposition-type, which is an open-ended set of propositions.[25] KNI can be modified to specify a requirement with respect to such contents. For instance, the speaker might be required to know at least one proposition of a given proposition-type.[26] Developing such an account in full will take us too far afield, but I hope this suffices to see that such an account is possible. Finally, even if we take KNI to apply only to contexts where a speaker determinately implicates a proposition, a main thesis of this paper—that the KK thesis is supported by the knowledge norms of assertion and implicature—still stands, because it relies only on

23. See Fricker (2012) for some concerns of this sort.

24. Consider also the distinction between lying and misleading. Implicatures provide clear cases of merely misleading, as opposed to lying. (See, e.g., Adler 1997; Stokke 2013.) But to count implicatures as misleading we will have to say something about the propositions implicated—that they're false, or disbelieved—and that faces the indeterminacy problem as well.

25. See Bowker (2019) for a related proposal.

26. A referee notes that this is too weak to be the epistemic norm governing implicature or assertion, as it would permit implying a proposition type of which the speaker knows one proposition to be true and all the others to be false. I agree that this requirement cannot be the sole necessary condition on epistemically permissible implicature, but my purpose here is only to illustrate that the indeterminacy challenge can be met. Recall that the worry was that indeterminate implicatures, insofar as they fail to express propositions, cannot be the objects of knowledge. The proposition-type strategy I appeal to shows how in principle a knowledge requirement can still be formulated for indeterminate implicatures. I thank the referee for raising this point.

claims about determinate implicatures: that speakers who assert *p* implicate that they know *p*, and that this implicature is subject to a knowledge norm.

A second worry is that we often seem not fully committed to our implicatures. Even if it is granted that some implicatures require knowledge, as I claim, others seem to require less. Suppose at a party Ann asks Bob, who's just arrived, if their friend Carlos is also coming. Bob replies: "I just saw him in the parking lot". Bob seems to implicate that Carlos is coming to the party, but he does not seem to be committed to knowing it. For all he knows, Carlos may be on his way home. He might even continue to clarify his answer: "I don't know for a fact that he's coming, but it does seem that he is". By answering as he does, Bob seems to be providing relevant information to Ann's question in a permissible way.[27]

I grant that Bob's answer is permissible even though he does not know that Carlos is coming. But we should be careful in identifying the right implicature here. Here are some candidates: Carlos is coming, Carlos is probably coming, Carlos might be coming. As noted above, sometimes implicatures are indeterminate, and there will be nothing to decide between the candidates. This is a plausible reading of the case. It's also one that is compatible with KNI, because then Bob is only required to know that Carlos *might* be coming. This reading also explains the sense in which Bob's continuation "I don't know for a fact that he's coming, but it does seem that he is" provides a clarification: it rules out some of the candidates for implicature—in this case, the strongest one. Even if the implicature is determinate, I see no reason to think that it's that Carlos *is* coming and not that Carlos is *probably* coming. On the contrary, taking the latter to be the determinate implicature (or taking the implicature to be indeterminate as suggested above) provides an explanation for why here and in some cases more generally speakers don't seem fully committed to their implicatures: it's because they implicate only that something *might be* or *probably is* the case, rather than that something is in fact the case. This is of course compatible with the claim that the required epistemic position with respect to such contents is knowledge.[28]

A third worry is that my argument in this section overgeneralizes. It seems that implicatures can be canceled by denials of certainty just as with denials of knowledge or belief, that it is not possible to implicate "*p* but it's not certain that *p*", and that one can challenge an implicature that *p* with "Are you certain that

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27. See Green (2017: 385–86) for this kind of worry.

28. Similarly, one might argue that KNI gives the wrong prediction for "Bob ate some of the pizza" uttered by Ann. Surely, this implicates that Bob didn't eat all of the pizza, but Ann's utterance seems permissible even if she has no idea whether Bob ate all and only knows that he ate some. Here, too, the reply is that there seem to be alternative candidates for the implicature in a context where it is permissible to assert as Ann did without knowing whether Bob ate all: that Ann is not sure whether Bob ate all, that it's not certain whether he ate all, and so on.

p?". So an alternative explanation of the data may be that there is a certainty norm of implicature.

Two points in reply. First, such a norm is not necessarily in tension with KNI, for the latter only places one necessary condition on epistemically permissible implicature and does not entail that this is the only necessary condition. Second, parallel concerns arise for KNA, and these have already been addressed in the literature.[29] Instead of repeating these replies I offer this: my arguments in this section show at least that if there is a knowledge norm for assertion, then there is also a knowledge norm for implicature, because the same sort of considerations support both. Why should one care about this conditional thesis? Because, as I argue in the following sections, the conjunction of KNA and KNI supports the KK thesis, which means that two central tenets of knowledge-first epistemology—the knowledge norm of assertion and anti-luminosity—may be incompatible.

3. Knowledge Implicatures

In this section, I assume the knowledge norm of assertion and argue that a speaker's assertion that *p* gives rise to a *knowledge implicature*, i.e., an implicature that the speaker knows *p*. This will be important for the argument later on that if both assertion and implicature are subject to a knowledge norm, then we have new evidence for the KK thesis.

3.1. *Quality and Other Implicatures*

One way in which implicatures are generated, on a broadly Gricean view, is by openly observing (rather than flouting) the conversational maxims.[30] For each conversational maxim there is a kind of implicature associated with observing that maxim. For instance, for the maxim of Quantity (*Be as informative as required*), there are scalar implicatures:

(25) I ate most of the pizza.
     ⤳ I didn't eat all of the pizza.

Given the assumption that the speaker is observing Quantity, an assertion of (25) generates the implicature that the speaker didn't eat all of the pizza, since if the

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29. See Turri (2010), Williamson (2009) for replies to the certainty worry in defense of KNA.
30. See, e.g., Birner (2013: 44f.), Huang (2015: 33; 2017: 158), Levinson (1983: 103–4).

speaker did and was as informative as required, she would have said 'all' and not 'most'. The maxim of Relation (*Be relevant*) can generate relevance implicatures:

> (26) Ann: I am out of gas.
>   Bob: There's a station down the street.
>   ⤳ You can get gas there.

In (26), Bob's answer conveys an implicature (perhaps among others) that Ann can get gas at the station. The implicature is generated by taking Bob to be saying something relevant to Ann's question. The maxim of Manner (*Be perspicuous*) generates manner implicatures:

> (27) Ann drove home and had a glass of wine.
>   ⤳ Ann had a glass of wine after driving home.

An assertion of (27), on the assumption that the speaker is observing Manner, conveys the implicature that the event described by the first conjunct happened before that described by the second.

Finally, the maxim of Quality (*Do not say what you believe is false or that for which you lack adequate evidence*) generates *Quality implicatures*:

> (28) Ann: Where is Carlos?
>   Bob: He's in his office.
>   ⤳ I believe that Carlos is in his office.

In (28), the assumption that Bob is observing Quality gives rise to the implicature that Bob believes what he says.[31] Quality implicatures, like scalar, relevance, and manner implicatures, are a species of observance implicatures—implicatures arising from the overt observance of a given conversational maxim.

Importantly, if assertion has a knowledge norm, then speakers are not only required to believe and have evidence for what they assert, as Quality demands, but they are also required to know it. If so, then Quality should really be understood in terms of knowledge: Do not say what you don't know.[32] Knowledge implicatures are then a species of Quality implicatures. But even if KNA should be understood as distinct from Quality, Knowledge implicatures arise in the

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31. Grice himself did not accept that there are Quality implicatures (see Grice 1989: 42). But many linguists and philosophers who endorse Gricean pragmatics have departed from him on this point. See, e.g., Birner (2013: 65–66), DeRose and Grandy (1999: 417 n. 13), Dorr and Hawthorne (2013: 891), Geurts (2010: 41), Huang (2015: 33), Levinson (1983: 105), Meibauer (2006: 569).

32. An early advocate of taking Quality to require knowledge is Gazdar (1979). A more recent case for interpreting Quality in terms of knowledge is made by Benton (2016), who also takes it to provide further support for KNA.

same way that Quality implicatures do: the speaker is assumed to be observing the norm of assertion, which invites the inference that she knows her assertion.

At this point the reader might worry: Aren't implicatures supposed to be cancellable? If they are, there can't be any belief or knowledge implicatures since those are clearly not cancellable:

(29) # Carlos is in his office, but I don't believe that.
(30) # Carlos is in his office, but I don't know that.

My reply is threefold: First, we should distinguish, as Grice did, between explicit and contextual cancellation. Second, there are good reasons to think that not all implicatures are explicitly cancellable. Third, Quality implicatures, and in particular belief and knowledge implicatures, are contextually cancellable. I turn now to developing this reply in more detail. The reader who is not worried by this objection may skip to §4.

3.2. *Quality and Cancellability*

Grice distinguished between explicit and contextual cancellation:

> [A] putative conversational implicature that *p* is explicitly cancellable if, to the form of words the utterance of which putatively implicates that *p*, it is admissible to add *but not p*, or *I do not mean to imply that p*, and it is contextually cancellable if one can find situations in which the utterance of the form of words would simply not carry the implicature. (Grice 1989: 44)

Many, including Grice, take cancellability to be a necessary feature of implicature: If *p* is a non-cancellable implication of an utterance, then *p* is not an implicature of that utterance. In light of the above distinction, the cancellability hypothesis can be interpreted in two ways:

Strong Cancellability Hypothesis Every implicature is both explicitly cancellable and contextually cancellable.
Weak Cancellability Hypothesis Every implicature is either explicitly cancellable or contextually cancellable.

It is unclear, in fact, whether Grice held the strong or the weak version of the hypothesis. He merely wrote: "[An implicature] may be explicitly canceled, . . . or it may be contextually canceled" (1989: 39), which seems to leave open both

interpretations. Regardless of what Grice actually held, however, there are reasons to think that the strong hypothesis is too strong. Some implicatures appear not to be explicitly cancellable.[33] Consider:

(31) Ann: Dan is an honest person.
    Bob: And I'm the Queen of England.[34]

In (31), Bob's answer implicates that he does not agree with Ann's statement. The implicature comes about by the well-known mechanism of flouting a conversational maxim. Since it's common ground between Ann and Bob that Bob's reply is false, and Bob is nevertheless cooperative, he must mean something else: that Ann's statement is as implausible as his, or something of that sort. However, the implicature does not seem explicitly cancellable:

(32) Ann: Dan is an honest person.
    Bob: And I'm the Queen of England. # But I agree with you.

The cancellation attempt results in infelicity: there seems to be no way to interpret what Bob is saying if the implicature is removed. The implicature is, however, contextually cancellable. For instance, in a meeting of monarchs:

(33) King of Morocco: I'm the King of Morocco.
    Queen of England: And I'm the Queen of England.

In (33) the implicature of disagreement does not arise, since the speaker's utterance is not obviously false as it is in (31) and (32).

Here's another example of an implicature that does not seem to be explicitly cancellable, adapted from Åkerman (2015):

(34) Ann: Are you happy with your new job?
    Bob: Yes and no.

In (34), Bob implicates that he is happy with his new job in some respects and unhappy with it in others. But this does not seem explicitly cancellable:[35]

(35) Ann: Are you happy with your new job?

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33. For arguments that not all implicatures are explicitly cancellable, see Weiner (2006), Åkerman (2015), Rett (2015: ch. 4). See Zakkou (2018) for a recent overview.

34. This example is based on Weiner (2006).

35. Åkerman takes the implicature in such a case to be explicitly cancellable, but rejects the idea that explicit cancellation must result in a felicitous utterance. This gives us another way of resisting the objection to knowledge implicatures. However, I assume Grice's traditionally accepted claim that cancellation must be felicitous.

> Bob: Yes and no. # But I don't mean to imply that I'm happy with it in some respects and not in others.

The attempt to cancel the implicature in (35) results in infelicity—without the implicature, we are left with a mere contradiction.[36]

Given such cases, it seems that implicatures are not always explicitly cancellable. But they may still be contextually cancellable. Thus we may still hold the hypothesis that all implicatures are cancellable, but only in its weak form: they are either explicitly cancellable, or contextually cancellable, but not always both. Note that contextual cancellation is still useful for distinguishing implicatures from other kinds of implications, such as conventional implicatures, presuppositions, and logical entailments. Logical entailments, for instance, are neither explicitly nor contextually cancellable. Presuppositions and conventional implicatures are typically harder than conversational implicatures to cancel, and whether they arise from a given utterance may not depend on contextual factors. The weak cancellation hypothesis thus preserves some of the attractive features of the strong one.

Importantly for our purposes, Quality implicatures, and in particular belief and knowledge implicatures, are contextually cancellable. We have already seen such a case:

> (36) Ann: Dan is an honest person.
>   Bob: And I'm the Queen of England.

In (36), Bob's utterance does not convey the implicature that he believes that he is the Queen of England, because it is clear from the context, given the common ground, that he does not. Similarly:

> (37) Ann: You look tired.
>   Bob: I had a million exams to grade.

In (37), Bob's overstatement does not convey the implicature that he believes that he had a million exams to grade (although it does convey a weaker one: that he believes that he had a lot to grade). Quality implicatures do not arise in contexts in which they are clearly false. Many cases of verbal irony and hyperbole, as in (36) and in (37), exploit this fact.

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36. It's an interesting question whether this sort of implicature is contextually cancellable. However, that's not important to my main thesis here, which is simply that not all implicatures are explicitly cancellable.

Quality implicatures are cancellable after all—they are contextually, rather than explicitly cancellable, in accordance with the weak cancellability hypothesis.

4. Iterated Knowledge

Consider the KK thesis:

KK If one knows *p*, one knows that one knows *p*.[37]

A popular combination of views, influenced by Williamson (2000), is that of rejecting the KK thesis and accepting a knowledge norm of assertion.[38] As I shall argue in this section, however, there is a new case to be made for KK, one which is supported by the knowledge norms of assertion and implicature. The argument, briefly, is this: Since both assertion and implicature require knowledge, and assertions generate knowledge implicatures, assertion requires not only knowledge but *iterated knowledge*: one may assert *p* only if one knows that one knows that . . . one knows *p*. This condition on permissible assertion is plausible only if KK holds. The rest of this section unpacks this argument.

The first step is to argue that there is a *KK norm of assertion*, given the previously established theses. The argument runs as follows:

(P1) If one asserts *p*, one implicates *Kp*.[39]
(P2) One may make an assertion that implicates *q* only if one may implicate *q*.
(P3) One may implicate *p* only if *Kp*. [KNI]
(C1) One may assert *p* only if one may implicate *Kp*. [P1, P2]
(C2) One may assert *p* only if *KKp*. [P3, C1]

The argument establishes that given premises P1, P2, and P3, assertion requires not only knowledge, but knowledge of knowledge. P1 is the claim that was argued for in §3—that assertions convey knowledge implicatures, given that assertion has a knowledge norm. P2 is an assumption about permissions. If by ϕ-ing one also ψ's, and one may ϕ, then one may ψ. This can be supported more generally as a claim about the permissibility of acts.[40] The idea is that

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37. This is of course the simplest and strongest statement of the thesis. Some have weakened it by the strengthening the antecedent ("if you know *p*, and consider whether you do . . . ") or by weakening the consequent (". . . then you are in a position to know that you know"). The simple version will suffice for my purposes.

38. See, e.g., Williamson (2000), Hawthorne (2004), DeRose (2009), Benton (2013), Turri (2013), Littlejohn (2014). For a brief overview of arguments against KK, see Greco (2015b).

39. I use '*Kp*' to mean that the speaker in question knows *p*.

40. See Kiesewetter (2015) for a discussion and defense of a related principle known as 'transmission'.

you're permitted to perform a complex act only if you're permitted to perform all of its parts. Implicating is part of the act of asserting. If an assertion conveys an impermissible implicature, then it is the whole act of asserting that is impermissible. Consider also how an impermissible implicature may be criticized. Suppose Ann implicates that Bob is a weak student, when asked to evaluate him, by saying only that he never falls asleep in class, even though she knows that he is an excellent student. If one finds out that Ann's implicature was intentionally misleading, it's appropriate to reply "you shouldn't have *said* it", rather than just "you shouldn't have implied it". This suggests that it's not just the implicature that is seen as impermissible in such a case, but the entire act of asserting.

The preceding argument established a KK norm of assertion. That is:

KKNA One may assert *p* only if one knows that one knows *p*.

KKNA does not give us KK quite yet, but it does sit uncomfortably with a rejection of KK. If assertion has a KK norm, and KK does not always hold, then speakers must be sensitive to and care about KK failures. Thus one reason to be skeptical of a KK norm of assertion in the case that the KK thesis is false, is that speakers do not seem in practice to require knowledge of knowledge, rather than just knowledge. For instance, as noted earlier, one line of support for the knowledge account of assertion comes from the pattern of challenge questions: Addressees of assertions often require evidence of knowledge by asking "How do you know?". But if KK is false and KKNA is the norm of assertion, then we should expect them to require not only evidence of knowledge but also evidence of second-order knowledge. But such cases are hard to come by.

Moreover, if one rejects KK and accepts a KK norm of assertion then one cannot consistently hold that knowledge is sufficient for permissible assertion, as some do.

I do not deny, however, that rejecting KK and accepting KKNA is a viable position to take. Instead, I iterate the argument. Note that P1 was supported in §3 by the following argument:

(1) There are Quality implicatures: by asserting *p* one implicates that one is observing Quality with respect to *p*.
(2) If assertion has a knowledge norm, then Quality should be understood as requiring knowledge, rather than just evidence and belief.
(3) If Quality requires knowledge and there are Quality implicatures, then there are knowledge implicatures: by asserting *p*, one implicates that one knows *p*.
(4) Therefore, there are knowledge implicatures.

But if assertion has a *knowledge of knowledge* norm, then the argument above can be repeated to conclude that by asserting p one implicates that one *knows that one knows p*. If so, the argument for the KK norm of assertion can be iterated as follows:

(P1′) If one asserts p, one implicates KKp.
(P2′) One may make an assertion that implicates q only if one may implicate q.
(P3′) One may implicate p only if Kp. [KNI]
(C1′) One may assert p only if one may implicate KKp. [P1′, P2′]
(C2′) One may assert p only if $KKKp$. [P3′, C1′]

The process can be iterated indefinitely. This yields the following *iterated knowledge*
norm of assertion:

K*NA One may assert p only if one knows that one knows that . . . one knows p.

K*NA requires of asserters not just knowledge but iterated knowledge. K*NA, I claim, holds only if KK does. Depending on why exactly KK supposedly fails, there might be very little, if anything, that is assertible given K*NA. For instance, if it fails for margin-for-error reasons, there might not be anything that an ordinary speaker knows that she knows that . . . she knows—with each iteration, the required margin widens, and it cannot be widened indefinitely. In that case, very little will be assertible. But we know from our practice of assertion that many things are assertible.

Regardless of why KK is supposed to fail, it is required by K*NA if we assume, as is plausible, that ordinary speakers must be somewhat sensitive to the norms of assertion. If K*NA holds without KK, they would have to be sensitive to cases where, say, a speaker has ninth-order but not tenth-order knowledge of some p. It is unlikely that any ordinary speaker can exhibit such a degree of sensitivity to higher-order epistemic states.

Before concluding, let us consider an objection to the argument from KNI and KNA to K*NA. The argument relies, in each iteration, on the premise that by asserting p one implicates $KK . . . Kp$, for the relevant number of K's. But, it might be worried, ordinary speakers will not be able to easily work out that $KK . . . K$ is a requirement of permissible assertion, at least for some number of K's. If so, then there is some iteration of the argument for which the first premise is false.[41] Let us grant this. I want to argue that the main thesis defended here—that it is

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41. Thanks to an anonymous referee for raising this objection.

not plausible to accept KNA and KNI without also accepting KK—still stands. Suppose then that the iterated argument fails on the third iteration. If so, the argument only succeeds in establishing, on the second iteration, that KNA and KNI entail the following:

K³NA One may assert *p* only if *KKKp*.

Moreover, by hypothesis, asserting *p* does not implicate *KKKp* because ordinary speakers cannot easily work out that *KKKp* is a requirement on a permissible assertion that *p*. Now, suppose that KK fails. That means that K³NA is strictly stronger than KNA, and for it to govern the practice of assertion, ordinary speakers must be sensitive to it. But by hypothesis ordinary speakers cannot easily work out that *KKKp* is a requirement on a permissible assertion that *p*. It is implausible in that case that K³NA holds—contrary to hypothesis. Suppose, on the other hand, that KK is true. Then K³NA is equivalent to KNA. In that case, ordinary speakers need not be sensitive to K³NA in particular—it is sufficient that they be sensitive to KNA.[42] So K³NA holds only if KK does. Thus, even if it is granted that for reasons of calculability the iterated argument cannot be indefinitely iterated, whatever requirement on permissible assertion it does succeed in establishing will be incompatible with the denial of KK.[43]

5. Conclusion

I have argued that there is a knowledge condition on epistemically permissible implicature. We may implicate only what we know. Anything else would be epistemically bad—just as it would be to assert without knowledge. This explains why implicature cancellation behaves as it does in the presence of knowledge and belief denials, and why speakers challenge knowledge of implicated propositions. I have also argued that this opens the way for a new argument for the

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42. To elaborate, K³ NA in the case that KK holds is not different from any other thesis that follows from KNA, e.g., that one may assert *p* only if [*Kp* or the sky is pink]. Such theses do not place any additional constraints on permissible assertion, and they can be true even if asserters are not guided by or sensitive to them in particular—e.g., even if no asserter of *p* will be taken to imply that [she knows *p* or the sky is pink], or be challenged to demonstrate that this disjunction holds.

43. A related worry. If my arguments are correct, then there is also an iterated knowledge norm for implicature. If so, and given §2, we should expect iterated knowledge denials to cancel implicatures. But they don't seem to. E.g., Ann: "Do you want some wine?" Bob: "I don't drink cheap wine but I don't know whether I know that I know that this wine is cheap." I think it's hard to say what the implicature is here given the oddity of the assertion. But more importantly, if KK holds we need not expect the implicature to be canceled, as then speakers need only follow KNI and commit to first-order knowledge; they need not commit to every consequence of that knowledge (see fn. 42). Thanks to an anonymous referee for raising this worry.

KK thesis— if both assertion and implicature have knowledge norms, and assertions generate knowledge implicatures, then assertion has an iterated knowledge norm that can hold only if KK is true. This may not be conclusive evidence for KK. But it does provide us with new considerations in its favor.

Acknowledgements

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