Mandatory implicatures in Gricean pragmatics

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Abstract

Gricean implicatures are often viewed as a very weak kind of implication, *viz.*, as optional enrichments of the literal meaning of an utterance. In virtue of being optional, they need not be present on every occasion of utterance, and they can be explicitly denied. Further, if implicatures are viewed as optional enrichments, a false implicature cannot be the reason why an utterance is infelicitous: If an implicature is known to be false, it should simply fail to arise.

I argue that this view is mistaken. There is no reason to think that Gricean reasoning cannot lead to very robust inferences, which are neither optional nor cancelable, and whose falsity can render an utterance infelicitous. Moreover, I point out that a number of explicit recent theories do not exclude such robust implicatures without additional stipulation, and that informal appeal to Gricean reasoning triggering infelicity has been made in the investigation of a number of apparently semantic phenomena. I conclude that implicatures are only weak, optional and cancelable if the pragmatic pressures driving them are context-dependent in a particular way, and further that there is no reason to think that all pressures are of this kind.

Keywords: implicature, optionality, cancelability, high-negation polar questions, maximize presupposition

Introduction

Conventional wisdom in pragmatics has it that if a (potential) implication *i* of an expression *e* is a conversational implicature, then *i* must be optional and cancelable. *i* is *optional* if there are contexts in which a sincere utterance of *e* does not give rise to *i*, and it is *cancelable* if *i* can be explicitly 'called off' in a context in which it otherwise would arise.[1]

This is undoubtedly correct for many conversational implicatures, in particular the best-studied ones, implicatures that are (solely) based on Grice's (1975) MAXIM OF QUANTITY: (1a) will implicate (1b), or at least the weaker (1c), in many contexts; and (2a) will frequently implicate (2b), but there contexts where these implicatures are absent, and they can be denied effortlessly by asserting the stronger alternative that triggers them, as in (3).

(1) a. John invited some students in his class.
     b. John did not invite all students in his class.
     c. The speaker does not know that John invited all students in his class.

(2) a. John is in Europe.
     b. The speaker does not know where in Europe John is.

(3) a. John invited some students in his class. In fact, he invited all of them.
     b. John is in Europe. In fact, he is in Paris.

Seeing as implications that are conventional in nature (such as entailments, semantic presuppositions, and conventional implicatures) are neither optional nor cancelable, the two properties have been widely used as a diagnostic for implicature-hood. Indeed, Sadock (1978) calls cancelability (which he took to include optionality, *cf.* n. 1) 'the best of the tests'. While it is sometimes noted that this diagnostic use is problematic in particular cases (*e.g.*, Sadock, 1978; Geurts, 2010, Ch. 1.5), there has been little discussion of how failures of optionality and cancelability mesh with the Gricean view of how implicatures arise. Grice's traditional view that conversational implicatures should always be optional and cancelable stands largely unchallenged.

In the following, I argue that mandatory (*i.e.*, non-optional, non-cancelable) conversational implicatures exist and that, despite initial appearances, their existence is compatible with a Gricean conception of pragmatic inference. The plot is as follows: In the next section, I will point out that a certain class of theories of implicatures, the optimization-based ones, already have the potential to predict mandatory implicatures. Then I will discuss a well-known implicature that arguably is of just this kind, the 'ignorance' implicature of disjunction. This implicature, though it initially seems like any other QUANTITY implicature, is distinguished from those by the fact that it is unaffected by considerations of relevance. For reasons that will become obvious, I call such implicatures 'Need a Reason' (NaR) implicatures. I will then move on to a more general characterization of such implicatures, and outline what features of an optimization-based account allow them to be modeled faithfully. Switching gears somewhat, the rest of the paper is intended to show that something quite like NaR reasoning is frequently appealed to in the explanation of implications that are both very robust and that can lead to infelicity, or 'oddness', of an utterance if the implication is known to be false. The upshot of the discussion is that mandatory implicatures are fully expected on a Gricean conception of pragmatics, that they arise in the same way as op-

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[1]Traditionally, when an implicature is not explicitly called off, but is absent, this has been called 'implicit cancelation' or the implicature has been said to be 'canceled by the context'. As Hirschberg (1985) pointed out, the term 'cancelation' is problematic in general. This is even more true for 'implicit cancelation', where it is much more natural to say that the implicature does not arise in the first place (rather than saying that it arises and is then canceled by the context), and hence we should keep optionality and cancelability apart as separate properties. Here, I focus mainly on optionality, though much of what I say extends to cancelability as well, at least on an appropriate construal of 'cancelation' (*cf.* Lauer, 2013, p. 259ff))

tional ones, and that their existence indeed has been silently presupposed in parts of the semantics literature.

Optimization-based theories of implicature

Many recent formalizations of Gricean theory are compatible with the existence of mandatory conversational implicatures, unless this is excluded by additional stipulation. This is true of any theory that construes conversational implicatures as inferences[2] about the speaker's beliefs and preferences that the hearer draws based on the assumption that the speaker chose his utterance so as to optimally satisfy a set of constraints, preferences, or maxims, given his beliefs. Such optimization-based theories include recent *optimality*- and *game-theoretic* ones (Blutner, 2000; Franke, 2009, a.o.) as well as the *intention-based* approach of (Geurts, 2010) and the *dynamic pragmatics* of (Lauer, 2013), but exclude generate-and-defeat theories such as that of (Gazdar, 1979).

Here is why such theories potentially predict mandatory, implicatures[3] in the most abstract terms: As theories of implicatures, they will determine a set of contexts $C_{e \rightsquigarrow i}$ in which an utterance of e will give rise to the implicature i. At the same time, as optimization-based theories, they will determine a set of contexts $C_{Opt(e)}$ in which the utterance of e is optimal, according to the speaker's beliefs. i will then be predicted to be mandatory if

$$C_{Opt(e)} \subseteq C_{e \rightsquigarrow i}$$

That is, optimization-based theories will predict a (potential) implicature i of utterances of a form e to be mandatory if any context in which e is (believed to be) optimal is a context in which i arises.

If implicatures indeed were always optional the fact that these theories allow for the existence of non-optional ones would at most be a mild embarrassment—we would have to slightly amend these theories, perhaps by specifying boundary conditions that exclude the troublesome cases. But I shall argue that this fact is much more interesting: It captures something real about how implicatures behave. The implicatures in question simply happen to be different from the most well-studied cases, pure QUANTITY implicatures like those in (1) and (2).

The 'ignorance' implicature of disjunction

In the following, I want to show that a familiar implicature is indeed mandatory in the sense just described: the 'ignorance' implication of unembedded disjunction. In many contexts, a

speaker who utters '*A* **or** *B*' will be taken to implicate that he does not know which of *A* and *B* is true.[4]

At first blush, this looks like a run-off-the-mill QUANTITY implicature: There are logically stronger expressions (*viz.*, the two disjuncts) that the speaker could have used, but did not, but which would have provided more relevant information. From this we conclude that the speaker was prevented from uttering these stronger expressions because he did not know them to be true. Construed in this way, the ignorance implication of disjunction seems just like that of (2a) above, repeated here in (4a) with a context that encourages the implicature:

(4)   *Ad*: Where is John? I need to track him down.
       Sp: He is in Europe.
       $\rightsquigarrow$ *Sp* does not know where in Europe John is.

(5) is an example involving disjunction that brings out the similarity of the two cases.

(5)   *Ad*: Where is John? I need to track him down.
       Sp: He is in Paris or in London.
       $\rightsquigarrow$ *Sp* does not know that John is in London.
       $\rightsquigarrow$ *Sp* does not know that John is in Paris.

Relevance and context-dependence

The implicature in (4) is heavily context-dependent, and it is not hard to furnish a context in which it does not arise. All we have to do is to ensure that the additional information provided by stronger assertions is irrelevant in the context, as in (6).

(6)   [Somewhere in San Francisco, CA, *Ad* and *Sp* are planning a dinner party, talking about who they should invite.]
       Ad : Is John in town?
       Sp : No, he is in Europe.

Given that John's precise location is irrelevant if he is not in town, *Sp*'s utterance in (6) does not implicate that he does not know where in Europe John is. Things are very different with (5). When we put the sentence in the same context, it retains its implicature:

(7)   [Context as in (6)]
       Ad : Is John in town?
       Sp : No, he is in Paris or in London.
       $\rightsquigarrow$ *Sp* does not know that John is in London.
       $\rightsquigarrow$ *Sp* does not know that John is in Paris.

Sp's utterance in (7) implicates that *Sp* does not know in which city John is, even though this information is irrelevant in the context of utterance.

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[2]Throughout, I use 'implicature' to refer to an inference drawn by the audience. This is at variance with the use advocated by philosophers such as Bach (2006), who insist that implicatures are intended inferences (which hence are present even if the inference is not drawn, and absent if the inference is drawn, but was not intended). I take this to be a terminological disagreement, and invite readers who share Bach's view to mentally replace every instance of '(conversational) implicature' throughout with 'pragmatic inference'.

[3]From here on out, I drop the modifier 'conversational', as conventional implicatures will not play a role in what is too follow.

[4]There is, of course, another much-discussed putative implicature of (unembedded) disjunctions, the exclusivity implicature '**not** *A* **and** *B*', which arguably behaves like a run-off-the-mill pure QUANTITY implicature (if it is an implicature at all). I hence have nothing to say about it here.

One implicature or several?

A slight complication: Of course, none of the sentences in (4)–(7) necessarily implicates that *Sp* does not *know* where John is. The sentences may also implicate that he is unwilling to share this information, or that while he is willing to share it with *Ad*, he does not want to reveal it to potential over-hearers, etc. In all cases, *Sp* has some reason to not give more information.

We can describe this in two ways. Either we say that the sentences in (6) and (7) give rise to several potential alternative implicatures (ignorance, non-cooperativity, politeness, etc.) or we say that the sentences give rise to single, underspecified implicature, which can be paraphrased as 'the speaker had a reason to not give more information', where the reason can be lack of knowledge, a desire to withhold knowledge, politeness, etc. The second way of talking allows us to leave unmodified the claim that unembedded disjunctions trigger an obligatory implicature: The addressee *must* infer that there was such a reason for using the disjunction in (7),[5] while he did not have to infer this in the case of (6).

Nothing of substance would change if we adopted the other way of talking instead. While there no longer would be a single obligatory implicature, it still would be a fact worthy of explanation that (7) necessarily must have one of the 'alternative implicatures', while (6) need not have any of them. In the following, I will continue to say that there is one underspecified implicature, which is optional in (6), but mandatory in (7).

Mandatory vs. 'generalized' implicatures

So, in contrast with run-off-the-mill QUANTITY implicatures, an utterance of (unembedded) '*A* or *B*' will always trigger the implicature that the speaker had a reason to avoid an utterance of '*A*' and '*B*'—that is, this implicature arises mandatorily. Why would **or** give rise to such a non-optional implicature? The reason for this not deep or mysterious, but it is instructive to examine it in detail. Eckardt (2007) succinctly explains

what is going on:[6]

"In using a disjunction, the speaker necessarily has to mention two properties which are usually more specific. These properties are presented as salient and relevant. The simpler sentences are salient alternative utterances in context. The hearer hence will look for a reason why the speaker chose a more complex expression in order to give less information."

Eckardt mentions two properties of disjunctions that feed into the robustness of the implicature: (i) the alternative expressions that asymmetrically entail the uttered sentence are made salient by the very utterance itself; (ii) the alternative utterances are shorter and less complex than the uttered expression.

Disjunctions arguably share property (i) with expressions that are sometimes said to trigger 'generalized' QUANTITY implicatures (Grice, 1975; Levinson, 2000, a.o.), *e.g.* **some**, whose potential **not all** implicature intuitively arises more regularly than 'particularized' QUANTITY implicatures such as the one in (4). Indeed, on a Gricean account of these implicatures, the assumption that these items make their alternatives (**all**, in the case of **some**) salient by default arguably is all that is needed to explain why these implicatures arise more frequently than 'particularized' ones.[7]

However, even though such 'generalized' QUANTITY implicatures may arise more frequently than 'particularized' ones,[8] they are clearly optional and cancelable, and they are sensitive to the relevance of the additional information conveyed by the stronger alternative, just as the 'particularized' implicature in (4). Levinson (2000)'s examples in (8) and (9) illustrate this: In response to the question in (8a), (9) strongly favors the implicature that the speaker does not know (or want to reveal, etc.) that all their documents are forgeries, but the same is not true for the same sentence in response to (8b).[9]

(8) a. Are all of their documents forgeries?
     b. Is there any evidence against them?

(9) Some of their documents are forgeries.

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[5]There is an apparent exception to this claim that, on reflection, proves the rule (I am grateful to an anonymous reviewer by reminding me of this issue by constructing a similar example involving Maximize Presupposition (see below) and hypothesizing that similar cases exist for disjunctions. Paul Portner also mentioned such cases to me in conversation): The implicature(s) can be absent if the disjunction was mentioned in the near-by context:

(i)   *Ad* : If John only were in London or in Paris!
        Sp : But John is in London or in Paris. He landed in Heathrow this morning.

On reflection, this fits into the generalization drawn above: The reason why the speaker opted for the disjunction over the disjuncts, in this case, is discourse-based. *Sp* opted for the disjunction to create a parallelism with *Ad*'s utterance. Note that, much like with other instances of such 'echoic' utterance choices (such as Horn's ((1985)) *metalinguistic negation*), this kind of use depends on (near-)identity with a previously uttered expression. (ii) is decidedly odd.

(ii)   *Ad* : If John only were in Europe!
        Sp : ??But John is in London or in Paris. He landed in Heathrow this morning.

[6]Eckardt (2007) is mainly concerned with *embedded* uses of disjunctions but, as she points out in passing, her considerations apply to unembedded uses as well.

[7]That is to say that a natural (and minimal) way to capture the idea that 'scales' like ⟨**some**, **all**⟩ are 'lexicalized' or 'conventionalized' to some degree (Horn, 1972) is to say utterances that contain an item of these scales automatically make alternative utterances containing their scale-mates salient. Not all Gricean proponents of such 'lexicalized scales' think of them in this way, but it is arguably the dominant conception among proponents of 'contextualists' who deny that 'generalized' implicatures arise by default (in particular among proponents of optimization-based theories, such as Geurts, 2010; Franke, 2009; Degen, 2013; Lauer, 2013).

[8]In recent years, a host of experimental studies has shown that these 'generalized' implicatures do not in fact arise as often as introspection on isolated examples may suggest (see Degen, 2013, and references therein).

[9]Degen (2013, chapter 3.6) provides experimental validation for this intuitive contrast, showing that the rate at which addressees draw the **some** ⤳ **not all** implicature varies dramatically with the relevance of the stronger alternative.

'Generalized' scalar implicatures hence pattern with 'particularized' ones in that they are sensitive to relevance considerations. The implicature of disjunction is different, in that it arises even when the additional information provided by the stronger alternatives is not relevant. This is due, so Eckardt, to the fact that the alternatives in the case of disjunction are *shorter* and *less complex* than the uttered sentence. That is why, even when the speaker does not aim to convey the additional information, he must have a reason for choosing the dispreferred (longer, more complex) form over the alternatives. Consequently, the implicature that there is such a reason arises in every context in which an unembedded disjunction is used. For obvious reasons, I propose to call such implicatures **Need A Reason** (NaR) implicatures.

Generalizing NaR implicatures
Selfish preferences and cooperativity
Obviously, NaR implicatures will only be predicted to be truly mandatory if the preference for economical expression that drives them can be assumed to be present in every context of use. This is why we would not expect such mandatory implicatures on an Ur-Gricean conception, according to which the pragmatic pressures that shape pragmatic reasoning are dependent on an presumption of cooperativity, for such an assumption may always be lifted. A preference for shorter, less complex expressions, however, can also be construed as a *selfish* preference, in which case it is plausible to assume that a speaker would adhere by it even when he is not being fully cooperative. This meshes well with a trend in recent theories of implicature (in particular, the optimization-based ones), which make no appeal to Maxims of conversation that are motivated by a Cooperative Principle. In game-theoretic accounts like that of Franke (2009) and the *dynamic pragmatics* of Lauer (2013), the role of Grice's Maxims is played, instead, by the more general notion of *speaker preferences*. Preferences corresponding to Grice's Maxims (such as a preference for conveying an appropriate amount of information), in this setting, are simply preferences that speakers have in many contexts, in particular those where the preferences of speaker and hearer are well-aligned. But not all preferences that enter into pragmatic reasoning need to be of this kind, the preferences in question may also be motivated entirely by selfish concerns.[10]

Ceteris paribus preferences and NaR reasoning
In such a setting, it is crucial to represent preferences in the right way. It is natural to assume that speakers have a selfish preference for economical expression that is operative in every context. Such a preference, however, cannot be absolute. It applies only *if everything else is equal*. That is, a preference for economical expression should be subordinate to more substantive preferences, such as a preference for conveying information. That is why unembedded conjunctions do not trigger

NaR implicatures: Even though the preference for economical expression favors 'A' over 'A and B', the speaker's choice of the dispreferred form can easily be motivated by his desire to convey both *A* and *B*.

The mentioned accounts both employ a representation of such *ceteris paribus* preferences. Franke (2009, Ch. 2.2.4) and other game-theoretic accounts do this by assuming that messages (utterances) have *costs* that get subtracted from the sender's (speaker's) *response utility* which represents his other preferences. These costs, crucially, are constrained to be *nominal*: it is ensured that the costs are small enough that they only can break ties in the response utilities. Similarly, Lauer (2013) represents preferences by means of *preference structures* (Condoravdi & Lauer, 2011, 2012), which are sets of individual preferences that are ranked in terms of their 'importance'. This ranking is taken into account in action choice in a 'lexicographic' manner, *i.e.*, lower-ranked preferences make a difference only when higher-ranked preferences do not suffice to make a decision. The result, in both cases, is that a preference for shorter expressions can be assumed to be universally present, even though it can (and frequently will) be defeated by more important concerns.

Crucially, if speakers generally prefer one form *e* over another *e'*, *all else being equal*, then, whenever a speaker utters the dispreferred form *e'*, it must be that not everything else is equal. That is, there must be a higher-ranked preference that defeats the preference for *e*. This is how NaR implicatures are predicted to be mandatory: Whenever the speaker uses a dispreferred form, the addressee must infer the existence of such a higher-ranked preference, if he is to maintain his assumption that the speaker chose a form that he deemed 'optimal'.

We hence can characterize the conditions under which NaR implicatures arise, as follows: Supposing the speaker faces a choice between two forms *e* and *e'*, (i) there is a preference favoring *e* over *e'* that applies across contexts; (ii) any utterance of the dispreferred form *e'* will make the preferred form *e* salient; and (iii) the asserted content of the dispreferred form *e'* does not asymmetrically entail that of the preferred form *e*.

Summary
I have argued that the 'ignorance' implicature of disjunction is mandatory in the sense that, whenever a speaker utters an unembedded disjunction, the hearer must infer a reason why he did not assert one of the disjuncts. In the following sections, I want to show that this is not an isolated quirk of utterances involving disjunctions, by showing that the same style of NaR reasoning arguably underlies a number of recent appeals to pragmatic reasoning of a Gricean sort in order to explain implications that are so robust that, if they are known to be false, this renders an utterance *infelicitous*. The guiding idea is that if the speaker's contravention of a (*ceteris paribus*) preference cannot be justified in context, the utterance will appear infelicitous, as the addressee cannot make sense of the speaker's choice of a non-optimal form.

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[10]An independent advantage of such a conception is that the accounts in question directly extend to pragmatic reasoning in cases of open conflict of interest (*cf.* Franke, Jager, & Rooij, 2012).

More NaR reasoning: Explaining infelicities

Magri (2009) proposes an attractive, implicature-based analysis of the infelicity of temporal modification with so-called 'individual-level' predicates, like '**# John is of noble birth this month**.' However, he argues that the implicature in question cannot be a Gricean conversational implicature, because:

> "Within the Gricean theory, scalar implicatures are pragmatic inferences. Hence, they have a weak status: they are optional, cancellable, and suspendable. Thus, it is not at all clear why the mismatching implicature is kept in place and an utterance of [a sentence] deemed odd, rather than the implicature cancelled or suspended or never computed, and thus the utterance rescued."

I have cast doubt on Magri's premiss that pragmatic inference are always optional, cancelable and suspendable. But it is worth noting that the premiss is certainly widely accepted among pragmaticists. It is frequently asserted, without qualification, in influential textbooks, both classic and recent, and optionality and cancelability are frequently used as fairly definitive tests of implicature-hood (*cf.* Lauer, 2013, Ch. 9).

Nonetheless, if what I said in the foregoing sections is right, we expect to find cases where Gricean implicatures are so robust that they render an utterance infelicitous if they are (known to be) false. This section is points out instances where such implicatures have indeed been hypothesized, though in all cases, the status of the involved principles or maxims is left somewhat unclear. My main purpose here is to demonstrate that if we construe the hypothesized principles as *ceteris paribus* preferences that are universally present, the pragmatic reasoning in question can be seen to be of a very familiar, Gricean sort.

High-negation polar questions

High-negation polar questions (HPNQs) like (10) have an 'epistemic bias' implication: A speaker who utters (10) implies that he believed or at least suspected until recently that John drinks.

(10)   *Sp* : Doesn't John drink?
       ⤳ *Sp* believed or at least expected that John drinks.

This implication is not optional, it arises whenever a HPNQ is used. It cannot be canceled. And HPNQs are generally felt to be odd/infelicitous if uttered in a context in which this implication cannot be accommodated. That is why they are frequently strange as out-of-the-blue utterances, and, as AnderBois (2011) points out, cannot serve as 'speculative questions' which are "designed to instigate thought and/or discussion without necessarily being answered or answerable" (Gunlogson, 2003).

(11)   a. #Doesn't God exist?
         (*cf.* Does God exist?)
     b. #Didn't Oswald act alone?
         (*cf.* Did Oswald act alone?)

And yet, recent accounts of HPNQs (Romero & Han, 2004; AnderBois, 2011) treat the epistemic-bias implication as a conversational implicature. This is an attractive move, as it is quite unclear how the presence of *negation* could lead to a conventional implication about the speaker's prior beliefs. At the same time, making this assumption requires that the putative implicature is mandatory, so as to explain how it can lead to infelicity.

Romero and Han: A new economy principle. Romero and Han assume that HPNQs contain a VERUM operator, akin to the one proposed by Höhle (1992). The details of their analysis need not concern us here. What is important is that the presence of this operator is supposed to turn the utterance of a question into a particular kind of speech act, a 'meta-conversational move'. Further, they propose that such 'meta-conversational' moves are subject to the economy constraint in (12).

(12) **Principle of Economy:** Do not use a meta-conversational move unless necessary (to resolve epistemic conflict or to ensure Quality).

The obvious question is what kind of principle (12) is. At the outset of their paper (n. 1), Romero and Han call it a 'non-violable conversational principle'. This, together with the explanatory work the principle is supposed to do, that we should view (12) as a normative constraint on felicitous language use, akin to a rule in a game. This would make it easy to explain why an utterance is perceived to be infelicitous if the epistemic-bias implication is known to be false. At the same time, it would make the epistemic bias-implication something quite different from run-off-the-mill conversational implicatures, which are supposedly not driven by normative rules.

Romero and Han's label 'economy constraint' suggests a different conception: Take the principle to capture a *ceteris paribus* preference against meta-conversational moves. As a consequence we can simplify the content of the putative preference:

(13) **Economy preference:** Avoid meta-conversational moves!

With this adjustment, the epistemic bias implication becomes a NaR implicature in the sense introduced above, at least if we can assume that a HPNQ makes salient the corresponding positive interrogative (which does not make a meta-conversational move). We directly obtain the result that the implication is universally present, and hence can explain why infelicity results when the implication cannot be accommodated, as then there is no way to construe the utterance as 'optimal'.

AnderBois: Brevity again Though AnderBois' account of HPNQs is based on quite different semantic assumptions, his explanation for how the epistemic-bias implication arises is essentially of the same shape (emphasis mine):

> "A speaker who utters a [HPNQ] could have instead

chosen the corresponding [positive question] which makes a richer contribution to the discourse [...].

[...] To paraphrase, then, the HiNegQ conveys something like 'Just tell me whether *p* holds, especially if the answer is negative.' The first part of this paraphrase is the literal semantics we have ascribed to verum focus. *The second part arises from the addressee's pragmatic reasoning about why the speaker avoided the simpler [positive question].*"

In essence, then, AnderBois assumes, just as Romero and Han do, that a speaker who opts for a HPNQ over a positive question must have a reason to do so. As the final sentence of the quotation indicates, he assumes that this is due to the fact that the positive question is structurally simpler and shorter. If this kind of reasoning is supposed to explain the non-optional epistemic-bias implication, we must assume that the preference for a shorter expression is universally present, and needs to be defeated on every occasion of utterance of a HPNQ. That is, an AnderBois' account, the epistemic-bias implication is a NaR implicature.

Summary The informal specification of pragmatic reasoning that derives the epistemic bias implication on both Romero and Han's and AnderBois' account either straightforwardly is (AnderBois) or can be conceived as (Romero and Han) NaR reasoning. It hence provides an illustration of how such reasoning has been informally appealed to in order to explain very robust implications as implicatures. In turn, the NaR perspective taken here shows that these implicatures, despite their robustness, can be explained without much ado by optimization-based theories of implicatures.

Maximize Presupposition

The principle **Maximize Presupposition!** (MP, so named by Sauerland (2003, 2008), originally suggested by Heim (1991)) has been claimed to be responsible for a variety of implications which are now commonly referred to as 'antipresuppositions'.[11] An typical example is in (14).

(14)   Mary thinks that John has a girlfriend.
        ⤳ *Sp* does not believe that John does has a girlfriend.

The idea, roughly, is that speakers are presumed to follow a principle like (15). The inference in (14) can then be derived in the usual way, as arising from the competition with forms that would have lead to a stronger presupposition.

(15)   **Maximize Presupposition! (MP)**
        Presuppose as much as possible!

While there has been a lively debate about how the content of (15) should be made more precise (Sauerland, 2008; Percus, 2006; Chemla, 2008; Singh, 2011; Leahy, 2011), little has been said about what the *status* of the principle is supposed

to be, though it is frequently said that the principle bears a certain similarity to Grice's MAXIM OF QUANTITY. The implicit assumption appears to be that MP functions in largely the same way. At the same time the principle is also supposed to explain infelicities like the following (indeed, this was Heim (1991)'s reason for suggesting the principle):

(16)   #John interviewed a father of the victim.
        cf. John interviewed the father of the victim.

(17)   #Mary broke all her arms.
        cf. Mary broke (both) her arms.

It may seem tempting, then, to understand MP as a normative constraint of language use, or a conventional felicity constraint. This seems to be what Singh (2011) has in mind when writes (p. 149, emphasis mine): "[MP] is a principle of language use that *forces* speakers to sometimes use a sentence ψ rather than a competing alternative φ [...]."

On this conception, MP is quite different from Gricean Maxims, which are not supposed to be regulative rules that specify what a speaker is or is not allowed to do. Instead, they are expectations about how speakers will behave, based on general assumptions about cooperative behavior.

And yet, many of the cited authors talk of MP as if it were essentially another Gricean Maxim, and appear to think that assuming such a Maxim is sufficient for explaining the infelicity of (16)–(17). And again, the considerations from the previous sections allow us to make sense of this. All we need to assume that speakers have a *ceteris paribus* preference for expressions that are associated with stronger semantic presuppositions, and that the items that trigger antipresuppositions as a matter of course automatically make certain alternative expressions salient.[12] If this MP preference can be assumed to be active in all contexts, we obtain an explanation for the infelicities rather straightforwardly. The felicitous alternatives given in (16) and (17) differ from the infelicitous sentences only in having presuppositions that will usually be already part of the common ground (in virtue of the fact that it can generally be presumed that humans have at most one father and at most two arms). But then, uttering the sentence with the weaker presupposition will have exactly the same context-change effect as the one with the stronger presupposition. Consequently, it most contexts, it will be impossible to justify the speaker's choice of a form that is dispreferred by the MP-preference.

It is noteworthy that, on this conception, MP is not terribly similar to the MAXIM OF QUANTITY at all. Instead, it is rather like a submaxim of the MAXIM OF MANNER. I think this is appropriate (if it is appropriate to assume MP is Maxim-like at all), for two reasons. Firstly, even though MP does not make direct reference to the morpho-syntactic form

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[11]The term first appeared in Percus (2006), who attributes it to Kai von Fintel. Sauerland (2008) calls these implications 'implicated presuppositions'.

[12]The recent formulations of MP in Percus (2006); Sauerland (2008); Chemla (2008) already make reference to 'lexically specified alternatives'. As with 'generalized' conversational implicatures, we can assume that such lexical specification has the result of automatically making the alternatives salient.

of the utterance, it does make reference to conventionally-determined linguistic features of the utterance—in all recent formulations, it is restricted to *lexically-triggered* semantic presuppositions. Secondly, and more importantly, QUANTITY, but not MANNER, is always bounded by relevance considerations. QUANTITY does not require that the speaker provide as much information as he possibly can, but rather that the speaker provide as much information as is necessary or relevant. But MP, if it is to explain the infelicities in (16)–(17) must be insensitive to considerations of relevance. Otherwise, the sentences should be fine in contexts where the exact number of arms (or fathers) a person has are not relevant.[13]

My main point here is to show that researchers that take MP to be akin to Gricean Maxims—and hence, take antipresuppositions to be essentially implicatures—must implicitly assume that the reasoning involved is essentially NaR reasoning. This does not show, of course, that we *should* regard MP as a Maxim-like principle, rather than as a normative rule that regulates language use. There is good reason to think, however, that if MP is real at all, construing it as a Maxim-like principle (or rather, a *ceteris paribus* preference) is the way to go. Here is why: Such a construal allows us to make sense of cases where the principle apparently is suspended. I am grateful to an anonymous reviewer for providing a nice example of such a case.

(18) [Context: The constitution of Phantasia stipulates: "A son of the king has to be present at the opening of the parliament". It is known to everyone that the current king has exactly one son, who is in attendance. Running through the regulations during the opening ceremony, the speaker of parliament declares:]
As the constitution demands, all MPs have pledged their allegiance to the king, a son of the king is present, ...

The felicity of the utterance would be puzzling on a construal of MAXIMIZE PRESUPPOSITION that takes it to be a normative principle of language use (or a *bona fide* grammatical constraint). On the construal of MP as a MANNER-like preference, it is not puzzling at all: In this case, the use of the (non-presupposing) indefinite instead of the (presupposing) definite is motivated, not because it makes a difference to the common ground (which it could not, as the common ground entails that there is exactly one son), but rather by the parallelism with the text of the law. That is, in this case (and others like it), we can simply assume that the preference for maximizing presuppositions is defeated by a preference for staying as close to the text of the law as possible.

Summary

This section has made the case that recent accounts of putatively pragmatic inferences (*viz.*, the epistemic bias im-

plication of HPNQs and antipresuppositions) either can be straightforwardly seen as instances of NaR reasoning or must be construed as such if they are to meet their explanatory targets while still counting as essentially Gricean. A question that is left open by the considerations offered here is *why* agents should have the *ceteris paribus* preferences the reasoning relies on. A preference for shorter or less complex expressions perhaps makes obvious sense as an economy principle, but the same is not true for a preference against 'meta-conversational moves' or a preference for forms that contain lexical items that trigger stronger semantic presuppositions. We would like to have a better understanding about how these preferences are motivated, or, at the very least, some independent verification (outside of the phenomena we are seeking to explain) that speakers indeed have these preferences. However, this question—which has not been addressed at all, to my knowledge, in the rather extensive literature on MAXIMIZE PRESUPPOSITION—arises just the same if the principles involved do not capture *ceteris paribus* preferences that drive NaR reasoning, but instead are inviolable normative constraints on language use.

My main point remains unaffected by this explanatory lacuna. I did not set out to argue that the principles in question are the right ones to account for bias implications and antipresuppositions. Rather, I wanted to show that the researchers that have endorsed these principles can (and perhaps should) be viewed as appealing to the same kind of NaR reasoning that is responsible for the mandatory implicature of unembedded disjunctions; and that hence the reasoning they informally characterize is readily captured by recent formal theories of Gricean pragmatics.

Conclusion

I have argued that there are robust, indeed mandatory, inferences that are not just pragmatic in a vague sense, but neatly fit into the Gricean fold: They arise in exactly the same way as classical examples of implicatures, and are readily predicted by existing theories of pragmatic inference. On the one hand, there are inferences that, at first blush, appear to simply be QUANTITY implicatures, but which can be shown to behave differently from canonical examples in that they survive in contexts where QUANTITY implicatures are absent. The 'ignorance' implication of disjunction is of this kind. Moreover, the same style of reasoning—NaR reasoning—can be shown to be operative in recent, pragmatic explanations of the bias implication of HPNQs, as well as in analyses employing Heim's MAXIMIZE PRESUPPOSITION. In these cases NaR reasoning leads to inferences that are robust enough to explain the infelicity of utterances, something that is impossible on the traditional conception of Gricean pragmatics, according to which pragmatic inferences are always optional and cancelable.

Now that we have an understanding of how such robust implicatures arise, we can turn around and ask why the most well-studied instances of conversational implicatures—

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[13]Because of this, I think that Schlenker (2012)'s valiant attempt to reduce MP to QUANTITY is ultimately doomed to failure. I cannot argue the point here, though, as space restrictions prevent me from doing justice to the details of Schlenker's proposal.

pure QUANTITY implicatures—are never mandatory. In the present perspective, this is not because they arise in a different way, but because these implicatures are driven by a pragmatic pressure that is, by necessity, sensitive to relevance—QUANTITY does not favor a stronger alternative if the additional information it provides is irrelevant in the context of use. Consequently, for any given QUANTITY implicature, there will be many contexts in which it does not arise. Mandatory implicatures are different only in that they are driven by pragmatic pressures that are not sensitive to relevance considerations in the same way.

Acknowledgments

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