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# REVISITING MCGEE'S COUNTEREXAMPLE TO MODUS PONENS

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## ABSTRACT

In this paper, we provide a novel explanation of McGee's (1985) alleged counterexample to Modus Ponens for indicative conditionals. Our strategy is to show that pragmatic phenomena interfere with intuitions concerning the acceptability of the inference. More specifically, we argue that two confounding factors at play affect our intuitions concerning the acceptability of the inference, neither of which is related to validity. First, the indefinite determiner phrase "a Republican" is ambiguous, to wit, it may receive either a specific or a non-specific reading (and as we shall see, substituting a disjunction or a definite description for the indefinite is of no help). Second, the conclusion triggers an ignorance inference concerning its antecedent. In light of this, we shall argue, McGee's diagnosis must be rejected.

**Keywords**: modus ponens; McGee's counterexample; pragmatics; conditionals.


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## 1. Introduction

In his seminal paper, McGee (1985) questioned the validity of Modus Ponens (MP, hereinafter) for indicative conditionals by resorting to a number of puzzling examples that haunt the literature on conditionals to this day. In that work, McGee offers several examples where one feels compelled to accept the premises and yet is left with a sense of puzzlement or perplexity concerning the conclusion. Here is McGee's most often quoted example:

> Opinion polls taken just before the 1980 election showed the Republican Ronald Reagan decisively ahead of the Democrat Jimmy Carter, with the other Republican in the race, John Anderson, a distant third. Those apprised of the poll results believed, with good reason:
>
> (1) If a Republican wins the election, then if it's not Reagan who wins it will be Anderson.
> (2) A Republican will win the election.
> Yet they did not have reason to believe
> (3) If it's not Reagan who wins, it will be Anderson. (McGee 1985, 462, numbering added)

McGee's article prompted a number of responses. Some of them can be classified as pragmatic responses: in particular, there are those that contend that the examples are ambiguous (Lowe 1987; Fulda 2010), and those that explain the counterexamples away by looking at the *acceptability* of the conclusion in light of the premises plus some epistemic or contextual considerations (Bledin 2015; Sorensen 1988).

On the one hand, solutions that resort to ambiguity maintain that there are different conditionals involved in the argument, so that some of them are indicative and some of them are material. Lowe (1987) claims that the embedded conditional in the first premise is material while the one in the conclusion is indicative, hence the examples do not constitute instances of MP after all. Fulda (2010), in turn, maintains that while the main conditional in the first premise is indicative, the example is perfectly valid because the conditional in the conclusion is material. On the other hand, the epistemic-contextual solutions can be classified into two sub-groups: informational approaches and epistemic approaches. The former argue that it is not truth preservation what we should be looking at, but rather preservation of acceptance of bodies of information. An argument preserves acceptance of bodies of information insofar as, if it incorporates a body of information that incorporates all its premises, it also incorporates

its conclusion by virtue of its logical form (Bledin 2015). In this revised sense of logical consequence, MP is not threatened, because even if it preserves bodies of information, it fails to preserve justification, an epistemic principle (not a logical one). The latter explains away the alleged counterexamples by noting that there are true sentences that might not be assertible because of pragmatic considerations (as in Jackson's 1987 sense of assertibility), so even if the conclusion of McGee's example is not assertible, it still preserves truth (Sorensen 1988, 449-451).[1]

Our goal in this article is to explain away McGee's alleged counterexamples to MP by identifying two (so far unrecognized) confounding factors in the argument. Thus, if we are on the right track, McGee's examples do not justify abandoning MP for indicative conditionals. We will first point to a source of *ambiguity* in the Reagan example. In this sense, our view resembles to some extent ambiguity solutions. However, unlike those views, we identify the indefinite determiner phrase "a Republican" as the culprit, not the conditional. Admittedly, it is possible to reformulate the argument without using indefinites, but as we shall see these reformulations suffer from similar problems. Secondly, we contend that the intuitions surrounding McGee's examples mingle with pragmatic considerations concerning the felicity conditions for asserting the conclusion. Thus, our view resembles to some extent Sorensen's strategy, although we identify a different source of pragmatic infelicity, namely the existence of an ignorance inference typically licensed by conditionals. Unlike Sorensen, we are able to explain away the counterexamples without committing to any semantics for the indicative conditional. Thus, by recognizing different sources of pragmatic infelicity we can explain why this counterexample seems so puzzling: every time we think we pinpointed the problem, we keep on feeling there is still something missing. We argue that this happens because there is not just one particular problem but at least two, and these two problems come from the pragmatic realm, not the semantic one.

It is worth emphasizing that in what follows we will not commit to any particular semantics for indicative conditionals. To be sure, whether MP for the indicative conditional is valid depends on one's semantic choices concerning the conditional as well as on the notion of logical consequence one adopts. However, both issues are controversial, so any response to McGee that crucially relies on views concerning these matters will be, *prima facie*, controversial too. Hopefully, our view circumvents these

[1] There are plenty of responses that cannot be framed into this broad picture of pragmatic solutions. We only mention those that bear some similarities to our own proposal in order to better situate our response on the theoretical map.

problems by showing that the intuitions that might cast doubts upon the acceptability of MP can be explained away by resorting to pragmatic considerations which are independent of those issues.

The structure of the article is as follows. In Section 2, we discuss the ambiguity of the English indefinite determiner "a", namely its specific and non-specific interpretations. After these preliminaries, we show, in Section 3, that McGee's Reagan-example is ambiguous in exactly this sense due to the presence of the indefinite determiner phrase "a Republican" in both premises. We discuss alternative plausible disambiguations of the argument, which we circumscribe to two: a fully non-specific interpretation and a mixed interpretation where the indefinite in the first premise is interpreted non-specifically whereas the indefinite in the second premise is interpreted specifically. We show that the fully non-specific interpretation results in an intuitively acceptable instance of MP, when looked under the lens of truth preservation as well as when thought of in terms of assertibility preservation. As to the mixed interpretation, we identify two concurrent problems. First, we suggest that if one considers the overall content of the premises, including the specific dimension of meaning introduced by the indefinite article in the second premise, the mixed interpretation is not an intuitively acceptable instance of MP. In order to be able to pin down the second problem, we take a brief detour, in Section 4, to discuss the phenomenon of ignorance inferences. Finally, in Section 5, we go back to the mixed interpretation and explain away its intuitive unacceptability by arguing that an ignorance inference (commonly triggered by conditionals) makes the assertion of the conclusion pragmatically infelicitous.

## 2. Some basic notions regarding indefinites

It has long been acknowledged in the philosophical and linguistic literature that the English indefinite article has at least two readings, a specific and a non-specific one (e.g. Fodor and Sag 1982; Wilson 1978; Chastain 1975; Strawson 2017; Von Heusinger 2011). Arguably, there are different kinds of specificity (Farkas and Brasoveanu 2020), but we will focus on two of them. The first one is called *epistemic specificity* (Farkas and Brasoveanu 2020; Kamp and Bende-Farkas 2019). Take the following example:

(4) A student in Syntax 1 cheated on the exam.

Here, the indefinite article "a" allows for both a specific and a non-specific interpretation. According to the former, the speaker has a particular student in mind, which she can tell apart somehow from other students within the

relevant domain set, and she seeks to express a proposition about that individual. According to the latter, in turn, the speaker is just claiming that there is some student in Syntax 1 that cheated on the exam, but she cannot tell who. Thus, epistemic specificity concerns the way in which the use of an indefinite is related to the informational state of the speaker who uses it. This notion has been explained in modal terms (Alonso-Ovalle and Menéndez-Benito 2010, 2013). Epistemically specific indefinites prompt an interpretation according to which all the possible worlds that are compatible with what the speaker believes are worlds where the same individual satisfies the relevant property, e.g. cheating on the Syntax 1 exam. By contrast, on the non-specific readings, the possible worlds compatible with what the speaker believes contain at least two worlds such that different individuals satisfy the relevant property in each of them, i.e. where different students cheated on the exam.

The indefinite "a" also behaves ambiguously when it interacts with operators like conditionals, quantifiers, or intensional verbs, among others. In such cases, ambiguity is usually explained in terms of scope, thus the name *scopal specificity*. Take the following examples:

> (5) John wants to marry a linguist.
> (6) If a friend of mine from Texas dies in a fire, I will inherit a fortune.

(5) can be understood either as stating that there is a specific linguist that John wants to marry, or in turn as conveying that John wants to marry some person or other that is a linguist. Arguably, these two interpretations are due to a syntactic ambiguity having to do with the scope of the existential quantifier relative to the intensional verb: the wide scope reading corresponds to the specific interpretation, while the narrow scope reading corresponds to the non-specific one. This kind of ambiguity may also arise for indefinites in the antecedent of an indicative conditional. For example, in which case will I inherit a fortune, according to (6)? On the specific, wide-scope reading I will inherit a fortune if a specific friend of mine from Texas dies; on the non-specific, narrow-scope reading, in turn, I will inherit a fortune if the set of friends of mine from Texas who die is non-empty.

Finally, let us clarify a final issue. There is a debate concerning whether the (non-)specific dimension of meaning observable at the level of the overall content of speech acts has to be couched in semantic terms, that is, as a difference in truth conditions or, in turn, it has to be dealt with within pragmatics. Put differently, one may treat (non-)specificity as part of conventional meaning, or in turn as conveyed through a pragmatic inference. Luckily, as shall become apparent below, we need not settle this

issue here in order to make our point: if we are on the right track, McGee's alleged counterexamples are undermined either way. It suffices for our purposes to explain away the intuitions prompted by McGee's example, to note that indefinites in fact admit both readings. With this in mind, let us turn to McGee's example.

## 3. Back to McGee's example

In this section, we proceed to disambiguate McGee's example, which contains the ambiguous expression "a Republican" in both premises. We shall argue that the first premise only admits a non-specific interpretation (the specific interpretation does not make sense), while the second premise may be interpreted either specifically or non-specifically. This leaves room for two possible disambiguations of the argument, a fully specific one and a mixed one. We discuss both interpretations in turn.

### 3.1 Disambiguating the first premise

As we saw in discussing (6), the indefinite article may give rise to scopal ambiguity when occurring in the antecedent of an indicative conditional. Thus, *prima facie* (1) has two possible interpretations, the non-specific, narrow scope interpretation, and the specific, wide scope interpretation, which we paraphrase informally below:

**(7) Specific and non-specific interpretations of (1):**

a. *non-specific:* If some Republican or other wins the election, then if Reagan doesn't win the election, Anderson will.

b. *specific:* If Reagan wins the election, then if Reagan doesn't win the election, Anderson will.

Recall that under its specific interpretation, "a" (combined with a nominal phrase) expresses a content about a particular individual, about which the speaker seeks to convey a proposition. Arguably, given the context provided by McGee this individual must be Reagan (the first candidate in the opinion polls, as well as a Republican). Hence, the specific interpretation of (1) conveys that there is a particular Republican, namely Reagan, such that, if he will win the election, then if Reagan will not win, then Anderson will. Clearly, this is not how we intuitively understand the first premise. In fact, this interpretation barely makes sense, if it makes sense at all (we are considering a non-material reading of the conditional). For this reason, in what follows we shall focus on the non-specific reading

of (1), according to which there is some Republican or other such that, if Reagan does not win the election, then Anderson Will.

We have paraphrased the non-specific reading by using the expression "some *noun phrase* or other" (from now on we will use NP instead of "noun phrase") because it is an indefinite that preserves the same core existential meaning as "a" but, unlike the latter, which is unmarked and may receive either reading, it forces a non-specific interpretation. To see the point, consider the following cases (see Abenina-Adar 2020, 101-102) (we will use the symbol "#" to mean "This is an infelicitous assertion"):

(8) context: We saw Kim buying *War and Peace*.
a. #Kim bought some book or other.
b. Kim bought a book.

(9) context: We saw Kim buying a book, but we didn't see which book it was.
a. Kim bought some book or other.
b. Kim bought a book.

As the examples make clear, while "a" can be felicitously used either in contexts that favor a specific or a non-specific interpretation (namely contexts where the existential witness is considered to be something that is not identifiable in any salient way or, by contrast, where the identity of the existential witness is obvious), "some NP or other" is infelicitous when used in contexts that reinforce a specific reading. We can further press the point by considering the behavior of both kinds of expressions in combination with certain continuation discourse-moves or responses that contradict a non-specific reading (see also Abenina-Adar 2020, 101-102):

(10) A: Kim bought a book.
a. A: Namely, *War and Peace.*
b. A: It was *War and Peace*.
c. B: What was it?
d. A: … guess which one?

(11) A: Kim bought some book or other.
a. A: #Namely, *War and Peace*.
b. A: #It was *War and Peace*.
c. B: #What was it?
d. A: # … guess which one?

We observe that continuation discourse-moves that favor a specific interpretation are infelicitous after "some NP or other", which shows that,

unlike "a", such expression has only a non-specific reading. Bearing this in mind will be of help later when we assess the disambiguated versions of McGee's argument.

### 3.2 Disambiguating the second premise

The second premise contains the ambiguous expression "a Republican" as well, hence it can also be interpreted either specifically or non-specifically:

> **(12) Specific and non-specific interpretations of (2)**:
> a. non-specific interpretation of (2): Some Republican or other will win the election.
> b. specific interpretation of (2): Reagan will win the election.

In this case, the indefinite is not in the scope of any relevant operator, so it is standard to interpret the (non-)specific ambiguity in epistemic terms. Recall that epistemic specificity concerns the informational state of the speaker. So, on its specific interpretation, and given the context put forward by McGee, (2) conveys that all the epistemic possible worlds compatible with what the speaker believes are worlds where Reagan wins the election. By contrast, on its non-specific interpretation, (2) conveys that at least one epistemic possibility compatible with what the speaker believes is such that Reagan wins, and at least one epistemic possibility compatible with what the speaker believes is such that Anderson wins. We consider both alternatives below.

Before proceeding to disambiguate the argument, it is worth noting that although both interpretations of the second premise make sense (unlike what we saw for the first premise), the context provided by McGee, where the witness of the existential claim introduced by the indefinite is assumed to be known (we are told that Reagan leads the polls by a significant difference), strongly favors a specific interpretation, that is, one where all epistemic possibilities compatible with what the speaker believes are such that Reagan wins.

### 3.3 Disambiguating the argument

In subsection 3.1, we saw that (1) only makes sense if understood non-specifically. Once we have settled on this interpretation, there are two alternatives left: we may understand (2) either non-specifically, which generates a fully non-specific interpretation of the argument, or specifically, which generates a mixed interpretation. Let us see what is going on in each case.

### 3.3.1 The fully non-specific interpretation

We start by considering the fully non-specific interpretation of the argument:

(13) a. If some Republican or other wins the election, then if Reagan doesn't win the election, Anderson will.
b. Some Republican or other will win the election.
c. Therefore, if Reagan does not win the election, Anderson will.

This version of the argument seems to be an intuitively acceptable instance of MP. It is worth noting that by "acceptable" we do not necessarily mean "valid": since we have not committed to any semantics for the indicative conditional, we cannot make claims about validity. It suffices to note, however, that once it has been disambiguated in this way, the argument completely loses its intuitive appeal, i.e. it is hard to see how anyone would be moved to abandon MP for the indicative conditional based on an example like (13).

#### 3.3.1.1 A comment on validity as assertibility preservation

There are reasons to believe, nevertheless, that even if we analyze validity not in terms of truth preservation but as something weaker—say, probability, credence, or assertibility[2] preservation, like McGee originally intended—this disambiguation might still be problematic in a different sense.[3] Probability preservation amounts roughly to having a threshold on the probability of the conclusion with regards to the probabilities of each premise of a valid argument, given this probabilistic sense of validity. In short, probability is preserved when, if one assigns high probability to each premise of a probabilistically valid argument (and one has a small number of premises), then the probability of the conclusion cannot be too low. To see how this concept of validity works in relation to MP, one has to have a hypothesis on how to calculate the probability of an indicative conditional. The most common hypothesis one can find in the literature is *the Stalnaker Thesis*, which states that the probability of an indicative conditional "If A then B", P(A→B), equals the conditional probability of B given A, P(B|A) (Stalnaker 1968).[4] A big problem with Stalnaker's Thesis, however, is that

[2] As it was mentioned in the introduction, we use the technical term "assertibility", following Jackson (1987) and Adams (1975).
[3] We thank an anonymous referee from *European Journal of Analytic Philosophy* for pressing us on this point.
[4] P(A→B)=P(B|A)=P(A&B|A)

it trivializes if one allows the probability function to apply to nested conditionals, as Lewis (1976) (and several authors after him) showed.

This is where the concept of assertibility becomes relevant. If we restrict the language to sentences where conditionals can only appear as the main connective, then we can assign something similar to probabilities, namely a degree of assertibility to conditionals, such that the assertibility of a conditional "if A then B", As(A→B), equals the probability of B given A (for the rest of the language assertibility equals probability). This hypothesis is known as *Adams' Thesis* or plainly as *The Thesis* (Adams 1975) (AT hereinafter). Then, assertibility is preserved when, if one assigns a high assertibility degree to each premise of an assertably valid argument (and one has a small amount of premises), then the assertibility degree of the conclusion cannot be too low.

So, how would assertibility preservation work for MP, given AT? Well, if we are dealing with a MP without nested conditionals, we would have an argument of the form:

(i) A→B
(ii) A
(iii) Therefore, B

Suppose that the assertibility of (i) and (ii) is high enough, let us say As(A→B) = As(A) = 0.9, then, As(B) has to be at least 0.81. Now, if we were to have a way to translate (at least) right-nested conditionals such as the one in McGee's example into a non-nested conditional, maybe we could check if, under that translation *t*, if As(*t*(A→(B→C)) and As(A) are high enough, then they preserve some degree of assertibility to the conclusion, B→C. Recall, McGee's argument was of the form:

(iv) A→(B→C)
(v) A
(vi) Therefore, B→C

However, as Stern and Hartmann (2018) show, if we look at synchronic probabilities the answer is negative. If we assume the validity of the inference called Import, namely:

(IMP) A→(B→C) implies (A&B)→C

or we pose a translation function *t* such that it imports nested conditionals as a conjunction of both antecedents such that *t*(A→(B→C)) = (A&B)→C, then we can show that the assertibility of the conclusion (vi) can be 0 even

if the premisses (iv) and (v) have, let us say, an assertibility degree of 0.9. As the authors argue, the reason for this is that after some math, we can check that As(B→C) = P(C|B) = P(C|A&B). P(A|B)+P(C|notA&B). P(notA|B), and even if P(C|A&B) might be high (because we assumed it as a premise), we have no information regarding P(A|B), P(C|notA&B) and P(notA|B), which can be extremely low, or even 0. In this particular sense, one could argue that McGee's example, even under its fully non-specific interpretation, might still work as a legitimate counterexample to the validity of MP, where validity is understood as assertibility preservation.

There are several things to say in this regard. First of all, one can show that even if there are cases where the assertibility of the premises of a MP with a right-nested conditional as its main premise is high whereas the assertibility of its conclusion is 0, the fully non-specific interpretation of McGee's alleged counterexample is not such a case. Keep in mind that we are considering the fully non-specific interpretation, where "a Republican" must be understood non-specifically as "some Republican or other". There is only one reason you may have to assert the second premise under such interpretation, namely that you think that both candidates have chances of winning, something that clashes with the contextual information stipulated in the example. Put differently, on a fully non-specific interpretation, asserting the second premise in the context of the example would be either infelicitous (if one treats (non-)specificity as pragmatically inferred) or simply false (if one treats (non-)specificity as part of conventional meaning).[5] If we assign a high assertibility degree of winning to each candidate, then that scenario is not a particular case where we can assign high assertibility to (iv) and (v) but low to (vi), because:

> As(Reagan loses→Anderson wins) = P(Anderson wins|Reagan loses) = P(Anderson wins|Some Rep or other wins & Reagan loses). P(Some Rep or other wins|Regan loses)+P(Anderson wins|both Rep lose & Reagan loses). P(both Rep lose|Reagan loses)

And under the assumption that we think both candidates have good chances of winning, already the left side of the sum must have a high degree of assertibility.

[5] Remember that assertibility mirrors probabilities for simple sentences and simple conditionals, so when two propositions are mutually exclusive the probability of a disjunction equals the sum of the probability of each disjunct, P(A or B) = P(A)+P(B) and so does As(A or B). In this particular context, we have an existential claim of the form ∃x (Rx and Wx), meaning there is some x that is a Republican and will win, and because we only have two Republican candidates, we can see how the probability of the existential claim equals the probability of the disjunction.

Admittedly, someone might push and say that this argument runs for assertibility, but not for degrees of belief or credences. But note that in order to do the math on the assertibility of this right-nested conditional, we made several non-trivial assumptions about conditionals and assertibility. The same goes for probabilities and probabilities of conditionals. We assumed that it is possible to validate both AT and IMP (or some way to translate right-nested conditionals into a conjunction of both antecedents) without trivializing. But we know since Lewis (1976) that we cannot do that in a classical context. So, if we want to make that possible, we need to adopt some non-classical probability function such as de Finetti's (1936) or Egrè, Rossi, and Sprenger (forthcoming)'s three-valued probability function. At the same time, there are other ways of handling this, as Stern and Hatmann (2018) show, using diachronic probabilities.

Summing up, under several non-trivial assumptions, MP with right-nested conditionals can be problematic with regards to assertibility preservation, but in the fully-non-specific disambiguation of McGee's argument this is not a problem. Of course, there is still another scenario where we assert the existential because of the high chances of one of the candidates. In Section 4 we will explain why we think this is also not a problematic case.

### 3.3.2 The mixed interpretation

If we disambiguate (2) specifically we arrive at the following:

(14) a. If some Republican or other wins the election, then if Reagan doesn't win the election, Anderson will.
b. Reagan will win the election.
c. Therefore, if Reagan doesn't win the election, Anderson will.

In the light of (14), one may be tempted to claim that the argument, thus understood, is not an instance of MP, since (14b) does not match the antecedent of the main conditional in (14a). This would straightforwardly explain away the intuition that the argument is unacceptable without the need to posit an additional ambiguity in the conditional, as Fulda (2010) does.

Things are not so simple though, for the specific reading of the indefinite, which we paraphrased as "Reagan will win the election", seems to logically entail the non-specific one, which we paraphrased as "some Republican or other will win the election", by means of the existential introduction rule. Hence, it seems that there is a MP below the surface after

all. But then, why do we have the intuition that the argument is unacceptable?

There are two alternative strategies for dealing with this objection. Recall that in Section 2 we have characterized these two readings by saying that epistemically specific uses prompt an interpretation according to which all the possible worlds that are compatible with what the speaker believes are such that the same individual satisfies the relevant property, while epistemically non-specific uses convey that the possible worlds compatible with what the speaker believes contain at least two worlds such that different individuals satisfy the relevant property in each of those worlds. In other words, the specific interpretation ascribes to the speaker an epistemic state that is incompatible with the epistemic state ascribed to the speaker by the non-specific one. Thus, when we consider the overall content of each use of the indefinite, that is, its existential core meaning plus the (non-)specific dimension, we conclude that the specific interpretation is incompatible with the non-specific one. What kind of incompatibility is at play depends again on one's preferred view concerning the ultimate source of the (non-)specific flavor of indefinites: if one treats specificity as part of conventional meaning, one may deny that the specific interpretation entails the non-specific one; if, by contrast, one assumes that (non-)specificity is a pragmatic phenomenon, then one must say in turn that the specific and the non-specific interpretations have different assertibility conditions. At any rate, this suffices to explain why the argument, in its mixed interpretation, is intuitively unacceptable. Hence, the objection is blocked.

The second strategy places the burden of the explanation in the relation between the second premise (understood specifically) and the conclusion. To be able to develop this strategy, however, we need first to discuss the phenomenon of ignorance inferences. We address this issue in the next section.

Before moving on, however, a final objection needs to be addressed. One may argue that the previous discussion about indefinites is beside the point, since it is possible to restate McGee's argument without relying on the indefinite article. Two alternative restatements have been suggested to us:

(15) a. If the winner of the election is conservative, then if it's not Reagan who wins it will be Anderson.
b. The winner of the election will be conservative.
c. If it's not Reagan who wins it will be Anderson.

(16) a. If Reagan or Anderson wins, then if Reagan doesn't win, Anderson will.
b. Reagan or Anderson will win.
c. If Reagan doesn't win, Anderson will.

As we shall see, both reformulations suffer from problems. Below, we address the reformulation in (15). In the next section we consider (16) and argue that it is of no help either (again, paying attention to ignorance inferences will reveal itself crucial here).

The challenge posed by (15) can be met by noting that definite descriptions may give rise to a kind of ambiguity concerning the informational state of the speaker, similar to the one raised by specific and non-specific uses of indefinites. In order to see the point, consider the distinction between *role-type* descriptions and *particularized* descriptions (Rothschild 2007). The distinction depends on the way in which the common ground interacts with the content of the description. The former are descriptions where it is part of the common ground i) that the description is uniquely satisfied across a broad variety of different possible worlds and ii) the unique satisfier of the description varies amongst these possible worlds; the latter, by contrast, are descriptions where it is not common ground that a unique individual satisfies the content of the description in a wide range of possible worlds. As Rothschild (2007, 76) puts it, when a description counts as particularized "we can only know that there is a single most salient individual satisfying the descriptive content (and thus the description picks some individual out) by having some sort of knowledge particular to the narrow conversational context". By contrast, when a description is role-type, we may not be able to do that, but we still have knowledge that the uniqueness requirement associated with definite descriptions is satisfied.

Now, recall that (non)specificity concerns the informational state of the agent and may be understood in modal terms: on a specific reading, all the possible worlds that are compatible with the speaker's belief-state are worlds where the same individual satisfies the relevant property; on an non-specific reading, there are at least two possible worlds compatible with the agent's belief-state such that different individuals satisfy the relevant property in each of them. The ambiguity between role-type and personalized definite descriptions gives rise to a similar phenomenon, in the sense that definite descriptions may be compatible with the agent being in two different informational states: in personalized uses, all the worlds compatible with the agent's belief-state are such that the same individual, namely the unique most salient individual that satisfies the content of the description, has the relevant property; by contrast, in role-type uses, although uniqueness is satisfied in all the worlds compatible with the

speaker's belief-state, the individual which satisfies the description may vary, i.e. there are at least two worlds compatible with the agent's belief-state such that a different individual satisfies the content of the description in each of them.[6]

Going back to (15), note that the description "the winner of the election" in the second premise gives rise to a role-type/particularized ambiguity. On the one hand, it is most naturally understood as a role-type description, since it is common ground both that there is only one winner in presidential elections and that the winner may vary; on the other hand, however, the context provided by McGee to interpret the example stipulates that it is common ground that it is highly probable that Reagan will win the election, and so the description may be interpreted as a particularized description denoting the unique most salient individual in the context who will win the election, namely Reagan. Hence, the premise "The winner of the election will be conservative" gives rise to an ambiguity in the sense that it is compatible with the agent being in two different belief-states: on the particularized interpretation, the agent believes, based upon accessible information in the narrow conversational context, that the unique most salient individual in the context will win the election (namely Reagan, in light of the contextual information surrounding McGee's example); on the role-type interpretation, by contrast, the agent has knowledge that a unique individual will win the election, but her belief-state may be compatible with different individuals winning the election in different epistemic possibilities. Now, since the first premise only makes sense if the description is interpreted as a role-type one, disambiguation leaves us with two interpretations of the argument, a fully role-type interpretation, and a mixed interpretation. Then, the same kind of arguments we offered for the case of indefinites can be rehearsed for this version of the argument.

## 4. Conditionals and ignorance

In this section, we lay some basic facts about ignorance inferences that will help us understand what is to come. Here are two examples of ignorance inferences (we read "+ >" as "it is conversationally implicated"):

(17) If John is still alive, he has two sons. (Gazdar 1979)

[6] Rothschild argues for this distinction appealing to differences in scope concerning metaphysical modality, but the distinction intuitively extends to epistemic modality as well (see Rothschild 2007, 77 and fn. 7).

a. + > The speaker is ignorant of whether John is still alive.
b. + > The speaker is ignorant of whether John has two sons.

(18) Mary was late or John was late.
a. + > The speaker is ignorant of whether Mary was late.
a. + > The speaker is ignorant of whether John was late.

Very roughly put, ignorance inferences are licensed by the Maxim of Quantity: given an uttered sentence S, if A is a more informative alternative than S and it is relevant in the context, the Maxim of Quantity licenses the inference that A is not in the speaker's belief set. Since it is standard to assume that relevance is closed under negation (that is, if a sentence A is relevant, then its negation, ¬A, is also relevant), the Maxim of Quantity also licenses the inference that ¬A is not in the speaker's belief set. In other words, the audience infers that the speaker ignores A.

Identifying the alternatives to a given sentence is a complex matter we need not discuss in detail here, but it is standard to assume that both the antecedent and the consequent of a conditional (as well as sentences in their Boolean closure) are alternatives to the conditional itself. It is important to emphasize, however, that not all alternatives will be considered in order to calculate ignorance inferences, but only those that are relevant in the context. We follow Roberts (2012) and define relevance in terms of the Question Under Discussion (QUD). Roughly put, we assume that an alternative is relevant relative to a contextually salient QUD if it provides a total or a partial answer to it. As we said, it is also assumed that relevance is closed under negation, so that if a sentence A is relevant to a given QUD, then ¬A is also relevant to the same QUD.

Let us see how ignorance inferences work in (17). Since the antecedent is an alternative to the conditional, and assuming for the sake of the example that the antecedent is relevant to the contextually salient QUD, the Maxim of Quantity licenses the inference that the proposition that John is still alive is not in the speaker's belief set. But since the negation of the antecedent is also an alternative to the conditional, and relevance is closed under negation, the Maxim of Quantity licenses the inference that the proposition that John is not alive is not in the speaker's belief set as well. In other words, the audience infer that the speaker ignores (in the sense specified above) whether John is still alive. An analogous explanation can be formulated in order to account for the ignorance inferences licensed by (18) (note that both disjuncts (and their negations) are alternatives to the disjunction itself and are relevant to the QUD).

Let us call the overall content of an utterance, that is, its literal content plus its implicated contents, the strengthened meaning of the utterance. It has been noted that an utterance may turn out to be infelicitous in certain contexts by virtue of its strengthened meaning. This phenomenon has been extensively discussed for scalar implicatures (see, e.g. Magri 2009; Fox 2007; Chierchia 2004; Schlenker 2012, among many others). To illustrate the point, consider the following sentence:

(19) #Some Italians come from a warm country. (Magri 2009)

Sentence (19) generates a sense of oddness or pragmatic infelicity. Arguably, here is why. In normal contexts, it is common ground that all Italians come from the same country, which is also a warm one. Now, (19)'s truth conditional content, namely *some Italians come from a warm country*, is perfectly compatible with this common ground (in fact, the common ground entails it). But it is known that sentences like (19) typically trigger a scalar inference, namely that *not all Italians come from a warm country*. So, the strengthened meaning of the utterance, that is, its literal meaning plus the scalar inference, amounts to *some, but not all, Italians come from a warm country*. Crucially, unlike its truth conditional meaning, the strengthened meaning of (19) is inconsistent with the common ground. Arguably, this leads to pragmatic infelicity: the speaker implicates some content that contradicts what is commonly accepted by the participants of the conversation.

Now, it has been recently pointed out that this effect may arise for ignorance inferences as well (Singh, 2010; Fox, 2016; Meyer et al., 2013; Buccola and Haida, 2019). By way of illustration, consider again sentence (17), and compare it with (20):

(17) If John is still alive, he has two sons.
a. + > The speaker is ignorant of whether John is still alive.
b. + > The speaker is ignorant of whether John has two sons.

(20) # If I am married to an American, I have two sons. (Singh, 2010)
a. + > The speaker is ignorant of whether she is married to an American.
b. + > The speaker is ignorant of whether she has two sons.

Arguably, the difference between (17) and (20) can be explained in similar terms as example (19). Both conditionals trigger ignorance inferences, namely that the speaker ignores both the antecedent and the consequent. The reason why only (20) is infelicitous is that in that case the strengthened meaning of the conditional, which includes the ignorance inferences, is inconsistent with what normally constitutes common ground, namely that people know who they are married to, whether they have sons and how many. By contrast, we do not necessarily assume that speakers know whether other people are still alive or not, so without further specifications about the context we tend to judge (17) as felicitous.[7] Thus, indicative conditionals trigger ignorance inferences which may lead sometimes, in particular when they contradict the common ground, to pragmatic infelicity.[8] With this in mind, we are now in position to go back to where we left, that is, to the mixed interpretation of McGee's argument.

## 5. Back to the objections

Consider the mixed version of the example again, repeated here for ease of exposition:

(21) a. If some Republican or other wins the election, then if Reagan doesn't win the election, Anderson will.
b. Reagan will win the election.
c. Therefore, if Reagan doesn't win the election, Anderson will.

Arguably, the conclusion triggers an ignorance inference like the ones we have been discussing. First, as we saw above the antecedent of a conditional is an alternative to the conditional itself. Second, the contextually salient QUD in McGee's context seems to be "Who will win the election?". The antecedent of the conclusion "Reagan does not win" is relevant relative to this QUD, since it provides an answer to it. In addition, since relevance is closed under negation, the antecedent's negation "Reagan wins" is relevant too. As a result, the Maxim of Quantity licenses an ignorance inference, namely that the speaker neither believes nor disbelieves that Reagan will win the election:

[7] Again, we are assuming for the sake of the example that the antecedent and the consequent are relevant relative to the contextually salient QUD.

[8] There is a debate about whether these facts about scalar and ignorance inferences force us to abandon a Gricean approach to implicatures and adopt an alternative view, according to which these implicatures are triggered by the grammar. This is orthogonal to our goals in this article, however. It suffices for the purposes of this work to call attention to the existence of the phenomenon.

(22) If Reagan doesn´t win the election, then Anderson will win.
a. + > The speaker is ignorant of whether Reagan will win.

The crucial point here is that the strengthened meaning of the conclusion, which comprises its truth-conditional meaning plus the ignorance inference above mentioned, creates a problem when combined with a specific interpretation of the second premise (as in the mixed interpretation of the argument). To see why, consider the following: McGee tells us that "Those apprised with the poll results believed, with good reasons" the premises of the argument, in particular premise (2), that a Republican will win the election. If we interpret that premise *specifically* in the context provided by McGee, this means that the speaker believes that Reagan will win the election. Moreover, arguably in accepting this premise we include it in the common ground, that is, we accept it and take it for granted there on for the purposes of the conversation. However, this common ground directly contradicts the strengthened meaning of the conclusion, according to which the speaker neither believes nor disbelieves that Reagan will win the election. As a result, interpreting the second premise of the argument specifically puts one in a position where affirming the conclusion is infelicitous. In other words, interpreting the second premise specifically pragmatically blocks the conclusion.

In this way we can explain why, when the second premise is interpreted specifically, McGee's argument is intuitively unacceptable. Moreover, we are able to offer an explanation in terms of our intuitions about the felicity conditions of certain speech acts, and not in terms of our intuitions about validity or by assuming a certain semantics for indicative conditionals.

Finally, let us address a final worry. In Section 3, we considered the objection that McGee's argument can be restated using disjunctions, without appealing to indefinites:

(15) a. If Reagan or Anderson wins, then if Reagan doesn't win, Anderson will.
b. Reagan or Anderson will win.
c. If Reagan doesn't win, Anderson will.

Crucially, this version of the argument is not problematic (it does not provide a counterexample to MP) unless one is able to provide a context in which both premises are intuitively acceptable whereas the conclusion is not. The burden of proof is here on MP detractors, but to be sure, the new version of the argument is not intuitively appealing in the original context

provided by McGee. As we saw, disjunctions license ignorance inferences. In particular, premise (15b) licenses the inference that the speaker is ignorant of (neither believes nor disbelieves) whether Reagan will win the election and whether Anderson will win the election. Now, in the original context provided by McGee it is common ground that Reagan is "decisively ahead" of Carter and Anderson on the polls, with Anderson a distant third. Uttering (15b) would be clearly infelicitous in such context since the strengthened meaning of the sentence (either *Reagan or Anderson will win, but I don't know who*) clashes with what is common ground. Hence, restating McGee's argument using disjunctions would undermine its intuitive appeal.

It may be argued that even in the original context of the example, the speaker has reasons to believe that Reagan will win the election, and this entails (15b) by the rule of the introduction of disjunction. Hence, (15b) is in fact acceptable in such a context. The answer to this worry is parallel to the one we provided for the case of the mixed interpretation of the original argument. Let us grant that the speaker accepts (15b) because she infers it from the implicit premise "Reagan will win the election". If this is so, we can offer an alternative pragmatic explanation for the resistance one feels to accept the conclusion: the implicit premise "Reagan will win the election" clashes with the ignorance inference licensed by the antecedent of the conditional in the conclusion, namely that the speaker is ignorant of whether Reagan will win the election. Thus, the uneasiness caused by the example can be pinned on pragmatics and need not force us to abandon MP for indicative conditionals.

The same explanation can be used to understand the problems discussed in section 3.3.1.1 about assertibility preservation. Suppose that we accept AT as well as all the other non-trivial assumptions that allow us to show that the degree of assertibility of the conclusion can be drastically lower than the degree of assertibility of the premises of the argument. Nevertheless, in the scenario where the assertibility degree of "Some Republican or other will win" or "Either Reagan or Anderson will win" is high only because the assertibility degree of "Reagan will win" is high, asserting either the existential or the disjunction is pragmatically infelicitous because of the ignorance inferences these sentences trigger. As a matter of fact, this is at the core of Adams' proposal: asserting a disjunction while knowing only one of its members has a high assertibility degree is misleading and "runs against standards of correct communication" (1965, 15).

Of course, one could argue that even if not assertible, it is reasonable to assign a high degree of belief to each premise and a low degree of belief to the conclusion. Yet, assertibilities are not probabilities, and in principle, if

we adopt AT, the assertibility function speaks of how confident we are in asserting sentences not in believing them. It is true though, that we could move to some non-classical probability function like Egré, Rossi and Sprenger do, and then we could rephrase the argument in terms of degrees of belief and check that if we analyze MP with right-nested conditionals as premises in a synchronic way, then the degree of belief of the conclusion can drastically descend. Yet, we have to bear in mind that we are standing in a quicksand, since none of these assumptions are conventional.

## 6. Summing up

On these pages, we have argued that McGee's most famous counterexample to MP can be explained away by noting the interference of two different pragmatic phenomena, without assuming anything about the semantics of indicative conditionals. These phenomena are related, in the sense that both involve the transmission of information concerning the epistemic state of a speaker that accepts both the premises and the conclusion, yet they arise in parallel through different mechanisms. In particular, we pointed out that both premises are ambiguous. We then argue that once they are disambiguated, the example loses its intuitive appeal. On the one hand, the fully non-specific version is an intuitively acceptable instance of MP. On the other hand, we identified two problems for the mixed interpretation. First, if one considers the overall content of the premises, including pragmatically conveyed information concerning the (non-)specific dimension, it fails to be an instance of MP. The second, concurrent problem, was the conditional conclusion "If Reagan doesn't win the election, Anderson will win" triggers the implicature that the speaker ignores whether Reagan will win the election, which contradicts the specific interpretation of the second premise. The fact that there are two concurring pragmatic phenomena at play interfering with the example is probably the reason why it is so hard to pin down the problem with this argument.

In summary, the point we would like to draw from this work is that whether MP is valid or not will be a decision the semanticist or the logician will have to make independently of these supposed counterexamples, since the reasons one would raise against believing their conclusions in light of believing their premises are not related to truth or belief preservation.

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## REFERENCES

Abenina-Adar, Maayan. 2020. *Expressing ignorance with determiner phrases*. PhD thesis, University of California. https://escholarship.org/uc/item/8964606g

Adams, Ernest W. 1975. *The Logic of Conditionals*. Dordrecht: D. Reidel.

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2010. "Modal indefinites." *Natural Language Semantics*, 18 (1): 1–31. https://doi.org/10.1007/s11050-009-9048-4

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2013. "Two Views on Epistemic Indefinites." *Language and Linguistics Compass*, 7 (2): 105–122. https://doi.org/10.1111/lnc3.12009

Bledin, Justin. 2015. "Modus Ponens Defended." *The Journal of Philosophy*, 112 (2): 57–83. https://www.jstor.org/stable/43820889

Buccola, Brian, and Andreas Haida. 2019. "Obligatory Irrelevance and the Computation of Ignorance Inferences." *Journal of Semantics*, 36 (4): 583–616. https://doi.org/10.1093/jos/ffz013

Chastain, Charles. 1975. "Reference and Context." In *Language, Mind, and Knowledge: Minnesota Studies in the Philosophy of Science*, *volume 7*, edited by Keith Gunderson, 194-269. University of Minnesota Press.

Chierchia, Gennaro. 2004. "Scalar Implicatures, Plarity Phenomena, and the Syntax/Pragmatics Interface." In *Structures and Beyond: The Cartography of Syntactic Structures*, *volume 3*, edited by Adriana Belletti, 39–103. Oxford: Oxford University Press.

de Finetti, Bruno. 1936. "La logique de la probabilité." In *Actes du congrès international de philosophie scientifique*, *volume 4*, 1–9. París: Hermann Éditeurs.

Égré, Paul, Rossi, Lorenzo, and Jan Sprenger. Forthcoming. "Certain and Uncertain Inference with Indicative Conditionals." *Australasian Journal of Philosophy*. https://arxiv.org/abs/2207.08276

Farkas, Donka F., and Adrian Brasoveanu. 2020. "Kinds of (Non)-specificity." In *The Blackwell Companion to Semantics*, edited by Daniel Gutzmann, Lisa Matthewson, Cecile Meier, Hotze Rullmann, and Thomas Ede Zimmerman, 1–26. Blackwell. https://doi.org/10.1002/9781118788516.sem037

Fodor, Janet D., and Ivan A. Sag. 1982. "Referential and Quantificational Indefinites." *Linguistics and philosophy*, 5 (3): 355–398.

Fox, Daniel. 2007. "Free Choice and the Theory of Scalar Implicatures." In *Presupposition and implicature in compositional semantics*, edited by Uli Sauerland and Penka Staveva, 71–120. New York: Palgrave.

Fox, Daniel. 2016. "On Why Ignorance Might Be Part of Literal Meaning. Commentary on Marie Christine Meyer." In Talk given at the MIT Workshop on Exhaustivity.

Fulda, Joseph S. 2010. "Vann McGee's Counterexample to Modus Ponens: An Enthymeme." *Journal of Pragmatics*, 42 (1): 271–273.

Gazdar, Gerald. 1979. *Pragmatics: Implicature, Presupposition and Logical Form*. New York: Academic Press.

Gibbard, Allan. 1980. "Two Recent Theories of Conditionals." In *Ifs*, edited by William Leonard Harper, Robert Stalnaker, and Glenn Pearce, 211–247. Dordrecht: D. Riedel.

Jackson, Frank. 1979. "On Assertion and Indicative Conditionals." In *Philosophical Review,* 88 (4): 565-589. https://doi.org/10.2307/2184845

Kamp, Hans, and Agnes Bende-Farkas. 2019. "Epistemic Specificity from A Communication-Theoretic Perspective." *Journal of Semantics*, 36 (1): 1–51. https://doi.org/10.1093/jos/ffy005

Lowe, Edward J. 1987. "Not a Counterexample to Modus Ponens." *Analysis*, 47 (1): 44–47. https://doi.org/10.1093/analys/47.1.44

Lewis, David K. 1976. "Probabilities of Conditionals and Conditional Probabilities." *Philosophical Review*, 85: 297–315

Magri, Giorgio. 2009. "A Theory of Individual-Level Predicates Based on Blind Mandatory Scalar Implicatures." *Natural language semantics*, 17: 245–297. https://doi.org/10.1007/s11050-009-9042-x

McGee, Van. 1985. "A Counterexample to Modus Ponens." *The Journal of Philosophy*, 82 (9): 462–471.

Meyer, Marie C. 2013. *Ignorance and Grammar*. PhD thesis, Massachusetts Institute of Technology. http://hdl.handle.net/1721.1/84420

Roberts, Craige. 2012. "Information Structure: Towards an Integrated Formal Theory of Pragmatics." *Semantics and Pragmatics*, 5: 6–1. https://doi.org/10.3765/sp.5.6

Rothschild, Daniel. 2007. "Presuppositions and Scope." *The Journal of Philosophy*, 104(2): 71-106. https://www.jstor.org/stable/20620000

Schlenker, Philippe. 2012. "Maximize Presupposition and Gricean Reasoning." *Natural Language Semantics*, 20: 391–429. https://doi.org/10.1007/s11050-012-9085-2

Singh, Raj. 2010. "Oddness and Ignorance Inferences." Handout presented at Modularity Reading Group at MIT. https://carleton.ca/singhr/wp-content/uploads/singh-oddness-ignorance-handout.pdf

Sorensen, Roy. A. 1988. "Dogmatism, Junk Knowledge, and Conditionals." *The Philosophical Quarterly*, 38 (153): 433–454. https://doi.org/10.2307/2219708

Stalnaker, Robert. 1968. "A Theory of Conditionals". In *Studies in Logical Theory* edited by Nicholas Rescher, 98-112. Oxford: Blackwell. https://doi.org/10.1007/978-94-009-9117-0_2

Stern, Reuben, and Stephan Hartmann. 2018. "Two Sides of Modus Ponens." *Journal of Philosophy* 115 (11): 605-621. https://www.jstor.org/stable/48568445

Strawson, Peter F. 2017. *Subject and Predicate in Logic and Grammar*. London: Routledge. https://doi.org/10.4324/9781315242132

von Heusinger, Klaus. 2011. "Specificity." In *Semantics: Noun Phrases and Verb Phrases*, edited by Paul Portner, Klaus Heusinger, and Claudia Maienborn, 70-111. Berlin, Boston: De Gruyter Mouton. https://doi.org/10.1515/9783110589443-003

Wilson, George. 1978. "On Definite and Indefinite Descriptions." *The Philosophical Review*, 87 (1): 48–76. https://doi.org/10.2307/2184347