

## How to Outfox Sly Pete: A Picture of the Pragmatics of Indicatives\*

Expressivists hold that the use of a sentence expresses the speaker's mental state. And they deny that it expresses a representational condition on what the world is like. Expressivism about indicative conditionals, for example, is the view that the use of an indicative just expresses the speaker's conditional credence.

Indicative conditionals are particularly important for expressivists, because they provide some of the most powerful linguistic evidence in favor of an expressivist approach, and against more traditional alternatives. And this evidence is important, because there are important problems about expressivism in general. The expressivist struggles to explain *embedded* judgments, like embeddings of the vocabulary under adverbs like *probably* – then the classic Frege-Geach problem.<sup>1</sup>

Expressivist accounts of indicatives are important for assessing the force of those challenges. If the best account of indicatives is expressivist, we have a powerful *license for optimism* in favor of the expressivist approach in general, a license for optimism that the approach can somehow be made to work. And expressivism has very interesting upshots in several domains, particularly in metaethics. A license for optimism on behalf of the expressivist about indicatives is also a license for optimism for the metaethical expressivist.<sup>2</sup>

I attempt a piece of philosophical jujutsu. I leverage a phenomenon that appears to be evidence *for* expressivism about indicatives *against* it. That is, I try to show that that phenomenon eliminates *all* expressivist accounts of indicatives. If I'm right, indicatives don't give the expressivist any license for optimism. I then introduce my own constructive account of the phenomenon. My account offers a systematic explanation of the data that eliminates expressivist accounts. This account advances our understanding of what an adequate account of indicatives would have to look like.

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<sup>1</sup>Important critical discussions include those by Peter Geach (1965), Bob Hale (1993), Mark Schroeder (2008, 2015b), John Searle (1962), and Nicolas Unwin (1999, 2001).

<sup>2</sup>Simon Blackburn (2016) has recently made a spirited version of this kind of point. Allan Gibbard describes some differences between our use of indicatives and our moral discourse, while still favoring an expressivist account of both (Gibbard 2012, 70-2). Mark Schroeder (2015a) has a detailed discussion of the similarities and differences between the problems for the metaethical expressivist and for the expressivist about indicatives.

## 1 The Gibbard phenomenon

This section introduces the phenomenon that has traditionally taken to be evidence for expressivism, and against traditional accounts.

I'll take the semantics from Angelika Kratzer (1986) as my example of a traditional account.<sup>3</sup> Her account starts with her account of modals like *must*, where those modals are quantifiers over the highest ranked worlds in a contextually supplied set. Kratzer proposes that conditionals restrict the quantifier that ranges over the contextually supplied set. If  $\lceil \text{must}(p) \rceil$  quantifies over all the highest ranked worlds in that set,  $\lceil \text{if } q, \text{ must}(p) \rceil$  quantifies over all the highest ranked  $q$ -worlds in the set.

On Kratzer's proposal, indicatives express a representational condition that the world needs to satisfy, about what's true of a particular set of worlds. Allan Gibbard has given a challenge to *any* account that takes indicatives to express some such representational condition. His original challenge was about a character called Sly Pete. (That's why this paper is about outfoxing Sly Pete – it's about outfoxing the puzzle he articulated.) But his original case had some confusing features. Jonathan Bennett gave a better example:

Top Gate holds back water in a lake behind a dam; a channel running down from it splits into two distributaries, one (blockable by east gate) running eastwards and the other (blockable by west gate) running westwards.<sup>4</sup> (Bennett 2003, 85) Crucially, it's not possible for all three gates to be open at the same time, given the construction of the system. Wesla saw that west gate was open, and Esther saw that the east gate was open. Wesla tells us (W), and Esther tells us (E) :

(W) If Top Gate opened, all the water ran westwards.

(E) If Top Gate opened, all the water ran eastwards.<sup>5</sup>

Gibbard thinks that expressivists can correctly explain this kind of case. For the expressivist, “indicative conditionals are [...] to be understood through their conditions of acceptance or assertability, and where  $a$  and  $b$  are propositions, one accepts the indicative conditional ‘If  $a$ , then  $b$ ’ iff one’s conditional credence in  $b$  given  $a$  is sufficiently high” (Gibbard 1981, 212).<sup>6</sup> For him, then, both utterances are appropriate because the two agents have the right condi-

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<sup>3</sup>I set aside Robert Stalnaker (1975)'s similar account. His account is similar enough to Kratzer's for the following discussion to smoothly generalize. My presentation of Kratzer suppresses lots of important details.

<sup>4</sup>To make it plausible that all three gates can't be open at the same time, Bennett includes much more detail. I eliminate the extra detail, because it makes an already complicated discussion even more complicated.

<sup>5</sup>Kratzer supposes that bare conditionals like (W) and (E) – conditionals without an explicit modal like *must* – have an unpronounced modal at logical form that the antecedent restricts.

<sup>6</sup>For broadly similar views about the language of subjective uncertainty, see Adams (1975), Bennett (2003), Edgington (1995), Moss (2015, 2017) Schneider (2010), Swanson (2006), and Yalcin (2007).

tional credences. This account doesn't identify a representational condition that the world needs to satisfy for the two sentences to be appropriate. It instead identifies a mental state that makes the utterances appropriate. That's why it's an expressivist account.

If your semantics *does* take (W) and (E) to express representational conditions that the world needs to satisfy, I'll say that you're offering a *traditionalist* account.<sup>7</sup> Gibbard thinks that traditionalists struggle to capture this case. The symmetry between Wesla and Esther forces the traditionalist to take the propositions (W) and (E) express to have the same truth-value.<sup>8</sup> And traditionalists struggle to explain why they would.

One option for the traditionalist is to take the context to make some substantive contribution: (W) and (E) express propositions that differ more than just in the direction the water goes. For example, maybe Wesla's use of (W) expresses a proposition about the information that Wesla has. Given this traditionalist approach, the hearer's ability to learn from what Wesla said can't always rely on her learning the propositions expressed. (The hearer won't always know what information Wesla has.) So these traditionalists have to offer a metalinguistic account of the conversational dynamics. And when they do, they appeal to the mental states that the expressivist takes to be semantically expressed.<sup>9</sup> Then the traditionalist's semantics starts to look like an idle wheel that doesn't do real explanatory work.

Another kind of traditionalist might deny that the context makes any substantive contribution to what (W) and (E) express. For this kind of traditionalist, the propositions expressed differ only in the direction the water goes. This sort of traditionalist seems forced to accept a material conditional semantics for the indicative. The propositions expressed by (W) and (E) can have the same truth-value only if their consequents have the same truth-value at that nearest world. But those consequents can't have the same truth-value at that world. The water can't all flow both east and west.

In general, Gibbard's puzzle pushes traditionalists to either use the resources the expressivist uses, or to give a material conditional semantics for the indicative. And there are powerful reasons to reject a material conditional semantics.<sup>10</sup> So the traditionalist seems forced to use the resources that the expressivist uses – which seems like good inductive evidence that the expressivist captures what's really going on with indicatives.<sup>11</sup>

## 2 Expressivism can't work

This section attempts philosophical jujutsu. It argues that, *contra* initial appearances, the Gibbard phenomenon decisively eliminates expressivist accounts

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<sup>7</sup>I throughout italicize terms I intend to mention.

<sup>8</sup>To deny that they have the same truth-value, the traditionalist must find some asymmetry between the two that makes one false and the other true. And Bennett can just stipulate away any asymmetry.

<sup>9</sup>Angelika Kratzer's account of this puzzle is one example (Kratzer 2012, 121).

<sup>10</sup>See, for example, pp. 90ff of Kratzer (2012).

<sup>11</sup>This kind of reasoning is particularly clear in Gibbard (1981) and Bennett (2003).

of indicatives.

## 2.1 What do Wesla and Esther know?

It should be uncontroversial that (1) is true.

(1) Wesla was reasonable in taking generous bets that either the water ran westwards or Top Gate didn't open, because she knows that if Top Gate opened, all the water ran westwards. And Esther was reasonable in taking generous bets that either the water ran eastwards or Top Gate didn't, because she knows that if Top Gate opened, all the water ran eastwards.

(1) is definitely appropriate – and its appropriateness is powerful evidence that it's true.

There are also more theoretical arguments that (1) is true. It has to be true as long as conditional proof can extend knowledge. Wesla can know how the gates work, and can know that west gate is open. If she supposes that Top Gate opened, she can then prove that all the water ran westwards. So she'd be in a position to know her conditional, if conditional proof can extend knowledge. Ditto for Esther. So (1) has to be true if conditional proof can extend knowledge. And we should allow that conditional proof can extend knowledge. Supposing otherwise leads to implausibly wide-ranging skepticism about our knowledge of indicatives.

Another argument that (1) is true is from the knowledge norm of assertion. Take Williamson's formulation, that "one must: assert  $p$  only if one knows  $p$ " (Williamson 2000, 243). Everybody agrees that Wesla and Esther both make appropriate assertions. Indeed, that agreement is why expressivists take the Gibbard phenomenon to be evidence against more traditional accounts. (No expressivist who feels the pull of the argument in §1 for expressivism can disagree! In feeling the pull of that argument, you're taking both utterances to be appropriate.) But given the knowledge norm, the assertions are appropriate only if they know what they assert. Since their assertions *are* appropriate, they must know what they assert.

## 2.2 Against expressivism

Expressivists cannot explain why (1) is appropriately assertable.

Let ' $\epsilon$ ' designate the expressivist's threshold for the agent's credence being sufficiently high. The expressivist must hold that  $\epsilon > .5$ . There are otherwise plenty of counterexamples to expressivism.

(2) If I flip this fair coin, it will land heads. And if I flip this (same) fair coin, it will land tails.

(My conditional credences are both .5.) But the unassertability of (2) is a datum. So far, so unproblematic, as long as  $\epsilon > .5$ .

The expressivist also needs to give a theory of factive verbs like *know*. (She is giving an account of the use of indicative conditionals, which can be

embedded under factive verbs – so she needs to predict when we’ll attribute knowledge of an indicative.) I’ll take the expressivist to hold that attributions of knowledge commit the speaker to the complement – that, as Sarah Moss puts the idea, that “the inference from ‘S knows that p’ to p is valid” (Moss 2013, 12). Follow Moss in calling this idea FACTIVITY<sub>2</sub>. Moss considers this idea in the course of considering expressivist accounts of the language of subjective uncertainty in general – of indicative conditionals, but also of adverbs like *probably*. As Moss rightly emphasizes, the expressivist needs some account very much like this. Moss notes that (3) is infelicitous.

(3) \* John knows that it is probably raining, and Bob knows that it probably isn’t.

FACTIVITY<sub>2</sub> gives a natural explanation of this infelicity. Given FACTIVITY<sub>2</sub>, there is a valid inference from (3) to *it probably is raining and it probably isn’t raining*. And the semantic value of that sentence imposes incompatible constraints on any mental state. *That* is the reason that (3) is so odd. We see the same pattern with indicatives. We won’t be willing to take any two people to know the two coin-tossing indicatives in (2), for the same reason. But this explanation of (3)’s infelicity crucially assumes FACTIVITY<sub>2</sub>.<sup>12</sup>

Our two observations force the expressivist to predict that (1) is unassertable. Given FACTIVITY<sub>2</sub>, (1) is assertable only if both embedded indicatives are assertable. But the expressivist can’t allow that both indicatives are assertable. Their consequents can’t both hold – if all the water flows west, all the water can’t run east. So the sum of the two conditional credences has to be 1 or lower:  $\Pr(\text{all the water runs east} \mid \text{Top Gate opened}) + \Pr(\text{all the water runs west} \mid \text{Top Gate opened}) \leq 1$ . So at least one of the conditional credences has to be .5 or less. Since  $\epsilon$  (the constraint on the assertability of conditionals) has to be greater than .5, the expressivist has to hold that one of the indicatives isn’t assertable. So she mistakenly predicts that (1) is unassertable.<sup>13</sup>

There are two ways for the expressivist to change her idea to allow for (1)

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<sup>12</sup>There is another reason to accept FACTIVITY<sub>2</sub>. We need to somehow distinguish non-factive verbs like *believe* from factive verbs like *recognize* or *realize*. ‘Jane thinks that if p, q’ differs systematically from ‘Jane recognizes that if p, q’. And it seems like the second sentence differs systematically in just the way that (a generalization of) FACTIVITY<sub>2</sub> captures: you can validly infer the semantic value of the complement from the semantic value of the second sentence, but not from the semantic value of the first. The expressivist who rejects FACTIVITY<sub>2</sub> owes us her own constructive account of (3), and of the difference between *believe* and *recognize*. It’s reasonable to assume FACTIVITY<sub>2</sub>, because it’s so hard to see another constructive account of this difference.

<sup>13</sup>Now you might wonder whether the contrast between Bennett’s case and examples with *probably* are as sharp as I’ve been suggesting. Here are the bare examples, with the *probably* example slightly changed.

(1) Wesla knows that if Top Gate opened, all the water ran westwards, and Esther knows that if Top Gate opened, all the water ran eastwards.  
 (3’) \* Wesla knows that all the water probably ran westwards, and Esther knows that all the water probably ran eastwards.

to be true. But neither can be made to work in the end. The first option is to associate indicatives with a disjunctive mental state – either a high conditional credence, or a credence of 0 in the antecedent.<sup>14</sup> We should expect this attempt to fail. Gibbard’s phenomenon occurs across a wide range of natural languages. Conjecturing that natural languages have all converged on an essentially disjunctive semantic value for such a fundamental part of the language is highly implausible; we should expect this conjecture to be false. On the next page, we’ll see a counterexample that confirms this expectation.<sup>15</sup>

The expressivist’s second option is to change the notion of conditional credence, to make sense of conditional credences with a probability zero condition. It would take a significant amount of work to do that. (For one thing, it would require rejecting a ratio equivalence: that  $\Pr(A|B) = \Pr(A \wedge B)/\Pr(B)$ .) Even worse, the sort of examples that are independent evidence for conditional

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I’ve suggested that (1) but not (3′) is perfectly assertable in the right context. Now it can take some work to make (1) sound appropriate – to hear it, you have to keep firmly in mind that only two gates can open at once. And you might think that enough work can make (3′) appropriate, too. Suppose that Wesla and Esther each have evidence that makes it 80% likely that Top Gate opened. Then it seems like (3′) should be appropriate if (1) is appropriate; they’re just drawing the same kinds of inferences. (In particular, we can connect (3′) with rational betting behavior in the way I did with (1). We can say that Wesla is rational in betting that all the water went westwards, because she knows that all the water probably went westwards.)

There still is a genuine contrast between (1) and (3′). Factive verbs like *knows* can be used without committing the speaker to the complement; we can say things like *what everyone knows about Nixon isn’t true*. (Robert Stalnaker (1974), Scott Soames (2009), and Dorit Abusch (2010) all have particularly illuminating discussions of this possibility.) We should understand appropriate uses of (3′) as involving exactly this possibility: those uses are appropriate because the speaker is not committed to the truth of both complements. As soon as this possibility is salient, though, we should ask whether (1) admits of a similar treatment – that it’s appropriate, but only because the speaker is not committed to both complements. (1) may have such uses. Crucially, though, (1) also has uses where this treatment is inappropriate. We can see that those uses exist by noting how much we can *infer* from certain uses of (1). In particular, we can infer from certain uses of (1) that the speaker believes that Top Gate didn’t open. (Gibbard made a closely related point in his original discussion of these cases (Gibbard 1981, 231).) *That* inference is intelligible only if the use of (1) does commit the speaker to both complements. By contrast, the speaker can’t be committed to both of (3′)’s complements; she can’t think that it’s probable that it’ll rain and probable that it won’t rain. In other words, we should allow that (1) but not (3′) can be true even on the use where the speaker is committed to both complements. That possibility is what poses the basic challenge to the expressivist.

<sup>14</sup>Ernest Adams takes it as a default assumption that  $\Pr(A|B) = 1$  if  $\Pr(B) = 0$  (Adams 1996, 3). And work that Johannes Schmitt (2012) has done suggests this idea, though there are substantive questions about whether a disjunctive mental state is quite the right way to think about what he’s doing.

<sup>15</sup>This suggestion also severs the simple connection between accepting an indicative and having conditional credences that expressivists have often emphasized as a central virtue of their view. Jonathan Bennett, for one, likes to emphasize this point – see §31 and §41 of Bennett (2003) – though it’s also worth noting that Sarah Moss (ms) rejects this simple connection – see her §3.3.

credences with a probability zero condition don't seem to be vacuously true. Imagine throwing point-sized darts at a dartboard, and suppose that point 72 is in the *northwest*. If conditional credences with probability zero conditions were vacuously true, you should have a high credence that the dart landed in the *southeast* given that it landed on point 72. (That seems to be the way vacuous truth works.) But that high conditional credence would be crazy; point 72 is in the northwest! This option looks even less promising than the disjunctive option.<sup>16</sup>

But here's the nail in the coffin for all these attempts. It's possible to *believe* that Wesla and Esther both know their conditionals, without being *certain* that Top Gate didn't open. Suppose that Jane is reliable 95% of the time. I don't know anything about what's going on with the gate system, other than that only two gates can open at once. Jane tells me (1).

(1) Wesla knows that if Top Gate opened, all the water ran westwards, and Esther knows that if Top Gate opened, all the water ran eastwards.

I come to believe (1) only because Jane told me. Crucially, though, I still have very low but non-zero credence that Top Gate opened. My only evidence about what happened is from Jane, and she's only reliable 95% of the time.<sup>17</sup> So even though I believe that (1) is true, it's not because my credence that Top Gate opened was 0. The expressivist can't capture this example.<sup>18</sup>

### 2.3 Generalizing the problem

The problems in the previous section doom other accounts of indicatives. For example, Frank Jackson (1987) holds that indicatives semantically express only

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<sup>16</sup>See Alan Hayek (2011) for some discussion about conditional credences with a probability zero condition.

<sup>17</sup>See Hawthorne, Rothschild, and Specter (2016) for some arguments that belief is possible in this sort of case.

<sup>18</sup>Some expressivists want to deny that (W) and (E) have truth values. (Gibbard reaffirms his commitment to this denial in *Meaning and Normativity* (Gibbard 2012, 70).) Such expressivists might deny that (1) has a truth-value, on the grounds that neither (W) nor (E) have a truth-value. So they might be unconcerned to explain how (1) is assertable.

But the expressivist is on much shakier ground in denying that (1) is assertable. Once we know all the facts of the case, we're unwilling to use (W), and we're unwilling to use (E). That's why it's initially plausible for the expressivist to deny that they have truth-values: her denial captures one aspect of our competence with indicatives. But the situation is quite different with (1). Another aspect of our competence with indicatives is that we are willing to use (1). (I supplied some other arguments for (1)'s felicity, as a way of bolstering the claim that our willingness to accept it is part of our competence with indicatives.) And our willingness to use (1) should make us doubt that (W) and (E) do lack truth-values in this context. We should doubt that the missing truth-value explanation is the right diagnosis of why we're unwilling to use the indicatives. We should look for an account that predicts that there's else wrong with using (W) or (E) when we know all the facts.

the corresponding material conditional and conventionally implicate a high conditional credence in the consequent given the antecedent. And this further claim is essential to his proposal. It’s what allows him to avoid the “paradoxes of material implication”, where *if p, q* is true if p is false. According to Jackson, the corresponding indicative conditionals are true – but a speaker would never assert them unless she also had the right conditional credences.

This further (but essential!) claim prevents Jackson from explaining the data that interest us. Jackson faces a choice: do factive embeddings of indicatives also implicate high conditional credences? If they don’t, he faces immediate counterexamples. Then *I know that this coin will land heads if flipped, and I know that this coin will land tails if flipped* will express a truth whenever I know the coin won’t be flipped.<sup>19</sup> And if factive embeddings of indicatives *do* conventionally implicate high conditional credences, the §2.2 problem arises. Utterances of the factive embedding in (1) will conventionally implicate a pair of credences that are jointly inconsistent: a high credence in q conditional on p, and a high credence in  $\neg q$  conditional on p. So it’s hard to see how Jackson’s approach can be made to work, either.

In fact, we can take the lessons that I’m emphasizing one step further. Traditionalist contextualism about indicatives face a range of challenges. The Gibbard phenomenon is one of them. But another challenge starts with the claim that the probability of  $\ulcorner$ if p, then q $\urcorner$  is equal to the probability of p conditional on q. This claim looks pre-theoretically plausible. And David Lewis (1976) proved, roughly, that we can’t suppose that utterances of  $\ulcorner$ if p, then q $\urcorner$  expresses any proposition that satisfies this thesis. As a result, the plausibility of this conventional connection counts directly against traditional contextualist views, which do associate propositions with those utterances.<sup>20</sup>

The problem we’ve encountered in this section teaches us an important lesson about the force of this Lewisian challenge. There can’t be any strict conventional connection between indicatives and high conditional credences. Any strict connection would force the wrong predictions about the factive embeddings. To explain those embeddings, we need to allow that (W) and (E) can be compatible. And we’ve seen that it’s very hard to identify a conditional credence that corresponds to believing that they’re compatible.<sup>21</sup> Now this observation suggests only that we need to somehow weaken this conventional connection. Determining whether Lewis’ result still goes through on an appropriately weakened connection is a technically challenging question – but

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<sup>19</sup>If the coin won’t be flipped,  $\ulcorner$ the coin is flipped  $\supset$  p $\urcorner$  is true for all p. And on the present horn, those factive embeddings do *not* conventionally implicate a high conditional credence.

<sup>20</sup>And Nate Charlow (2016) has recently shown that this problem generalizes even to restrictor analyses of indicatives, like Kratzer’s.

<sup>21</sup>Might we restrict the Lewisian thesis only to unembedded occurrences? No. If we allowed that  $\ulcorner$ S knows that if p, then q $\urcorner$  doesn’t require a high credence in p conditional on q, we’ve already rejected Lewis’ conventional connection. Take a person who accepts  $\ulcorner$ S knows that if p, then q $\urcorner$  without the appropriate high credence. That person also has to accept  $\ulcorner$ if p, then q $\urcorner$ , since  $\ulcorner$ S knows that x $\urcorner$  is true only if x is true too. Then that person appropriately accepts  $\ulcorner$ if p, then q $\urcorner$  without having a high credence in p conditional on q, and we’ve rejected the Lewisian thesis.




it's not obvious that it does.<sup>22</sup>

### 3 Can anyone capture this data?

I've just issued a challenge to expressivist accounts of indicatives, and indeed to any account that links indicatives with conditional credences. An expressivist might respond aggressively. They might claim that *nobody* has an adequate account of data that I've just described. In a slogan: "my problem, but also your problem: so not my problem!" This aggressive response has a lot going for it. It *is* a mistake to dismiss a theory for not explaining data that nobody explains.

And in fact the Gibbard phenomenon is even more complicated than we've seen so far. We can change Bennett's case so that it's impossible for Wesla and Esther to both know their conditionals. Just suppose that all three gates can be up at once. There are four cases to consider. In the case where all gates were open, neither knows her conditional; if Top Gate opened, some of the water ran each way. The same is true if both gates were closed: then if Top Gate opened, the water didn't run either east or west. Now consider the case where the east gate was shut and the West open. Then Esther can't know her conditional; if the Top Gate opened, all the water ran *west*. Something similar is true if the east gate is open and the West shut – Wesla then can't know her conditional. So even before we know anything about the positions of the gates in this second context, we know that they both can't know.<sup>23</sup> This range of data is really puzzling! It's not clear how we should explain it. So maybe it's a mistake to reject expressivist accounts for not capturing it.

In fact, this response on behalf of the expressivist is even more compelling when we see how hard it is for traditionalists to capture the full range of data. I'll give two examples. J. R. G. Williams (2008) has suggested that Bennett's indicatives are vacuously true, because indicatives are vacuously true whenever what's taken for granted entails that the indicative's antecedent is false.<sup>24</sup>

To evaluate the idea, we need some way of modeling our ability to update from what Wesla and Esther have said. As a first pass, I will explore what happens if the update proceeds as if Wesla and Esther had asserted propositions about the body of information shared between me the hearer, Wesla, and Esther. I'll model the effect of updating with a set of possible worlds – the worlds compatible with what is taken for granted in the conversation. For example, '()' will be the set of worlds where all three gates are closed. So

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<sup>22</sup>For example, Daniel Rothschild (2013) develops one way of weakening the connection where Lewis' result doesn't hold.

<sup>23</sup>There may be ways of recreating the Gibbard phenomenon: other stipulations that allow Wesla and Esther's conditionals to be compatible again. That fact doesn't change the present point. The point is that there are some cases where the indicatives are intuitively *incompatible*, and I can defend this point by stipulating away whatever features you try to add.

<sup>24</sup>His account builds from Stalnaker's account of indicatives, but I simplify the discussion by pretending that Williams is discussing a version of Kratzer's account, rather than Stalnaker's account, for continuity with the rest of the paper.

the following context represents what’s common ground in Bennett’s original case, where only two gates can open at once, before we hear from anyone.

$$C_{\text{Initial}} = \{(\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e})\}$$

The central problem for Williams is to explain how we use indicatives to update from this context set. The natural idea would be that the most similar worlds to some arbitrary world  $w$  are worlds where the lower gates are in the same positions as they are in  $w$ . Updating with Wesla’s uttering (W) then will produce this context set.

$$C_{\text{After(W)}} = \{(\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e})\}$$

Now suppose that Esther texts us (E). The proposition expressed is *false* at every world in the context set. It is not vacuously true, because there are worlds in the context set where Top Gate opened – and all the worlds where Top Gate does open are worlds where all the water went westwards, not eastwards.<sup>25</sup>

Even worse, the natural idea that we’ve just considered does deliver exactly the right result about the other case, where all three gates can open at once. To represent this possibility, we extend the initial context set to include worlds where all three gates open at once.

$$\{(\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e})\}$$

When Wesla texts us (W), we eliminate all the worlds we eliminated in the first kind of context. But we also eliminate  $(\text{v}\text{w}\text{e})$  and  $(\text{v}\text{w}\text{e})$  worlds, because some water goes both ways at those worlds if Top Gate opens.

$$C_{\text{After(W)}} = \{(\text{v}\text{w}\text{e}), (\text{v}\text{w}\text{e})\}$$

It’s again true that (E) is false at every world in the context set. But that’s the right result, here: the indicatives are intuitively *incompatible*. Williams has to choose between getting the original case right and getting the second case right. He can’t do both.<sup>26</sup>

<sup>25</sup>It’s standard to take indicatives to carry a presupposition – that an assertive utterance of ‘if p, q’ in a context C presupposes that p is compatible with what’s taken for granted’. (Karttunen and Peters offer an early statement of this kind of view (Karttunen and Peters 1979, 10); Kai von Stechow (1996) gives a more modern treatment. Williams can’t appeal to this presupposition to help himself out of the present problem. The presupposition is satisfied at every point before we update with the two indicatives.

<sup>26</sup>Here’s another way to make this point. Williams suggests that “the conversational effects of asserting an indicative conditional with the truth-conditions suggested earlier are the same as those described for the material conditional” (Williams 2008, 215n10). This suggestion correctly predicts that (W) and (E) are compatible in the original context, but it mistakenly predicts that they are compatible in the modified context, too.

More generally, we want to explain how (W) and (E) can be *compatible* in the first context but *incompatible* in the second. Williams’ appeal to vacuous truth doesn’t do that. So the expressivist can continue to insist that Williams hasn’t given us an adequate account of the Gibbard phenomenon. As a result, she can continue insisting that her own difficulties with the data aren’t evidence against her.

Let’s now turn to another traditionalist idea. The idea is that the updating runs through metalinguistic reasoning about the assertability conditions of the two sentences. The two conditionals are assertable just in case the evidence available to Wesla and Esther warrants each of their assertions. And the person who hears their assertions can reason about the sort of evidence that they have, presumably that both gates were open. As a result, the hearer can infer that both gates were open, and that Top Gate didn’t open. Angelika Kratzer has suggested just that, about this puzzle.<sup>27</sup>

This suggestion won’t work. No inference about Wesla and Esther’s evidence can explain the difference between the two contexts. Stipulate that Wesla and Esther have only testimonial evidence for their beliefs in both cases. Jane has told Wesla (W), and James has told Esther (E).<sup>28</sup> Crucially, you and I aren’t aware of any differences between Wesla’s evidence in the two cases; we only know that three gates can open in the modified case, and only two in the original case. Since you and I aren’t aware of differences in Wesla’s evidence, inferences about her evidence can’t explain why we think (W) and (E) compatible in one case and incompatible in the other.<sup>29</sup>

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$\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate})\}$   
 After Asserting (W):  $\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate})\}$   
 After Asserting (E):  $\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate})\}$

MODIFIED CONTEXT, ALL THREE GATES CAN OPEN AT ONCE  
 $\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate})\}$   
 After Asserting (W):  $\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate})\}$   
 After Asserting (E):  $\{(\text{Top Gate}), (\text{Bottom Gate}), (\text{Top Gate}), (\text{Bottom Gate})\}$

Williams wrongly predicts that (W) and (E) are *compatible* in the modified context.

<sup>27</sup>She proposes that the Gibbard phenomenon is a case where “discourse participants can extract the information they are after under the presumption that assertability conditions are satisfied” (Kratzer 2012, 121).

<sup>28</sup>I could also stipulate that Wesla and Esther are ignorant about the construction of the gates; only you and I know those facts. That stipulation won’t affect our intuitions about the compatibility of their conditionals. Your account of this difference shouldn’t assume that Wesla and Esther know how the gates work.

<sup>29</sup>Now Kratzer may insist that the two bits of evidence are different in the two cases: in the original case, the bit of evidence concerns Jane’s information about the original set-up; in the modified case, it concerns Jane’s information about the modified set-up. The indirect speech reports express different propositions, and so constitute different evidence. That suggestion doesn’t change the point I’m making. You and I aren’t in a position to know the difference between Jane’s information – her evidence could be testimonial, too! So this Kratzerian suggestion entails that the

The same problem afflicts other contextualist suggestions. Another contextualist might appeal to Stalnakerian diagonalization, suggesting that (W) and (E) communicate different diagonalized propositions in the original context than in the modified context. The diagonalized propositions need to be different between the two contexts, because the propositions believed are incompatible in the modified context but compatible in the original one. But we need a constructive account of what those propositions are, and how they come to be communicated.

Up to this point, the expressivist can reasonably remain unperturbed. Nobody seems to have an adequate account of this data.

## 4 A presuppositional proposal

I now introduce my own constructive account of this data. This constructive account answers the challenge from the last section: it explains how to capture all the facts about the Gibbard phenomenon.

I'll develop this explanation in a contextualist framework, to show that the contextualist does have a perfectly adequate account of the Gibbard phenomenon. But my explanation is in principle available to non-contextualists as well. Importantly, though, it's not available to expressivists. If it's right, expressivism about indicatives has to be wrong.

### 4.1 The basic idea

I propose that utterances of indicatives carry more *presuppositions* in the original context than they do in the modified case. In particular, I propose that an utterance of (W) in the original context carries a new conditional presupposition about the east gate; something similar for (E).

(W) If Top Gate opened, all the water ran westwards.

presupposes that

Top Gate opened  $\supset$  the *east* gate was closed

(E) If Top Gate opened, all the water ran eastwards.

presupposes that

Top Gate opened  $\supset$  the *west* gate was closed

I'll present my idea in two parts. The first part will show that we can explain the difference between the original context and the modified context *if* utterances of (W) and (E) carry these presuppositions in the original context but not in the modified one. The second part will show that the utterances do plausibly carry different presuppositions in the two contexts.

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only evidence that any of us have in this case is metalinguistic evidence: that Jane's evidence warrants Jane's assenting to the sentence *all the water ran westward if Top Gate opened*. But that bit of metalinguistic evidence is exactly the same in the two cases. .

Let's start with the difference that these presuppositions would make. In the original context, where only two gates can open at once, the following context set represents ignorance of the positions of the gates.

$$\{(\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f})\}$$

Suppose that Wesla texts us (W). The first thing we do is accommodate the presupposition of the utterance, which means eliminating  $\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}$ -worlds.<sup>30</sup>

$$\text{CAfterAccom} = \{(\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f})\}$$

Then we eliminate worlds where the proposition (W) asserts is false.<sup>31</sup>

$$\text{CAfter(W)} = \{(\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f})\}$$

Now suppose that Wesla texts us (E). The first thing we do is accommodate the presupposition of the utterance, which means eliminating  $\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f}$ -worlds.

$$\text{CAfterAccom} = \{(\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f})\}$$

Updating with the proposition that (E) asserts then has no effect, because that proposition is vacuously true. That's why we hear these indicatives as intuitively compatible.

It's worth being clear about the reason why this proposal works for a contextualist. Remember that a contextualist takes indicatives to communicate propositions about bodies of information. My idea is that the presuppositions are shifting what propositions we hearers interpret the utterance as communicating. To illustrate this effect, think of the body of information that's been updated with Wesla's information. We can take Esther's utterance to communicate a proposition about what's common ground for us, or we can take it to communicate something about what's common ground, *plus* the presupposition of her utterance. So the proposition we interpret the utterance as communicating can be about two different modal bases:

Body of information *not* updated with the presupposition:

$$\{(\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \square \\ \blacksquare \end{smallmatrix} \text{f})\}$$

Body of information *updated* with the presupposition:

$$\{(\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \square \end{smallmatrix} \text{f}), (\text{w} \begin{smallmatrix} \blacksquare \\ \blacksquare \end{smallmatrix} \text{f})\}$$

<sup>30</sup>Accommodation is in fact controversial. (For helpful discussion, see Mandy Simons et al. (2011), Kai von Stechow (2008), and Christopher Gauker (2008).) My explanation does not crucially depend on presuppositions being accommodated. What matters essentially is that we update with the presupposed content before we update with the asserted content, and alternative frameworks vindicate that essential point.

<sup>31</sup>I'm again assuming that the position of the lower gates are what matters for similarity – that the most similar worlds to  $w$  where Top Gate opened are worlds where the lower gates are in the same position they are in  $w$ .

If (E) communicates a proposition about the second body of information, it is vacuously true. That is how the presupposition makes a difference: it shifts what proposition we interpret the utterance as communicating, so that the proposition communicated can be vacuously true. And if this presupposition had been absent, the proposition (E) communicates couldn't be vacuously true.

Now let's shift to the modified context, where all three gates can open at once. I claim that my new presuppositions are *absent* in that context. If they are, the indicatives are *incompatible*. Trying to update with both indicatives goes as follows.

$$\begin{aligned} & \{(\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{W} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{W} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{W} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array})\} \\ & \text{CAfterAccepting(W)} = \{(\text{w} \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}), (\text{w} \begin{array}{|c|} \hline \text{W} \\ \hline \end{array})\} \\ & \text{CAfterAccepting(W)and(E)} = \{ \} \end{aligned}$$

Neither (E) nor (W) are vacuously true at any point. The context always includes some world where Top Gate opens. So (E) isn't vacuously true after we've updated with (W). It's false at every world where Top Gate opens. That's the reason why we hear (W) and (E) as inconsistent in the second context. There's no consistent way to update with both of them.

We've just seen that *if* the presupposition differs between these two cases, then we can also predict a difference in the compatibility of the conditionals in the two cases. The next section will argue that the two utterances *do* plausibly carry different presuppositions in the two contexts.

## 4.2 Explaining the presupposition

To show that some utterance  $u$  presupposes  $p$ , we need to first explain why the utterance is *associated* with  $p$ . That is, we need to explain why we interpret someone who makes that utterance as accepting  $p$ . I will call this the ASSOCIATION question. The answer to the ASSOCIATION question is sometimes semantic.  $p$  might be part of the content that  $u$  semantically expresses.<sup>32</sup> In other cases, the answer is pragmatic.  $p$  might be a conversational implicature of the assertive utterance  $u$ .<sup>33</sup>

However, answering the ASSOCIATION question isn't enough to show that an utterance  $u$  presupposes  $p$ . Presuppositions are distinctive because speaker-hearers interpret them as not the main point of the utterance, as backgrounded and not-at-issue. So to show that  $u$  presupposes  $p$ , we also need to explain why  $p$  is interpreted as backgrounded, not-at-issue content. I'll call this the BACKGROUNDING question. Foundational theories of presupposition aim at answering this question. For example, Stalnaker has developed an approach to

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<sup>32</sup>Think of the difference in presupposition between an utterance of *John started dancing* and an utterance of *John continued dancing*.

<sup>33</sup>Utterances with universally quantified expressions like *every F is G* presuppose that there are some Fs. The answer to the ASSOCIATION question in this case is plausibly pragmatic: that the utterance is not cooperative unless the speaker accepts that there are some Fs.

presupposition that answers the BACKGROUNDING question by appeal to the way that rational hearers would interpret what the speaker is doing.<sup>34</sup>

I'm proposing that utterances of (W) carry a presupposition about the position of the east gate, in the original context.

(W) If Top Gate opened, all the water ran westwards.

presupposes that

(P) Top Gate opened  $\supset$  the east gate was closed

Let's start with the ASSOCIATION question: why is (W) associated with (P)? The answer is that (P) is an obvious a priori consequence of (W), given the propositions that are common ground. Given what's common ground, only two gates can be open at once. If the water ran westwards, Top Gate and west gate were both open. So if Top Gate opened, the east gate was closed. That's why (P) is associated with (W).<sup>35</sup>

This answer to the ASSOCIATION question should be uncontroversial. Compare a Russellian account of definite descriptions, where *the F is G* semantically expresses that there is a unique F which is also G. Utterances of *the F is G* presuppose and don't just assert that there is a unique F.<sup>36</sup> The Russellian answer to the ASSOCIATION question is that the proposition that there is a unique F is an obvious apriori consequence of the proposition expressed. And that's the same answer that I'm giving. My answer to the ASSOCIATION question has the same structure as the Russellian's answer.

I'll now argue that (P) (that Top Gate opened  $\supset$  the east gate was closed) is a presupposition of uses of (W) – a backgrounded, not-at-issue commitment. My argument starts by observing that the point of using (W) is to communicate that there's a connection between Top Gate's opening and all the water running westwards. The connection holds because every way of extending the state of affairs where the west gate is closed to also be a state of affairs where Top Gate opens is a state of affairs where all the water runs westwards. And, crucially, the *east* gate's being open doesn't in itself threaten that connection. The connection is totally grounded in the construction of the gate system and

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<sup>34</sup>Stalnaker (1973, 1974, 1998, 2002).

<sup>35</sup>My answer to the ASSOCIATION question makes a plausible if substantive assumption. It assumes that presuppositions don't need to be met in order for the sentence to have a truth-value. (Since the presupposition is an apriori consequence of the proposition asserted, the proposition asserted is false if the presupposition is.) Though my assumption is substantive, it is highly plausible. It's the assumption to make when you recognize that presuppositions can have a wide variety of sources, and that presuppositions can have other sources than the need to avoid truth-value gaps. See p. 452 of Stalnaker (1973) and pp. 86–91 of Soames (2009) for particularly clear discussions.

<sup>36</sup>David Beaver's taxonomy of presupposition triggers starts with definite descriptions and a reference to the relevant literature (Beaver 2001, 10), and John Hawthorne and David Manley have a helpful discussion of the pressures in favor of treating the existential claim as a presupposition – see §5.6 of their (2012); see especially 193n97.

the west gate's being open. Now the east gate's being open does trivialize the connection. (It guarantees that Top Gate won't open.) But trivial connections are still connections.

I then claim that no cooperative speaker can use (W) intending to thereby assert something about the **east** gate. A cooperative speaker who asserts (W) is intending to assert a connection between Top Gate's opening and all the water running westwards. And the position of the east gate doesn't bear on that connection. That connection can hold if the east gate is open, and it can hold if the east gate is closed. Since (P) is a proposition about the position of the east gate, no cooperative speaker can intend to assert it by using (W).

That's my answer to the BACKGROUNDING question. (P) is a presupposition of uses of (W) because no cooperative speaker could use (W) to assert (P). Commitments of an utterance that aren't asserted are presupposed – and (P) is a commitment of uses of (W).

Go back to the comparison with the Russellian account of definites. Those Russellians hold that uses of  $\ulcorner$ the F $\urcorner$  are associated with the commitment that something is F. And they explain why that commitment isn't asserted, thereby explaining why it is presupposed. In doing that, they're making the same inference that I'm making, and are assuming that the speech act of assertion contrasts with the speech act of presupposing.<sup>37</sup> That's what I've just done, too.

Now turn to the modified context, where all three gates can open at once. I claim that (P) is *not* a presupposition of uses of (W) in that context. The difference is that in the modified context, the east gate's being open *does* threaten the connection that (W) expresses. The connection can't be totally grounded in the construction of the gate system and the west gate being open. In that context, the west gate being open doesn't combine with the Top Gate being open to guarantee that the east gate is shut – the construction of the gate system allows all three to be open. So in the modified context, the east gate's being open doesn't trivialize the connection. It undermines it. As a result, a cooperative speaker who uses (W) in the modified context *does* intend to assert something about the position of the east gate. She intends to eliminate possibilities where it's open. Since presupposing contrasts with asserting, (P) is not a presupposition of uses of (W) in the modified context.

This result is very encouraging. We've already seen that (W) and (E) would be compatible in one context and incompatible in another if they carry different presuppositions in the two contexts. And we've just seen why they would carry different presuppositions.

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<sup>37</sup>This assumption is common ground in an otherwise heterogenous range of frameworks, like those of Barbara Abbott (2000), Dorit Abusch (2010), Marta Abrusán (2011), David Beaver (2001), Bart Geurts (1999), Irene Heim (1982, 1983), Daniel Rothschild (2011), Philippe Schlenker (2010), Mandy Simons (2001), Mandy Simons et al. (2010), Robert Stalnaker (1973, 1974, 1998, 2002), Rob van der Sandt (1992), and Deirdre Wilson and Dan Sperber (1979).



## 5 Generalizations

I do not offer a material-conditional semantics for the indicative conditional. Let me repeat that. I do not offer a material-conditional semantics for the indicative conditional. In fact, it's essential for my explanatory ambitions that I do not. If I did, I would predict compatibility between the indicatives in the context where all three gates are open. I'm instead assuming a semantics like that offered by Kratzer (1986) or Stalnaker (1975).

Moreover, I *agree* with the orthodox view that the utterance of an indicative usually presupposes that the antecedent might be true.<sup>38</sup> And I think that presupposition is accommodated when it's present, guaranteeing that the indicative is not vacuously true. But I deny that an utterance of an indicative *always* carries the orthodox presupposition. In particular, I deny that the utterances carries that presupposition in the special contexts where it carries the presupposition introduced in §4.<sup>39</sup> That's why indicatives can be vacuously true in certain special contexts, but only in certain special ones.

One of my goals in this paper is to develop a semantics and pragmatics for indicatives that illuminates when conditional proof can extend knowledge. §1 noted that (W) and (E) have to be compatible in the original context if conditional proof can extend knowledge. But §2 noted the *modified* context is different. In that context, it's impossible for Wesla and Esther to both find conditional proofs of their indicatives from propositions they know.<sup>40</sup> Crucially, though, we know those facts in virtue of our linguistic competence: in virtue of knowing that their indicatives are incompatible in the modified context but compatible in the original context.

My proposal captures this fact. And it captures it *as* a fact about our linguistic competence, rather than knowledge about the inner workings of conditional proof in the two contexts. That is as it should be. We don't have to consider each possible proof of (W) and (E) to know when they're compatible or incompatible. Thinking carefully about the structure of the context is enough. Since my presuppositional account explains why, it looks like it's on the right track.

This section explores if my account will work more generally.

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<sup>38</sup>Karttunen and Peters offer an early statement of this kind of view (Karttunen and Peters 1979, 10); Kai von Fintel (1996) gives a more modern treatment.

<sup>39</sup>I develop my account in more detail elsewhere (Perl (ms)), explaining why my new presupposition would “trump” the orthodox one.

<sup>40</sup>To recall the point from earlier: there are four cases to consider. In the case where all gates were open, neither knows her indicative; some of the water ran each way if Top Gate opened. The same is true if both gates were closed – the water didn't run either east or west. Now consider the case where the east gate was shut and the West open. Then Esther can't know her conditional; opening the Top Gate means that all the water ran *west*. Something similar is true if the east gate is open and the West shut – Wesla then can't know her conditional.

## 5.1 A general recipe

Here's a more general recipe for constructing cases like Gibbard's. Start with three possibilities: A, B, and C, and suppose that exactly one of the three will happen. (Imagine, for concreteness, that A is the possibility where Andrea killed somebody, B the possibility where Billy did, and C the possibility where Candice did.) To complete the recipe, suppose that one speaker knows that B didn't happen, and the other knows that C didn't happen.<sup>41</sup> I take it that the first speaker can know that if A didn't happen, C happened, and that the second speaker can know that if A didn't happen, B happened.

In order for my proposal to capture this kind of case, (utterances of) the indicatives would have to carry the following presuppositions.

- (4) if A didn't happen, B happened  
presupposes that A didn't happen  $\supset$  C didn't happen.
- (5) if A didn't happen, C happened  
presupposes that A didn't happen  $\supset$  B didn't happen

For example, an utterance of *if Andrea didn't do it, Billy did* would need to presuppose that if Andrea didn't do it, Candice didn't do it either. The indicatives would be vacuously true if they carried these presuppositions.

When does my presupposition arise, in general? My presupposition arises when there are *compatible* states of affairs that would each ground connections between a common antecedent and *incompatible* consequents.

**General Proposal:** an utterance with the form *if  $P_0$  is true, then  $P_1$  is true* presupposes that  $P_0$  is true  $\supset$   $P_2$  isn't true

- if  $P_1$  and  $P_2$  are incompatible,
- if there are states of affairs  $A_1$  and  $A_2$  that can both happen,
- if  $A_1$  would ground a connection between the proposition  $P_0$  and the proposition  $P_1$ , and
- if  $A_2$  would ground a connection between the proposition  $P_0$  and the proposition  $P_2$ ,

This proposal captures Bennett's example.

- $P_0$  = Top Gate opened
- $P_1$  = all the water ran westwards  
 $A_1$  = the west gate was open, and one or neither of the Top or east gates were open,
- $P_2$  = all the water ran eastwards  
 $A_2$  = the east gate was open, and one or neither of the Top or west gates were open.

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<sup>41</sup>This general recipe comes from a discussion by Dorothy Edgington (1997) – see especially p. 107.

$A_1$  and  $A_2$  could both happen. (Suppose that the east and west gates were both open.) At the same time, though, they ground incompatible connections.  $P_1$  and  $P_2$  are inconsistent. But  $A_1$  would ground a connection between  $P_0$  and  $P_1$ , and  $A_2$  would ground a connection between  $P_0$  and  $P_2$ .

Moreover, this Proposal has the right structure to capture the case where exactly one of Andrea, Billy, or Candice did it. In that case, we know that exactly one of them did it. So the state of affairs where *Billy* didn't do it would ground a connection between Andrea not doing it and Candice doing it. And the state of affairs where *Candice* didn't do it would ground a connection between Andrea not doing it and Billy doing it.<sup>42</sup> At the same time, though, both those states of affairs could happen. (Imagine that Andrea did it.) The Proposal makes the right predictions about this case, too.

My Proposal also makes the right prediction about the modified context, where all three gates can open at once. There are four relevant states of affairs: where no gates were open, where they were all open, where only the east gate was shut, and where only the west gate was shut. Only the last two states of affairs can ground a connection between Top Gate opening and all the water running in the same direction. Importantly, though, those last two states of affairs *cannot* both happen. If the first one happens, the east gate is shut, and if the second one happens, the east gate is open. And my proposal is only a claim about the cases where *compatible* states of affairs would ground incompatible connections. In this case, then, we would expect my new presupposition to be absent. And that's just what we need for the indicatives to be *incompatible* in this modified context.

Most importantly of all, this Proposal fits the pragmatic reasoning sketched earlier. Take a context that satisfies the Proposal's antecedent. Then there's a state of affairs  $A_1$  that grounds a connection between  $P_0$  and  $P_1$ , and another state of affairs  $A_2$  that grounds a connection between  $P_0$  and  $P_2$ , where  $P_1$  and  $P_2$  are incompatible. Since we're supposing that this case fits my proposal,  $A_1$  and  $A_2$  could both happen. So  $A_2$ 's happening doesn't itself threaten the connection between  $P_0$  and  $P_1$ . As a result, someone who intends to assert a connection between  $P_0$  and  $P_1$  doesn't intend to assert something about  $A_2$  or about  $P_2$ , since that state of affairs doesn't threaten the connection that she's intending to assert. However, the proposition that if  $P_0$  is true, then  $P_2$  isn't true an obvious apriori consequence of what she intends to assert. That's why that proposition will be presupposed: it can't be part of what she intends to assert.

It's crucially for this line of reasoning that the two states of affairs can both happen. That's why  $A_2$  happening doesn't threaten the connection that's grounded in  $A_1$ 's happening. So the cases where the relevant states of affairs *can't* both happen are cases where the pragmatic reasoning doesn't go through. And that's the fundamental reason why we hear (W) and (E) as incompatible in the modified context, but compatible in the original one.

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<sup>42</sup>Now talk about what the state of affairs would ground these connections is importantly elliptical. I mean what it would ground *in combination with* the facts that are common ground, like the fact that exactly one of Andrea, Billy, or Candice did it.

## 5.2 Structural features of my account

I've done two things in explaining Gibbard's case. I've suggested that indicatives carry an unappreciated presupposition that allows indicatives to be vacuously true. I've also sketched a constructive explanation of why the indicatives would carry an unappreciated presupposition in these cases.

I'm more confident in positing the new presupposition than in my constructive explanation of where it comes from. I intend the constructive explanation more as a proof of concept than as the last word.

After all, there is better evidence for my new presupposition than for my constructive explanation of it. We've seen that (W) and (E) can be compatible in one context but incompatible in another. The best explanation of this difference is that they can be vacuously true in one context but not in the other. To make good on this explanation, though, we need some account of when indicatives can be vacuously true. And the only way to do that is to posit a mechanism that modulates the context set *before* we update with the indicative.<sup>43</sup> And presuppositions are just the right mechanism to modulate the context set in that way.<sup>44</sup>

There is also direct evidence that indicatives do carry just the presupposition that I posit. One hallmark of presuppositions is that they *project* from embeddings. For example, if S presuppose p, then utterances of 'Maybe S' also tend to presuppose p. And there are certain facts that be explained only by positing my presupposition and taking it to project.

(6) ?? The East Gate was open, but maybe if Top Gate opened,  
all the water ran westwards.

The two conjuncts in (6) can be compatible. That was the point of §1: Wesla can know her conditional even while the east gate was open.<sup>45</sup> So we can't say that (6) is infelicitous because it always expresses something false.

Now this observation isn't enough by itself to show that we need to posit my presupposition. Theorists about indicatives tend to hold that indicatives presuppose that their antecedent might be true.<sup>46</sup> Will that presupposition make the conjuncts in (6) incompatible? No. Even if there's a possibility where east gate was open and Top Gate open, there's another possibility where Top Gate was shut and east gate open. And that other possibility is a possibility

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<sup>43</sup>That was the upshot of the discussion of Williams' proposal, in §3.

<sup>44</sup>This point is even more compelling when we recognize that normal assertive utterances of 'if p, q' presuppose that p might be true. (Karttunen and Peters offer an early statement of this kind of view (Karttunen and Peters 1979, 10); Kai von Fintel (1996) gives a more modern treatment.) If we think that a presupposition can sometimes *expand* the context set to prevent indicatives from being vacuously true, it would be unsurprising if another presupposition can *contract* the context set.

<sup>45</sup>I assume that if 'Wesla knows that s' and 'Wesla believes that maybe s' are both true, 'Wesla knows that maybe s' is true too. This principle may need still further refinement - maybe, for example, it only holds when Wesla has inferred 'maybe s' from s. I don't think those refinements will affect the present point.

<sup>46</sup>Lauri Karttunen and Stanley Peters (1979), Kai von Fintel (1996).

where Wesla’s conditional is vacuously true. And the second conjunct in (6) only requires there to be *some* such possibility.

Crucially, though, we *can* explain (6)’s infelicity if my presupposition projects. If it projects, an utterance of (6) communicates four propositions: (i) that the east gate was open, (ii) Top Gate might have opened, (iii) Top Gate opened  $\supset$  the east gate was shut, and (iv) maybe if Top Gate opened, all the water ran westwards. (ii) and (iii) are presuppositions, and (i) and (iv) are what’s semantically expressed. (i), (ii), and (iii) are jointly inconsistent. If there’s a possibility where Top Gate opened, as (ii) requires, (iii) guarantees that that’s a possibility where the east gate was shut, which contradicts (iii).

As a result, we *have* to posit just the sort of presupposition that I posit.<sup>47</sup> So if we find counterexamples to my constructive explanation of the presupposition, we should just look for some other account that does better.

## 6 Philosophical upshots

I’ve presented my presuppositional proposal schematically, without filling in lots of important details. My overarching goal here is to establish the philosophical significance of the proposal, showing how a range of philosophical questions look different if anything like it is right.

For one thing, my presuppositional proposal is the best way to allow that conditional proof can systematically extend knowledge. The epistemology of indicatives is simpler and cleaner if it’s right.

My proposal also is evidence against expressivist accounts of indicatives. So it’s helpful to see this paper as offering two different arguments against expressivist accounts of indicatives. One is that we have to acknowledge that Wesla and Esther can both know their indicatives in the original contexts, and that expressivists can’t acknowledge that they can. This argument does not rest on any constructive account of the semantics and pragmatics of indicatives. It rests on our pre-theoretical conviction that Wesla and Esther do both know their conditionals, or the claim that conditional proof can extend knowledge, or on the knowledge norm of assertion.

§§4–5 have been tacitly making *another* argument against expressivist accounts of indicatives. I’ve argued for my presuppositional proposal as the best way to capture the difference between Bennett’s original context, where Wesla

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<sup>47</sup>Unfortunately, my presupposition doesn’t quite display as robust projection behavior as some central presupposition triggers.

The cases where my presupposition doesn’t project should be explained by supposing that features of the context can cancel embedded presuppositions – those features can prevent the presupposition from projecting. Robert Stalnaker (1974) influentially unified a range of otherwise difficult data by supposing that the feature can have this effect, and Scott Soames (2009) notes important further points about this phenomenon. Dorit Abusch (2010) has an especially helpful recent discussion of these points. She emphasizes differences between different triggers, and notes that it is easier to cancel some kinds of presuppositions than others. She suggests that the explanation of the presupposition is what determines how easy it is to cancel them. Importantly, the broadly Gricean explanation I’ve given of my new presupposition is exactly the sort of thing that we would expect to be easier to cancel.

and Esther can both know their indicatives, and the modified context, where they can't. And we saw back in §1 that expressivists struggle to make sense of vacuously true indicatives. Since my presuppositional proposal makes essential use of vacuously true indicatives, I conclude that it's off-limits for expressivists. Similar points generalize elsewhere. For example, allowing for vacuously true indicatives is also incompatible with any strict connection between indicatives and conditional credences – the sort of strict connection that David Lewis (1976) exploits.

I've also shown how orthodox contextualists can explain the Gibbard phenomenon. In fact, though, dynamic theorists like Malte Willer (2013, 2014) can also accept my presuppositional account.<sup>48</sup> Now those dynamic theorists can also offer the same semantic clauses as expressivists offer; they'll just interpret them differently. (Sarah Moss (2017) is helpfully explicit about this point.<sup>49</sup>) So my problem isn't a problem about the expressivist's semantic clauses. It's with her interpreting them as expressing conditional credences, rather than context change potentials. More generally, vacuously true indicatives are an interesting and novel way of testing different foundational claims about semantics. For example, it would be interesting to explore if relativists like John MacFarlane and Niko Kolodny (2010) can also make sense of vacuously true indicatives.

My proposal also gives us an exciting new tool for exploring other topics, like Vann McGee's purported counterexample to *modus ponens*.

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:

- (7) If a Republican wins the election, then if it's not Reagan who wins it will be Anderson.
- (8) A Republican will win the election.

Yet they did not have reason to believe

- (9) If it's not Reagan who wins, it will be Anderson.  
(McGee 1985, 462)

We tend to reject (9), and McGee interprets that rejection as showing that (9) is *false*.<sup>50</sup> But given my presuppositional proposal, (9) might be vacuously true, but odd for other reasons. After all, we can attribute knowledge of (9). If you don't know the amount of support for the different candidates, but only

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<sup>48</sup>In fact, my approach may look even more natural in a dynamic framework than in a contextualist framework.

<sup>49</sup>See Mark Schroeder (2015c) for further discussion of the differences between these interpretations.

<sup>50</sup>MacFarlane and Kolodny (2010) go even further, and argued that this example is evidence in favor of their relativist approach.

that some Republican will win, it seems like you can know that (9) is true. And if you do know it, McGee wouldn't have found a counterexample to *modus ponens*, after all.

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