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Defending Truth Values for Indicative Conditionals

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Abstract: There is strong disagreement about whether indicative conditionals have truth values. In this paper, I present a new argument for the conclusion that indicative conditionals have truth values based on the claim that some true statements entail indicative conditionals. I then address four arguments that conclude that indicative conditionals lack truth values, showing them to be inadequate. Finally, I present further benefits to having a worldly view of conditionals, which supports the assignment of truth values to indicative conditionals. I conclude that certain types of account of indicative conditionals, which have been ignored in the literature partly on the basis of assigning truth values to indicative conditionals, deserve consideration.

key words: indicative conditionals, truth values, language, probability

Disagreement about the correct account of indicative conditionals involves disagreement about whether or not indicative conditionals[1] have truth values.[2] Much of the positive case in favor of truth values for indicative conditionals relies on use.[3] For example, we seem to assert, deny, and defend conditionals, and those are speech acts that suggest truth values. We use conditionals in classical logic, which involves only truth-valued statements. We embed conditionals in logical

[1] I confine my discussion to indicative conditionals, as distinguished grammatically from subjunctive conditionals. For my purposes here, subjunctive conditionals contain the helping words 'have', 'has', 'had', 'were' + infinitive, or 'would'. Though some argue that this grammatical distinction fits ill with certain data (see, for example, Dudman (1983), Bennett (1988), and Edgington (1995)), many continue to employ the distinction along grammatical lines. For readability, I will sometimes omit 'indicative'.
[2] For simplicity, I assume throughout that true and false are the only truth values, but nothing in this paper depends on this assumption. The conclusion that some indicative conditionals are true and some are false does not rule out the possibility that some are neither.
[3] See, for example, Pendlebury (1989), p. 184, and Mackie (1973), p. 105.

constructions in which one can embed only truth-valued statements. Call these collectively, and any like examples, the Argument from Use. The Argument from Use is, to an extent, compelling. Across the board, speakers treat indicative conditionals as truth-valued, and this use presents a strong presumption in favor of truth values. Yet this argument is limited. A strong presumption remains just that: a presumption. What is missing is not more evidence about how people use conditionals or more arguments based on their use; what is missing is an argument that demonstrates that conditionals have truth values. Here's one.

The Entailment Argument

1. By definition, any sentence entailed by a true sentence is true.
2. There are some true sentences that entail indicative conditionals.
3. So, there are some true indicative conditionals.

In this paper, I first provide support for the Entailment Argument, discuss two related pieces of support for truth values, and discuss and respond to potential objections (section 1). Then, I respond to four non-truth-value arguments—that is, four arguments that seek to demonstrate that indicative conditionals lack truth values (section 2). Finally, I discuss the link between an account's ascribing truth values to indicative conditionals and its being rooted in the extra-mental world and explore some of the benefits of the kind of account that has both these features (section 3).

1 Support for the Entailment Argument

Here are some examples in support of premise two. Suppose that (1) is true.

(1) All the nuts in the jar are almonds.

(1) entails (2).

(2) If I select a nut from the jar, I will select an almond.

If this entailment holds, then there is at least one true indicative conditional. There are other supporting examples that do not fit the above type.[4] (3) below entails (4), and (5) entails (6).

> (3) No prime number is divisible by a number other than one and itself.
> (4) If x is a prime number, then x is not evenly divisible by a number other than one and itself.
>
> (5) A entails B.
> (6) If A, then B.

Laws of nature may provide examples as well, though these examples turn out to be somewhat problematic. In what follows, I leave the reader to fill in any necessary details of the scenarios in which the indicative conditionals are evaluated.

> (7) A decrease in volume in a closed system leads to an increase in the pressure of a gas.

(7), in the proper context, entails (8a), (8b), and (8c).

> (8a) If I decrease the volume of this closed bottle by squeezing it, the air pressure inside will increase.
> (8b) If I am decreasing the volume of this closed bottle by squeezing it, the air pressure inside is increasing.
> (8c) If I decreased the volume of this closed bottle by squeezing it, the air pressure inside increased.

Once the appropriate background conditions are in place, the above examples seem to be of conditionals entailed by laws of nature or universal generalizations. Even though (7) may turn out not to be a law of nature, it is possible that a true and complete physics would generate examples that are similar in kind. Here, I will briefly mention a problem for this kind of example and a somewhat unsatisfactory response. The problem is that, assuming that miracles are logically possible, examples such as these may not be instances of logical entailment.[5] Perhaps God could teleport some of the molecules of air from inside the bottle to prevent the increase in pressure or annihilate those molecules altogether. It is also logically possible that something besides God could interfere.

[4] Thanks to a reviewer at *Philosophical Studies* for suggesting examples similar to the following.
[5] Thanks to a reviewer at *Philosophical Studies* for making this point.

Perhaps a wormhole could open up in the bottle, syphoning off molecules without rendering (7) false. The unlikelihood of such interference is irrelevant; if interference that keeps the conditional from being true is possible, it blocks the entailment. One way to respond to this concern is to add non-interference-type clauses to the antecedent of the conditional, as in (8a').

> (8a') If I decrease the volume of this closed bottle by squeezing it and [no miracle occurs, nothing prevents the natural course of physical events, etc.], the air pressure inside will increase.

This is at best a hand-wavy solution, since we have no clear way of ruling out all unlikely-but-possible interference scenarios without invoking a metaphysically dubious notion such as what is actually ordinary.[6] A second response is more promising: forget the laws of nature and rely solely on other kinds of example. Accidental generalizations are not subject to this objection. When all the nuts in the jar are almonds, it follows that if I select a nut from the jar, I will select an almond. Not even a miracle could prevent the conditional from being true without rendering the generalization false; but, if the generalization is false, then it is simply not an example of the requisite kind. The examples must be of true accidental generalizations, and some accidental generalizations are true—even if God interferes with my current jar of nuts. Furthermore, examples (3)-(6) are not subject to this objection. Thus, even if the examples involving laws of nature cannot adequately be defended from this objection, other support remains.

In this section, I have presented several potential kinds of support for premise two of the Entailment Argument. If any of the above examples are successful, they show that some true statements entail indicative conditionals. Quite apart from our use of conditionals, on this basis we can know that at least some indicative conditionals have truth values.

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[6] To avoid the logical possibility that miracles could be ordinary—perhaps God cannot stand the thought of a high-pressure bottle—we would need to specify what is actually ordinary.

1.1 Related support for truth values

In this section, I briefly discuss two related kinds of support for the claim that indicative conditionals have truth values: the possibility of trivially true conditionals and the possibility of an analogue to the Entailment Argument called the Exclusion Argument. While both these ideas present support for the conclusion of the Entailment Argument, they are open to objections to which the Entailment Argument is not subject. For that reason, it is important to treat them as separate from the Entailment Argument.

There may be indicative conditionals that are trivially true. Perhaps, as Brian Weatherson (2001) claims, "it is a platitude that p → p is true for every p" (p. 212, with '→' as the symbol for 'if…then'). As a reviewer for this journal helpfully asked, could any adequate theory of conditionals not yield the result that 'If P, then P' is logically true or that necessarily, if P then P? While I see the merit in Weatherson's claim and think any adequate theory of conditionals must respect it, I will not here pursue this type of example in support of the Entailment Argument. Because this type of example does not involve a true statement entailing a true conditional, it seems to be better treated as an independent point in favor of truth values rather than as support for the Entailment Argument—and, because the truth of the conditional is asserted rather than entailed, this type of example also seems more open to the charge of begging the question.

One may wish to complement the Entailment Argument with an Exclusion Argument,[7] as follows:

The Exclusion Argument

1. By definition, any sentence excluded by a true sentence is false.
2. There are some true sentences that exclude indicative conditionals.
3. So, some indicative conditionals are false.

The Exclusion Argument is supported by cases such as the following:

[7] Thanks to a reviewer at *Philosophical Studies* for the suggestion.

(1) All the nuts in the jar are almonds

excludes

(9) If I select a nut from the jar, I will select a cashew.

While I think the Exclusion Argument is sound, it seems to me to be less good than the Entailment Argument for what may ultimately be psychological reasons. First, exclusion is psychologically lengthier than entailment. One often seems to intuit entailment relations directly, whereas exclusion relations often take a more circuitous route. (I am reporting my own phenomenology of reasoning about exclusion; this difference may not bear out under logical scrutiny.) Second, someone who denies that indicative conditionals have truth values may agree that a true statement can rule out the truth of a certain conditional—that is, can exclude the conditional in a general sense—while disagreeing that the true statement entails the falsity of the conditional. (1) may make it impossible that (9) be true and therefore in some sense exclude (9), but that is compatible with (9)'s being neither true nor false. To rule out such a result by definition in premise one may be question-begging. For this reason, the Exclusion Argument is subject to a charge of question-begging in the definition of exclusion that has no analogue in the definition of entailment found in the Entailment Argument. I shall pursue the merits of the Exclusion Argument no further in this paper.

1.2.1 Potential objection 1: the above examples are not true indicatives

There is some controversy over whether grammatically indicative conditionals should be treated univocally. One might wonder whether the examples that are entailed above are truly indicative (in some specified sense) or whether they are best categorized alongside subjunctive or counterfactual conditionals. Future indicative conditionals are sometimes argued to be equivalent to counterfactuals and thus not true indicatives.[8] For example,

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[8] See, for example, Dudman (1983, 1984) and Bennett (1988)—though Bennett (1995) disagrees.

(10) If Tina doesn't steal from the cookie jar, someone else will.

seems to communicate from a certain point in time what is communicated by the counterfactual (11) at a later time.

(11) If Tina hadn't stolen from the cookie jar, someone else would have.

And, of course, it communicates something different from the past-tense indicative (9).

(12) If Tina didn't steal from the cookie jar, someone else did.

Cases such as this are meant to show that grammatically indicative future-tense conditionals like (10) are better categorized alongside counterfactuals like (11). Since the aim of this paper is to defend truth values for indicative conditionals, this result would be unfortunate.

Three features of the above examples show that they do not contain only conditionals that generate the issue above. First, the present and past tense of the lawlike examples are likewise entailed. Thus, even if the future indicatives are ruled out, there are still some indicative conditionals that are true. Second, none of the examples presented in favor of premise two are 'doesn't'-'will' conditionals, so none have the precise structure of the cookie examples. Third, accidental generalizations do not exhibit the feature noted above. Thus, example (1)-(2) stands as a kind of example immune to this problem, as do (3)-(4) and (5)-(6). Furthermore, it is important that future indicative conditionals do not in general behave in the way of the cookie examples above (i.e., it is not a general feature that the future indicative seems equivalent to the counterfactual, whereas the past indicative does not). Cases of successful conditional predictions do not follow this model. Consider (13) and (14).

(13) If Keenan spins the wheel, he will land on red.

(14) If Keenan were spin the wheel, he would land on red.

Plausibly, (13) may be true (or successful) in a scenario in which (14) is false (or unsuccessful). (14)'s success would require that the wheel be unfair; if it's possible that Keenan could land on something other than red, then (14) is false or unsuccessful. On the other hand, (13) could be successful as a conditional prediction. The utterer predicts that, if Keenan spins the wheel, he will land on red. Suppose that both those events take place (with no other wheel-spinning as a plausible candidate for making the antecedent true). In that case, (13) is successful. So, the success conditions for (13) and (14), a pair of corresponding future indicative and subjunctive, differ. This difference is a reason to think that future indicatives should not (all) be treated as equivalent to subjunctives or counterfactuals.

1.2.2 Potential objection two: the argument begs the question

One might allege that the Entailment Argument begs the question. Perhaps somewhere between the definition of entailment and the claim that conditionals are entailed, the presupposition has been slipped in that conditionals are apt for truth.

I think not. The argument is intentionally neutral in the following way: it does not make any explicit claims about statements or propositions. Statements and propositions are sometimes defined as having truth values. Thus, defining entailment in terms of statements or propositions and then claiming that conditionals are entailed might presuppose that conditionals were truth-valued. This argument does not make that mistake. It defines entailment in terms of sentences and then claims that some indicative conditionals are (sentences that are) entailed. Since not all sentences have truth values, offering conditionals as examples of sentences does not beg the question in this particular way.

Does claiming that some sentences entail conditionals beg the question against the thesis that conditionals lack truth values? I do not see how it would. It may be a short step from the claim that some conditionals are entailed by true sentences to the claim that those conditionals are true sentences, but it is a step nonetheless.

1.2.3 Potential objection three: the apparent entailment is only apparent

Perhaps the above examples are merely apparent instances of entailment and not real instances. People have been mistaken about entailments before. In light of such a possibility, it is worth considering whether we have decisive positive reasons to think that indicative conditionals do not have truth values. Such reasons would show us that the apparent entailment in the Entailment Argument is merely apparent through demonstrating directly that its conclusion is false. Perhaps these arguments could even provide reason enough to revise our notion of entailment itself, as Adams[9] does in response to arguments against truth values for indicative conditionals. I discuss such arguments in the following section.

2 Non-truth-value arguments

In this section, I present objections to four non-truth-value arguments. The arguments of Lewis (1976) and Edgington (1986) both fail by unfairly ruling out various truth value assignments for the whole conditional based on the truth values of its component parts (sections 2.1 and 2.2). Gibbard (1981) and Barnett (2006, 2012), on the other hand, both fail to recognize some good reasons for thinking that conditionals they claim to be acceptable are in fact unacceptable—and, I think, false (sections 2.3 and 2.4). I conclude that none of these arguments successfully rules out the possibility of truth values for conditionals.

[9] See the probabilistic soundness criterion in Adams (1975), chapter one.

2.1.1 Argument one: Lewis's triviality result

In a context in which the Material Implication Account[10] and Stalnaker's Possible Worlds Account[11] dominated the conditionals landscape, David Lewis (1976) presented an argument that would undermine both.[12] Lewis's argument employs the following assumption:

> **Lewis's Assumption:** The probability of a conditional 'If A, then B' is equal to the conditional probability of B, given A.

(Here and throughout the paper, probability is to be construed as subjective probability.) However, Lewis uses this assumption only in order to reject it. The result of his argument—known as Lewis's triviality result—is that it is false, given certain assumptions, that for every two propositions A and B, there is a third proposition C whose probability is equal to the conditional probability of B, given A. In other words, Lewis's Assumption can be true only if the conditional does not express a proposition; for, when it is treated as a proposition with the specified probability, it entails a falsehood. Lewis's Assumption, in addition to being initially plausible, was widely endorsed in some form or another at the time at which he published his triviality result. Lewis cites Jeffrey (1964), Ellis (1969), and Stalnaker (1970) as some early employers of the hypothesis. Ernest Adams (1965, 1975) also endorses a version of Lewis's Assumption, but his version governs the assertability of a conditional rather than the probability of its truth.

Lewis's argument proceeds in two stages. First, Lewis uses standard probability axioms to show that the probability of 'If A, then B' (construed as the conditional probability of B, given A) should be equal to the probability of B. It should be immediately clear that this subconclusion is bad news. This subconclusion is tantamount to saying that in any conditional 'If A, then B', A and B are probabilistically independent—that is, that the truth or falsity of A has no effect on the likelihood of

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[10] According to the Material Implication Account, 'If A, then B' is false when A is true and B is false, and true otherwise.
[11] Stalnaker (1970).
[12] Lewis actually presents two arguments, but since the first contains unnecessarily stronger assumptions than the second, and the two have the same conclusion, I will present only the second of the two arguments.

B. But the antecedent and consequent of a conditional are not always probabilistically independent. For example, it would be bad news if the probability of 'If you take a ride on the spaceship, you will be in outer space tomorrow' were equal to the probability that you will be in outer space tomorrow regardless of whether you take a ride on the spaceship. Contrary to the subconclusion at which Lewis arrives in stage one, the probability of B, given A, is not always equal to the probability of B.

Proving the falsity of this subconclusion is the second stage of Lewis's argument. Since Lewis reached this unpalatable result by means of the assumption that the probability of 'If A, then B' is equal to the probability of B, given A, one way to avoid this result is to reject Lewis's Assumption. Another is to reject the standard probability axioms on which he relies—or else deny that they apply straightforwardly to indicative conditionals.

2.1.2 Rejecting Lewis's Assumption

For our purposes, engaging with the formal details of Lewis's argument is unnecessary; my response is to reject Lewis's Assumption on independent grounds.[13] The reason I reject Lewis's Assumption is that there are two kinds of conditional that it fails to account for. First, I will present these two kinds of conditional and show how Lewis's Assumption fails to accommodate them, and then I will explain why Lewis's Assumption was initially plausible in spite of these failings and what place it has in a good account of indicative conditionals.

First, there are unacceptable conditionals with high conditional probabilities.[14] Assuming that the acceptability—that is, fitness for rational endorsement—of a sentence is equal to its subjective probability, these examples show that the subjective probability of a conditional is not

[13] For discussions of the more formal aspects of Lewis's argument, see, e.g., Hajek and Hall (1994).
[14] Douven (2008) presents examples of this kind. See p. 21.

equal to the conditional probability of its consequent, given its antecedent. Conditionals such as (15) whose antecedents and consequents are irrelevant to each other are generally unacceptable.

(15) If circles are round, then no unicorns exist.

Circles and unicorns have nothing to do with each other, and so it seems unacceptable—even, though not to beg the question, *false*—to say that, *if* circles are round, then no unicorns exist. There is no reasonable sense in which the consequent follows from the antecedent. Thus, the probability of the whole conditional is low (which we can see by noting that the whole conditional is not fit for rational endorsement), even though the conditional probability is high, which entails that these two values are not identical.

The second kind of conditional for which Lewis's Assumption fails to account is conditionals whose antecedents have zero probability. The conditional probability of B, given A, is equal to the probability of A and B, divided by the probability of A. If the antecedent has zero probability, then the denominator of the fraction is zero, in which case the value for the conditional probability is undefined. The fact that Lewis's Assumption assigns an undefined conditional probability to conditionals whose antecedents have zero probability is well-noted.[15] Some balk at discussions of zero-probability propositions, because they are inclined to treat all propositions except for very special cases as having at least some—perhaps vanishingly small—subjective probability. The idea is that perhaps I am wrong about arithmetic, seemingly simple entailment relations, and other subjects on which I am fairly certain, and so I should assign credences in these areas to reflect that I am aware that I could be mistaken about them. In reality, one's assignment of

[15] This fact is met with acceptance by some. For example, Edgington (1986) defines the indicative conditional as the conditional whose antecedent is an epistemic possibility, thus excluding the possibility of an indicative conditional with a zero-probability antecedent at the outset. McDermott (1996) likewise embraces the result. McDermott draws inspiration from bets, and since a conditional bet is called off if the event in the antecedent does not obtain, he is content to treat a conditional with a zero-probability antecedent as having an undefined truth value. Others are less enthusiastic about the result and make stipulations to avoid it. For example, Stalnaker (1970) stipulates that conditionals with zero-probability antecedents are trivially true.

credences to claims in this vicinity probably varies somewhat depending on how careful one is being. Thus, it is worth discussing the merits of allowing for conditionals to have zero-probability antecedents. Those for whom the following examples do not have zero-probability antecedents will no doubt be unconvinced.

The reason conditionals with zero-probability antecedents need to be assigned a definite truth value is the same reason they should not all be treated as trivially true—namely, that it seems that they can be true or false—or acceptable or unacceptable—as well as informative. Consider the following conditionals with zero-probability antecedents:

(16) If I do not exist, then I do not have a Ph.D. in philosophy. [true/acceptable]
(17) If 3 is greater than 4, then I misunderstand math. [true/acceptable; possibly informative to someone who does not know how to count]
(18) If the moon is made of milk, then nothing is made of milk. [false/unacceptable]

Blackburn (1986) gives an example of a conditional with a zero-probability antecedent that might be useful, though his interest is in the consequent: 'If I put my hand on this stove I will burn it' (p. 222). In fact, there are cases in which discussions of indicative conditionals with zero-probability antecedents can be philosophically useful. For example, suppose someone is convinced by a version of the logical problem of evil, according to which the evil that occurs in our world is logically incompatible with the existence of God. Suppose also that this person is certain that evil exists (she has experienced some evil herself), and so is certain that God does not exist. This person can meaningfully consider the conditional (19), and, I think, should accept it.

(19) If God exists, then there is some morally sufficient explanation for the evil that actually occurs.

Such a person might reasonably accept (19) because she also accepts the following: if God exists, then I am mistaken about the logical implications of evil. The person who starts out by thinking that the existence of God and the existence of evil are incompatible has one of two choices when faced with the supposition that God exists: either there is not actually evil in the world (as one had previously thought) or else one had been wrong about the logical incompatibility of God and evil.[16]

One could respond that such a person should not place zero credence in the claim that God exists, but such a response may be unfair. We are talking about someone who believes that the existence of God and the existence evil are *logically* incompatible, and furthermore has personally experienced evil in a way that is accessible through undeniable introspection. We can even add that the conception of evil in play here is such that even a false memory of some painful experience would itself count as an instance of evil. It may be that the logical incompatibility of the two does not withstand scrutiny, but it is nonetheless understandable that one can be (and many have been) in this precise epistemic situation. All this is to show that there are plausible examples of conditionals to whose antecedents some people accord zero subjective probability, which nonetheless are informative, true, and even philosophically interesting. Treating all such conditionals as undefined is unacceptable, and stipulating them to be trivially true fits ill with the fact that some of them are interesting, in addition to missing the truth value on false instances such as (18) above.

I have presented two kinds of conditional that are not well accounted for by Lewis's Assumption—and let us not forget that Lewis himself presented the assumption in order to reject it. If we reject Lewis's Assumption, we need not accept its result that indicative conditionals do not express propositions or, more to our purposes here, the result that they are not truth valued.

[16] Note the difference between the indicative (16) and the counterfactual, 'If God were to exist, there would be some morally sufficient explanation for the evil that actually occurs'. One can accept (16) and reject this counterfactual based on the belief that, if God *were* to exist, then there would be no evil. This belief is compatible with the belief that, if God *does* exist, there is some morally sufficient explanation for the evil that actually occurs.

2.2 Argument two: Edgington's dilemma

Dorothy Edgington (1986) presents a second argument against truth values for indicative conditionals. Edgington's argument sometimes employs reasoning consistent with Lewis's Assumption, and so it should come as no surprise to find that it likewise faces problems with respect to unfairly ruling out truth values for the whole conditional based on the truth values of the antecedent and consequent. The argument is presented as a dilemma: if indicative conditionals have truth conditions, then either they are truth-functional or they are non-truth-functional. Edgington argues that, if they are truth-functional, then the truth conditions are those of the Material Implication Account, which are unacceptable. Edgington then presents a long argument against the other option: non-truth-functional truth conditions. She concludes that the indicative conditional lacks truth conditions, and so lacks truth values.

Since I agree with Edgington that the Material Implication Account fails, I will not rehearse her objections here. Rather, I will present and respond to Edgington's argument against non-truth-functional truth conditions. Edgington's argument against non-truth-functional truth conditions has four parts, one for every possible combination of truth value assignments to the component parts of the conditional: TT, TF, FT, and FF. Edgington points out that if conditionals have non-truth-functional truth conditions, then there must be at least one row of the truth table for which there are multiple options for the truth value of the whole conditional. (I will refer to such a state as the conditional being 'open'—i.e., possibly true and possibly false.) Otherwise, the truth values of the antecedent and consequent would be sufficient for the truth value of the whole conditional, in which case the account would be truth-functional. Edgington proceeds, row by row, to argue that giving multiple options for the truth value of the whole, given the truth values of the parts, is counterintuitive. Below I present objections to three of Edgington's four subarguments, arguing that three of the rows of the truth table for the indicative conditional are open. Since Edgington is operating under the assumption that conditionals have truth values in order to motivate the dilemma, I will not finesse the following to speak of acceptability/unacceptability in place of truth/falsity. My claims about the truth and falsity of particular conditionals fall under Edgington's assumption, and so they do not beg the question against the conclusion that conditionals lack truth values.

2.2.1 Edgington on TT conditionals

Edgington begins with TT conditionals: conditionals whose antecedents and consequents are both true. Her objection to treating TT conditionals as open is that it is contrary to her criterion for an account of conditionals, which is that one's judgment of the conditional goes by the (subjective) conditional probability one assigns to it.[17]

Edgington's objection to treating TT conditionals as open is that doing so violates her criterion, and it certainly does. As shown by conditional (15) from section 2.1.2, the claim that some TT conditionals are false or unacceptable is incompatible with the claim that their acceptability goes by their conditional probability.

(15) If circles are round, then no unicorns exist.

To me, (15) seems unacceptable, even though its conditional probability is high. Perhaps the intuition behind Edgington's criterion can be preserved in an account that rejects the criterion itself, as a guide to assertability (though not a guarantee of it; see Douven (2008), p. 33). If the prospects

[17] Edgington also presents her criterion in other terms, which she sees as equivalent to this version, with the caveat that this version assumes that a precise numerical value can be attached to credences. Edgington seems to want to remain neutral on that assumption, but it is useful to consider this version because of its relation to Lewis's Assumption, discussed above. The main difference between Lewis's Assumption and Edgington's criterion is that her version has to do with whether or not a person *accepts* a conditional (finds it fit for rational endorsement) rather than an assignment of probability of truth to the conditional. Thus, Edgington's criterion is similar to Adams's (1975) treatment of conditional probabilities.

for preserving the intuition behind the criterion are good, then the best way to deal with this clash of intuitions is to reject Edgington's criterion and accept that TT conditionals are open.

2.2.3 Edgington on TF Conditionals

For the second part of her argument, Edgington argues that there is only one possible truth value for a TF conditional (i.e., a conditional whose antecedent is true and whose consequent is false), namely, falsity. I agree with Edgington.

2.2.4 Edgington on FT Conditionals

The third part of Edgington's argument deals with FT conditionals—conditionals whose antecedents are false and whose consequents are true. Edgington focuses on a case in which we are certain of the consequent and uncertain of the antecedent. We are unsure whether or not a friend has mailed a letter to us, but we are sure we haven't received one. The conditional here is (20).

(20) If he mailed a letter, I didn't receive it.

Edgington's greatest complaint about this case is with how it is handled according to a Possible Worlds Account. She asks us to suppose that the friend did not mail a letter, making (20) an FT conditional. Edgington thinks it is wrong to require the truth value of the conditional to depend on the closest possible world to a world in which the friend *did* send a letter. Of course, Edgington's criterion judges (20) to be acceptable, because the probability of the consequent, given the antecedent (using A for the antecedent here), is equal to $Pr(A) \cdot 1/Pr(A)$, which is one. The fact that one is certain of the consequent is sufficient, according to Edgington, for the acceptability of the whole conditional.

I have no quarrel with Edgington's assessment of the oddness of the way a Possible Worlds Account treats conditionals such as (20). Nevertheless, Edgington has not established that all FT conditionals are true. The first problem with Edgington's argument is that cases in which one is certain of the consequent and uncertain of the antecedent are cases that are best expressed by 'even-if' sentences, which are variously called semifactuals or non-interference conditionals. (I prefer 'semifactuals'.) Semifactuals are conditionals that either include or readily admit the addition of 'even' or 'still'—or, to borrow from Douven (2008), conditionals whose acceptability/assertability rises with the addition of these words. For example, '[Even] if I am sick, I will [still] attend the ceremony'. Many philosophers[18] consider semifactuals to be non-standard conditionals, for good reason: semifactuals seem to assert their consequents, and standard conditionals (of which all other numbered conditionals in this paper are examples) do not. To say semifactuals are non-standard is not to claim that they need not be accounted for in a complete grammar, nor to claim that their meanings are wholly unrelated to the meanings of standard conditionals. Rather, it is to claim that an account of conditionals should not be judged to fail if it does not treat these kinds of conditionals in the same way as standard conditionals. In fact, given their important differences, it would be surprising if an account of conditionals successfully treated semifactuals exactly the same at it treats standard conditionals.

The second problem with Edgington's argument is that she unfairly restricts discussion to cases in which one is uncertain of the antecedent, thus excluding consideration of FT conditionals that are clearly false. For example, consider a case in which Brown ran in and won an election in a district in which it is not possible to win without running (no write-ins are allowed, etc.). Consider (21).

(21) If Brown did not run in the election, Brown won.

In this case, (21) is an FT conditional that seems false. Given the rules of the election, it would be impossible for Brown to win without running. The fact that Brown won is not sufficient to make

[18] Among them are Douven (2008, pp. 31-32), Burgess (2004, p. 567), and Lycan (2001, pp. 30-31).

(21) true, because (21)'s antecedent is incompatible with its consequent. Even clearer cases are cases in which an antecedent contradicts a consequent. Consider the FT conditional (22).

(22) If grass is not green, then grass is green.

(22) is clearly false upon initial consideration. In fact, any conditional of the form 'If not-A, then A' is false, and it is a cost for any account if it treats them as true or acceptable, which it must if it treats all FT conditionals as true or acceptable. (Again, I do not beg the question against the conclusion that indicative conditionals lack truth values, because these claims fall under Edgington's assumption that conditionals have truth values.)

2.2.5 Edgington on FF Conditionals

In her argument regarding FF conditionals (conditionals both of whose component parts are false), Edgington asks us to consider a case in which we know that John and Mary will spend the evening together, but we do not know where they will spend it. She then asks us to consider a conditional such as (23).

(23) If John goes to the party, then Mary will go to the party.

Edgington builds into the case that John and Mary do not go to the party, thus making (23) an FF conditional, though of course we are considering the case in which we who evaluate (23) are meant to be unaware of this fact. Edgington holds that the only reasonable assessment of cases such as (23) is as acceptable, in which case FF conditionals are not open.

Edgington's argument here strikes me as exceedingly strange. The case in which one knows that the antecedent and consequent have the same truth value, *because* one knows that there is some established connection between the events or ideas in the conditional, seems to be a very special case. The case would read very differently if what we knew was that John did not go to the party and that Mary did not go to the party. This alone would not give us the same information about (23) that we have in Edgington's case. In Edgington's case we have an established connection between John's location and Mary's location, and I submit that it is this connection that accounts for the truth and acceptability of (23). However, such a connection is not present in all FF conditionals. Some FF conditionals are true, and some are false. Consider the following examples, with details filled in to establish their truth values:

True FF Conditionals

(24) If you eat the poison, you'll get sick.	[You do neither.]
(25) If I drop the glass, it will shatter.	[I don't, and it doesn't.]
(26) If it's 105 degrees outside, it's very warm out.	[It's neither.]

False FF Conditionals

(27) If she ran in the election, she won.	[…of a very unpopular public figure who did neither.]
(28) If it's 105 degrees outside, it's below freezing.	[It's neither.]

These examples show that the FF conditional is open. Some instances of it are true, and some are false.

As I have argued, Edgington's argument for the conclusion that there can be no two truth value assignments for indicative conditionals, given the truth values of their parts, fails on three counts: her assessment of TT conditionals, FT conditionals, and FF conditionals. Just as we found with respect to Lewis's Assumption in section 2.1, the possibilities for various truth values for the whole undermine the argument that conditionals lack truth values.

2.3 Argument three: Gibbard's Sly Pete Case

The arguments presented by Allan Gibbard (1981) and David Barnett (2006, 2012; see section 2.4) present a departure from the kind of argument discussed thus far. Both Gibbard and Barnett present cases that are meant to show that indicative conditionals lack truth values by showing that two people can reason validly to contradictory conditionals, using premises of which they are justifiably certain. Contradictory conditionals are conditionals one of which has the form 'If

A, then B' and the other of which has the form 'If A, then not-B', where A and B are the same in each conditional. The case discussed in this section is sometimes referred to as Gibbard's Riverboat Case, but since the fact that it occurs on a riverboat is the least essential aspect of the story, I will follow those who refer to it as Gibbard's Sly Pete Case. Gibbard presents various versions of the case to make various points, but the version below is his last and most relevant version.

2.3.1 Gibbard's Sly Pete Case

The story is as follows:

> **Gibbard's Sly Pete Case:** Sly Pete and Mr. Stone are playing a game of poker on a Mississippi riverboat. Sly Pete is a very shrewd poker player and also a bit of a cheat. Pete has two henchmen, Jack and Zack, who are also in the room with them. Jack sees both Pete's and Mr. Stone's poker hands and sees that Pete has the losing hand. Zack, on the other hand, sees only Mr. Stone's hand. Zack signals the contents of Mr. Stone's hand to Pete, unbeknownst to Jack. At this point, Mr. Stone grows suspicious of foul play and asks that the room be cleared. Jack and Zack leave the room. Zack, knowing that Pete is a shrewd poker player and that Pete knows the contents of Mr. Stone's hand, believes that if Pete called,[19] he won. After all, Pete would not intentionally lose, and Pete knows whether or not his hand is better than Mr. Stone's. Jack, on the other hand, believes that if Pete called, he lost. After all, Pete has the losing hand, so his calling would result in a loss.

In this story, Jack and Zack believe contradictory conditionals. For ease, I will refer to these conditionals as (J) and (Z), as follows:

> (J) If Pete called, he lost.
>
> (Z) If Pete called, he won.

(J) and (Z) are in conflict with each other. It seems that at most one of the two can be true. If they were both true, and assuming that (Z) entails 'If Pete called, he did not lose', this situation would violate the very plausible Principle of Conditional Non-contradiction: 'If A, then B' is incompatible

[19] To call in poker is to request that the round be over with the revealing of everyone's hands and subsequent judgment of the winner.

with 'If A, then not-B'.[20] Yet it is entirely reasonable, given the information that each of them has, that Jack should accept (J) and Zack should accept (Z). According to Gibbard, if Jack and Zack shared their information with each other, so that Jack came to know that Pete knew the contents of Mr. Stone's hand and Zack came to know that Pete had the losing hand, neither Jack nor Zack would come to believe that they had been wrong in endorsing the conditional each previously endorsed. The reason is that each would recognize that their acceptance of (J) or (Z) was well-founded on their evidence at the time. In a sense, both Jack and Zack were right when they believed the conflicting (J) and (Z), and this assessment is made, according to Gibbard, both by us who know the all the information as well as by Jack and Zack themselves after they learn each other's information. It is important to note that Gibbard is not equivocating about the sense in which Jack and Zack are right. One might worry that Gibbard is equivocating between being right about x in the sense of (i) not being irrational with respect to x, given one's information, and (ii) correctly judging x, which is true, to be true. Far from equivocating, Gibbard presents an argument from being right in sense (i), together with other premises, to being right in sense (ii). Gibbard says, of our (J) and (Z),

> If both these utterances express propositions, then I think we can see that both express true propositions. In the first place, both are assertable, given what their respective utterers know. […] From this, we can see that neither is asserting anything false. For one sincerely asserts something false only when one is mistaken about something germane. In this case, neither Zack nor Jack has any relevant false beliefs. […] Neither, then, could be sincerely uttering anything false. Each is sincere, and so each, if he is asserting a proposition at all, is asserting a true proposition. (231)

By Gibbard's assessment, the Sly Pete case involves two contradictory conditionals which, if they express propositions at all, express true propositions.

[20] One might want to restrict the principle to cases in which the antecedent is not a contradiction. Thanks to Graeme Forbes for pointing out this possibility.

This would, indeed, be a problem for a truth-valued account, because if conditionals have objective truth values, then two conflicting conditionals such as (J) and (Z) cannot both be true in the same context without violating the very plausible Principle of Conditional Non-contradiction. And yet, says Gibbard, they are. Gibbard presents his result as a dilemma: in light of the Sly Pete Case, one must either (a) treat the propositions expressed by conditionals as radically sensitive to the epistemic states of the speakers or (b) deny that conditionals express propositions at all, which entails that they lack truth values. Gibbard's own route is (b).

2.3.2 Zack was wrong: responding to Gibbard

Gibbard's Sly Pete Case has generated a great many responses in print. One of the features of the overwhelming number of these responses that has always baffled me is the acceptance of Gibbard's assessment that Jack and Zack are both right about what happened if Pete called. Stalnaker (2005) adjusts his theory in light of Gibbard's case by taking route (a) above, and Krzyżanowska et. al. (2014) likewise treat both (J) and (Z) as true with respect to a body of evidence. Lycan (2001), though first expressing sympathies with those who reject Gibbard's conclusion, goes on to argue that Zack was right. Jackson (1990) uses Gibbard's case to argue for a particular distinction between indicative and subjunctive conditionals.

So, let me be the almost-first to say it: Zack was wrong.[21] It is not the case that, if Pete called, he won. We may suppose, as seems to be built into the specifics of the case, that there is a true counterfactual in the vicinity:

> (29) Pete would have called (while knowing all the relevant information about everyone's hands) only if calling would lead to a win.

[21] Pendlebury (1989) agrees that Zack was wrong, and his assessment was a relief to encounter.

Or, more archaically but in a more standard formulation: if Pete were not to be in a position to win (and to know himself to be in such a position), he would not call.[22] It does not follow from this counterfactual that if Pete called, he won. The indicative conditional (Z) is true only if Pete had the winning hand. The fact that Pete had a losing hand is the reason that, as some who have written on the case agree (see, e.g., Lycan (2001)), pace Gibbard, if Zack and Jack were to share their information after clearing the poker room, Zack would no longer believe that if Pete called, he won. (For a divergent view, see Stalnaker (1984), p. 113.) Yet Zack and Jack may both heartily agree to the counterfactual. Pete is a reliably shrewd player with the desire to win.

Even if Zack is wrong, there is a sense among those responding to the case that we must explain why his conditional was so acceptable to himself, why Zack was not egregiously at fault in expressing it, given his information. After all, we can presume that Zack did not have any false relevant beliefs, nor did he seem to make an error in reasoning. Whence, then, his mistake? My assessment is that Zack did make an error in reasoning: he took the indicative conditional (Z) to be entailed by the counterfactual conditional (29), when it is not. Perhaps Pete would not have called in the situation in which he was in, but if he did call, he lost.

As I have described it, Gibbard's Sly Pete Case is not a puzzle. The puzzle arises only if the rather-independently-plausible Principle of Conditional Non-contradiction seems genuinely violated. But it does not. Zack was wrong. The Sly Pete case is not a case of two true or mutually acceptable conditional contradictions. Without this feature, Gibbard's dilemma between (a) treating conditionals as expressing propositions that are highly context-dependent or else (b) dispensing with conditional propositions at all simply does not arise. In fact, we might reasonably take the Sly Pete Case as evidence in *favor* of accounts that assign objective, not-highly-context-dependent truth values

[22] Lycan (2001) points out that (Z) has a similar flavor to what Lycan calls backtracking conditionals. See pp. 178ff. Lycan's assessment differs from mine, because he thinks that (Z) itself should be considered to be a backtracker, whereas I contend that Zack mistakenly accepts (Z) as a consequence of (26).

to indicative conditionals. An account that denies that indicative conditionals have truth values would likely respond to the Sly Pete Case by saying that both conditionals are true or acceptable, given their high subjective conditional probabilities for their respective believers, but they are not. Given the facts about the poker hands in play, it is simply false that, if Pete called, he won, and accounts that predict this result fare better in that respect than accounts that do not.

2.4 Argument four: Barnett's Conscious Being Case

David Barnett (2006, 2012) presents a case that is similar in style to Gibbard's Sly Pete Case, but more persuasive. Again, it is a situation in which we are meant to judge that two people who hold contradictory conditionals in the same scenario are both justifiably certain of those conditionals. Barnett uses world leaders in his written presentations of the case, but I am going to discuss a more elegant version that Barnett has presented in personal communication before returning to his (2012) version. Barnett says it is reasonable for him to be fully certain of (30).

(30) If there is only one conscious being, David Barnett is it.

The reason it is reasonable for Barnett to accept this conditional with full certainty is that he knows, perhaps indubitably, that he himself is conscious, and so supposing that only one being is conscious leads him to accept with full certainty that he himself is that being. However, you and I (who are not David Barnett[23]) must be certain of the contrary of (30):

(31) If there is only one conscious being, David Barnett is not it.

We must add the background assumption that I who am evaluating (31) am not identical to David Barnett. My certainty of (31) is based on my belief in my distinctness from Barnett as well as my belief in the following:

---

[23] Assuming limited readership.

(32) If there is only one conscious being, I am it.

Since I am certain that I am a conscious being, (31) is eminently reasonable to me, just as (30) is to David Barnett, and one would not fault either of us for accepting our respective conditionals. Moreover, on a certain conception of justified belief, if one is justifiably certain of P, then P is true. Yet (27) and (28) are contradictory. If they are both true at the same time, then the Principle of Conditional Non-contradiction is violated, because (30) and (31) are of the form 'If A, then B' and 'If A, then not-B'. Barnett concludes that indicative conditionals lack truth values, though treating conditionals as radically-indexical truth-valued sentences has not been ruled out by this case.

Barnett's Conscious Being Case is more convincing than Gibbard's Sly Pete Case, because the two parties in the case have symmetrical evidence: neither one seems better suited to make a judgment about what would be true if the antecedent of (30) or (31) obtained. It also has the merit of not requiring any imagined scenario to set the scene. Each of us seems to be in a position in which we must choose between (30) and (31), and it is clear which one each should choose. In light of the persuasiveness of Barnett's case, it is tempting to treat each of (30) and (31) as true-with-respect-to-a-body-of-evidence: (30) is true with respect to Barnett's body of evidence—namely, evidence of his own consciousness—and similarly for (31) and everyone else's body of evidence. Perhaps the conditionals are both true, but the propositions they represent are radically indexed to the epistemic states of their respective utterers. This treatment loosens the ties between a conditional's truth conditions and the extra-mental world. I leave discussion of the dangers of loosening these ties to section 3, in which I outline some of the benefits of a worldly view, and limit discussion here to the alternate conclusion that indicative conditionals lack truth values.

One problem with Barnett's Conscious Being Case—though it is not the main problem—is that it is not possible for one to rationally accept all the premises at the same time. It is unreasonable for me to believe *both* that Barnett should believe (30) based on his own conscious experience *and* that, if there is only one conscious being, Barnett is not it. When I believe that Barnett should rationally accept something based on his conscious experience, I presuppose that Barnett is a(n existent) conscious being, and I know that I myself am one. While knowing that I exist, I cannot both presuppose that he exists and also suppose that only one of us exists.

Nonetheless, there is a further problem with Barnett's Conscious Being Case, and that is that the notion that one should be certain of (32), on which one's certainty in (30) or (31) is founded, is based on a false dilemma. One might think that 'I am a conscious being' entails that if only one conscious being exists, I am it; but I submit that it does not. The mistaken sense that this entailment holds plausibly stems from the following sort of reasoning: We are supposing there is only one conscious being, so either I'm it or I'm not. This means that, if only one conscious being exists and I'm a conscious being, it cannot follow that I'm not it. Thus, it must follow that I *am* it—and from thence we get the confidence that, if there is only one conscious being, I am it. However, this reasoning is flawed, specifically in the step from 'it cannot follow that I'm not it' to 'it must follow that I *am* it'. The flaw is based on a tacit assumption of Conditional Excluded Middle, the principle according to which either 'If A, then B' or 'If A, then not-B' must be true. This kind of reasoning forces us to choose between 'If there is only one conscious being, I'm it' and 'If there's only one conscious being, I'm not it'. But if we reject Conditional Excluded Middle, we can choose to reject both conditionals. All we need is a plausible reason for thinking that neither conditional is true, and that reason is that, supposing there is only one conscious being, plausibly there is nothing in the world favoring its being me over its being David Barnett. As Barnett himself says, "there is no objective fact of the matter whether this [consequent] is correct relative to the supposition" (p. 424). If the fact that the lone conscious being is me does not follow from the antecedent, and neither does the fact that it is Barnett, then perhaps both (30) and (31) are false.

Barnett's (2012) example involved other people, Barack Obama and Hu Jintao, disagreeing about relevantly similar conditionals; perhaps such a version fares better. Yet we can see that it does not. I cannot both accept that Obama and Hu Jintao exist and accept that they should believe the contradictory conditionals (33) and (34), respectively.

(33) If only one conscious being exists, it is Barack Obama.
(34) If only one conscious being exists, it is not Barack Obama.

The reason, again, is that nothing about the world, as far as we know, settles the facts about who exists, if only one of these leaders exists. Both sentences are false. As of yet, I have not provided a reason for thinking that that the lack of the world "settling the facts" should render the conditionals false, and that is because elucidating this reason requires presenting an account linking the way the world is to the truth values of conditionals. The explication of such an account must wait for another occasion. For now, it is sufficient that we have seen one way in which a truth-valued account of indicative conditionals might respond to Barnett's Conscious Being Case without radically indexing conditionals to their utterers or eliminating truth values. If such a response is possible, then there is room for a truth-valued account of indicative conditionals.

3 The benefits of a worldly view

In the first section of this paper, I presented a new argument for the conclusion that indicative conditionals have truth values, and now I have defended that claim against four arguments that conclude the contrary. Supposing, then, that indicative conditionals have truth values, what sorts of truth conditions should we expect them to have? Are conditionals generally made true by one's own belief or knowledge states, or by features of the extra-mental world? In this section, I briefly discuss some of the benefits of a worldly view of conditionals: a view according to which the conditional has truth conditions closely tied to the world outside one's own beliefs.[24,25]

It seems appropriate that the truth conditions of indicative conditionals should be tied to the world outside one's own head. Consider (35).

(35) If I let go of a helium-filled balloon, it will rise.

(35) is true or acceptable not because of my own beliefs about helium-filled balloons but because of *facts* about helium-filled balloons—facts that are true regardless of anyone's subjective credences about them. Non-worldly accounts miss this fact. Proponents of non-worldly accounts can say what our subjective credences about natural phenomena ought to be, in order to reflect the laws of nature, and under what conditions conditionals are acceptable or true relative to an epistemic state, but they cannot bridge the gap between the laws of nature and the acceptability conditions of conditionals, because non-worldly accounts do not have the right truth-makers.[26] If the truth values of conditionals do not depend on the world outside one's own beliefs, then whether or not (35) is true does not depend on physics but on oneself. The world does not get any say in the matter, so to speak, except insofar as our experiences in the world inform our subjective credences.[27] This feature of non-worldly accounts is unacceptable. It is not enough for an account to assign truth values to

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[24] The Material Implication Account is a worldly account, as are versions of the Possible Worlds Account that do not treat the conditional as radically indexical (which rules out Stalnaker (2005) and Nolan (2003)). (Nolan (2003) holds a version of Possible Worlds Account that treats conditionals as radically indexical, but which maintains some worldliness by holding that it is our knowledge (rather than mere belief or firm belief) that determines which possible worlds are closest to ours. Krzyżanowska et. al. (2014) do something similar within their Suppositional/Probabilistic Account by requiring that the relevant epistemic states be knowledge states.) Suppositional/Probabilistic Accounts such as those of Adams (1975), Edgington (1995), Gibbard (1981), and Barnett (2006), which eliminate truth values, do not closely tie conditionals to the extra-mental world.

[25] Some conditionals are explicitly about people's beliefs, such as the conditional 'If S believes A, then S probably believes B', but the relevant difference here concerns whether or not an account treats the acceptability or truth of all conditionals as dependent just on a person's beliefs.

[26] A truth-maker is the state of affairs, event, individual, etc., that makes a true sentence or true proposition true. For example, my laptop, or the fact that my laptop exists, is one of the truth-makers for the sentence 'At least one laptop exists'.

[27] This complaint is related to what William Lycan (2001) refers to as Gallimore's Problem, named for the person who raised it in conversation with Lycan. (See pp. 69-72.) Lycan asks us to consider the possibility of a bizarre-but-real law of nature in the form of a conditional, though this paper shows that we needn't use a bizarre case to make a similar point.

conditionals, nor even to assign the correct truth values to a conditional such as (35). The correct truth value must be assigned for the correct reason, and that reason must in this case, at the very least, involve facts about helium-filled balloons.

This complaint is related to what William Lycan (2001) refers to as Gallimore's Problem, named for the person who raised it in conversation with Lycan. (See pp. 69-72.) Consider a conditional such as (36), which we have no earthly reason to accept.

> (36) If I finish writing this paper today, Norway will have an unusually early autumn in [2275].[28]

It seems vanishingly unlikely that my finishing this paper today will have any effect on the timing of autumn in Norway, in 2275 or any year, and I find (36) unacceptable. Gallimore's Problem asks us to consider a case in which, unbeknownst to us, there is a lawful connection between the two events, such that my finishing writing this paper today really does or would, as a matter of natural law, lead Norway to have an early autumn in 2275. If such a bizarre law exists (perhaps God is feeling mischievous), then of course (36) is true. Yet because we have no reason at all to believe (36), non-worldly accounts must treat it as unacceptable. Of course it is the case that, if we have no reason to accept (36), it should be unacceptable to us, even if true. The problem is that non-worldly accounts lack the apparatus to say that (36) is true-but-unacceptable, given our epistemic states. According to non-worldly accounts, our credences in (36) settle the matter about it, and not even God's putting a law in place could make (36) true. As Lycan puts it, this case embarrasses any non-worldly account. Gallimore's Problem, of course, is only half the problem, and we needn't consider only bizarre cases in order to make the same point. Any conditionals about the laws of nature that we do not have the evidence or expertise to find acceptable *are* unacceptable according to non-worldly views. Conversely, any of our well-established but actually false theories are acceptable according to most

[28] I changed the year such that it is in the future relative to the time at which this paper is written.

non-worldly views.[29] The flexibility that allows non-worldly accounts to accept both the contradictory conditionals in Gibbard's or Barnett's case comes at too high a cost. Non-worldly accounts place the acceptability of conditionals in our own heads, instead of tying their truth to the world, as it should be.

4 Conclusion

It is often difficult to prove a commonsense truth. The claim that indicative conditionals have truth values has much to recommend it initially, but previous support relied heavily on the way people use conditionals. This support, though strong, is limited. The Entailment Argument gives us a more decisive reason for assigning truth values to indicative conditionals: some true statements entail conditionals, from which it follows that some conditionals are true. Furthermore, the prominent non-truth-value arguments are problematic. Given the ubiquity of reasons in favor of a truth-valued account and the poverty of good reasons against one, I conclude that we have strong reasons to assign truth values to indicative conditionals.[30]

Works Cited

Adams, Ernest 1965: "A Logic of Conditionals," *Inquiry* 8: 166-97.

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

Barnett, David. 2006: "Zif is If," *Mind* 115: 519-566.

[29] This complaint is related to Edgington's (1995) rain dance case. Edgington points out that conditionals such as 'If we perform this rain dance, then it will rain' are justifiably acceptable for people who believe that rain dances bring rain, according to non-worldly accounts, whereas in reality they are false/unacceptable.

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Barnett, David 2012: “Future Conditionals and DeRose’s Thesis,” *Mind* 121: 407-442.

Bennett, Jonathan 1988: “Farewell to the Phlogiston Theory of Conditionals,” *Mind* 97: 509-27.

Bennett, Jonathan 1995: “Classifying Conditionals: the Traditional Way is Right,” *Mind* 104: 331-44.

Blackburn, Simon 1986: “How can we tell whether a commitment has a truth condition?” In Charles Travis (ed.), *Meaning and Interpretation*. Basil Blackwell. 201-232.

Burgess, John P. 2004: “Review of J. Bennett, A philosophical guide to conditionals.” *Bulletin of Symbolic Logic* 10: 565-570.

Douven, Igor 2008: “The Evidential Support Theory of Conditionals.” *Synthese*, Vol. 164, No. 1, pp. 19-44.

Dudman, V.H. 1983: “Tense and Time in English Verb-Clusters of the Primary Pattern,” *Australian Journal of Linguistics* 3: 25-44.

Dudman, V.H. 1984: “Parsing ‘If’-Sentences,” *Analysis* Vol. 4. No. 4: 145-53.

Edgington, Dorothy 1986: “Do Conditionals Have Truth-conditions?,” in Jackson, *Conditionals* (Oxford: Basil Blackwell), pp. 176-201.

Edgington, Dorothy 1995: “On Conditionals.” *Mind* 104: 235-329.

Ellis, Brian 1969: “An Epistemological Concept of Truth,” in *Contemporary Philosophy in Australia*, ed. Robert Brown and C.D. Rollins, Allen & Unwin, London, pp. 52-72.

Gibbard, Allan 1981: “Two Recent Theories of Conditionals” in Harper, Stalnaker and Pearce (eds.) 1981.

Hajek, Alan and Ned Hall 1994: “The Hypothesis of the Conditional Construal of Conditional Probability,” in E. Eells and B. Skyrms (eds.), *Probability and Conditionals* (pp. 75-112), Cambridge: Cambridge University Press.

Jackson, Frank 1990: “Classifying Conditionals,” *Analysis*, 50, pp. 134-47, reprinted in Jackson 1998.

Jackson, Frank 1998: *Mind, Method and Conditionals*. London: Routledge.

Jeffrey, Richard 1964: "If" (abstract), *Journal of Philosophy* 61: 702-703.

Krzyżanowska, Karolina, Sylvia Wenmackers, and Igor Douven 2014: "Rethinking Gibbard's Riverboat Argument," *Studia Logica* 102: 771-792. Page numbers from <http://karolinakrzyzanowska.com/pdfs/gibbard.pdf>.

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

Lycan, William 2001: *Real Conditionals*. Oxford: Oxford University Press.

Mackie, J.L. 1973: *Truth, Probability and Paradox*. Oxford: Clarendon Press.

McDermott, Michael 1996: "On the Truth Conditions of Certain 'If'-Sentences," *Philosophical Review* 105: 1-37.

McGee, Vann 1989: "Conditional Probabilities and Compounds of Conditionals." *Philosophical Review* 98: 485-542.

Nolan, Daniel 2003: "Defending a Possible-Worlds Account of Indicative Conditionals." *Philosophical Studies* 116.3: 215-269.

Pendlebury, Michael 1989. "The Projection Strategy and the Truth Conditions of Conditional Statements." *Mind*, New Series, Vol. 98, No. 390, pp. 179-205.

Stalnaker, Robert 1970: "Probability and Conditionals," *Philosophy of Science* 37: 64-80. Reprinted in Harper, W. L., Stalnaker, R. and Pearce, G. eds. 1981.

Stalnaker, Robert 1984: *Inquiry*. Cambridge MA: MIT Press.

Stalnaker, Robert 2005: "Conditional Propositions and Conditional Assertions," in *New Work on Modality*. MIT Working Papers in Linguistics and Philosophy, vol. 51.

Weatherson, Brian 2001: "Indicatives and Subjunctives," *Philosophical Quarterly* 51: 200-216.