

Discussion: What Zif?

In a series of articles, David Barnett (2006, 2009) has developed a highly original general theory of conditionals. The grand aim is to reconcile two main rivals: a suppositional and a truth-conditional view (Barnett 2006, 521). When he extends his approach to counterfactuals (Barnett 2010 in this journal), he boldly combines a probability-based view which characterizes counterfactual reasoning by the probabilistic relationship between the antecedent and the consequent (cf. Edgington 1995) with a truth-conditional view. He aims at integrating as well the insights of a Lewisian nearness analysis as the virtues of the traditional metalinguistic approach according to which the truth of a counterfactual depends on the antecedent entailing the consequent given certain further assumptions. In sum, if Barnett is successful, he overcomes the main boundaries by which the philosophical debate has been marked so far. While I confine my critical discussion to counterfactuals, I will give some hints how they might spell trouble for his suppositional view in general.

Barnett's method is uncommon. After stipulating 'zif', he forwards a challenge:

Anyone who rejects that *zif* would have been *if* faces the obvious challenge: to find a relevant difference between our entrenched practices with 'if' and our inchoate practices with 'zif'. (Barnett 2010)

Since 'zif' is alleged to be 'if', I will translate Barnett's 'zif' claims to 'if'-claims where appropriate. Here are some rules of 'zif':

Zif Probability A zif-statement is *n% probable* iff what is stated by the statement is made *n% probable* by what is supposed by it.

...

Zif Truth A zif-statement is *true* iff what is supposed by the statement entails what is stated by it.

Zif Falsity A zif-statement is *false* iff what is supposed by the statement is inconsistent with what is stated by it.(Barnett 2010, 279)

In four sections, I will address the following misgivings:

1. Barnett cannot provide an adequate nearness constraint for everyday counterfactuals.
2. Since Barnett's view does not fare better with his prime example than the standard possible worlds approach, he does nothing to rule out the latter.
3. His further linguistic evidence does not withstand critical scrutiny.
4. It is completely open how to modify Barnett's overall suppositional approach to indicatives (Barnett 2006) such as to integrate his view of counterfactuals.

1. Probability and Closeness

Most everyday counterfactuals are not true but only probable according to Barnett's criteria.

In order to account for suppositional probability ascriptions, Barnett introduces *Conditional Counterfactual Probabilities*:

CCP's appear to measure the *stability* of features and connections in the world. Suppose for illustration that a large number of children have been surveyed and that 95% of them like candy. The question arises whether this statistic reflects a relatively stable connection between being a child and liking candy, or whether it is purely accidental.

...

The relatively stable connections give way to ones that are more stable, more general, and more basic, until ultimately we reach the brute stabilities, including the fundamental laws of nature. (Barnett 2010, 278)

This conception leads to a dilemma. The first alternative is that stability is something along the following lines: A feature or connection is the more probable the higher the proportion of worlds at which it holds (cf. Edgington 1995, 308). This is an insufficient basis for assessing probabilities of counterfactual suppositions. Consider:

If I had got up 5 minutes earlier, I would have caught the train

Assume that my probability of reaching the train on the counterfactual supposition that I get up 5 minutes earlier is high. But it does not entirely owe this to the stability of features in the world; the accidental fact how far from the station I am plays a crucial role. Even very stable relationships may fail to hold in arbitrarily many metaphysically possible situations. What is responsible for the probability of a counterfactual is not their stability tout court but their stability relative to sufficiently *close* situations.

So the second alternative is to impose some nearness constraint on probability. Probabilities are assessed given things are as they actually are as far as compatible with the antecedent. But in contrast to standard analyses of counterfactuals, closeness or preservation of actual facts is not built into ‘zif’ by default. Nor is it implicit in Barnett’s notion of probability. He has two soldiers enact the following flash drama:

Smith: Zif she hadn’t stepped on that mine, she would have made it across.

Jones: I doubt it. For suppose that she hadn’t stepped on that mine. We must ask ourselves: what is the mostly likely way for this to have come about? Perhaps the initial conditions of

the universe had been different; in which case it is highly unlikely that she, or this minefield, would ever have existed...

Smith: You are extremely uncharitable. Was it not obvious from our context that what I *meant* was that, zif she hadn't stepped on that mine *and things had been as similar as possible to actual, up to that point*, she would have made it across?

Jones: Well, in *that* case, she probably *would* have made it across. From now on, please say exactly what you *mean*.(Barnett 2010, 285)

Replacing 'zif' by 'if', I find Jones' reaction not merely uncharitable but just infelicitous. In order to evaluate Smith's statement, we have to consider the actual situation modulo the soldier not stepping on a mine (however this is to be cashed out). Jones does not understand how everyday counterfactuals work. So the dialogue strongly counts against Barnett's analysis of 'if'. Barnett would have to add a default nearness constraint to accommodate intuitions and to get a neat conception of probability for counterfactuals.

Barnett suggests that instead of a nearness supposition, some zif-statements may be subject to a subjunctive free-will supposition (cf. Kwart 1992, 141)

zif the soldier had *freely chosen* to step just to the left of where she actually *freely chose* to step, the events leading up to this choice would probably have been *just as they actually were*, for there is no reason to think they would have been different, and there is some reason to think they would have been the same.(Barnett 2010, 287)

Now there is a crucial point at which Barnett misses 'zif' and tacitly replaces it by 'if'. Without a nearness constraint that privileges the way things are, *nothing* ensures that things 'would probably have been just as they actually were'(cf. Lewis 1994, 480).

Barnett provides eight clues where the ‘zif’-linguist can see that the standard account of counterfactuals does not apply, neither to ‘zif’ nor to ‘if’.

Clue #1 is Barnett’s argument against building a nearness constraint into the meaning of the counterfactual:

the outsider might investigate whether explicitly adding a nearness-condition to the antecedent of a zif-statement has any effect on our evaluation of the statement. On the nearest-world hypothesis, it should not. ...

(5a) Zif hamsters had wings, everything else would be as similar as possible to actual.

(5b) Zif hamsters had wings and everything else were as similar as possible to actual, everything else would be as similar as possible to actual.(Barnett 2010, 288)

(5b) is necessary, (5a) is not. To Barnett, this is not reconcilable with (5a) being subject to an implicit nearness constraint. But here is the rub: The proper test for a nearness constraint is not to ask whether for any world of evaluation w , zif hamsters had wings, everything else would be as similar as possible to the actual world @; rather we would have to ask whether for any world w , zif hamsters had wings, everything else would be as similar as possible to w . The rigid ‘actual’ pins down the nearness condition in the consequent of (5a) and in the antecedent and consequent of (5b) to the way things are in *our* world. In order for Barnett’s argument to succeed, the standard nearness truth condition for counterfactuals would have to be:

For a world of evaluation w , a counterfactual $A \Box \rightarrow C$ is true iff C at some A -world which is closer to *actuality* (*our* world) than any A -world such that $\sim C$.

But in fact, the standard truth condition is this:

For a world of evaluation w , a counterfactual $A \Box \rightarrow C$ is true iff C at some A -world which is closer to w than any A -world such that $\sim C$.

Ad clue #2: One of the alleged virtues of Barnett's approach is that it accounts for counterfactuals with impossible antecedents such as:

(6a) Zif the truths of fundamental physics were discoverable by a priori conceptual analysis, particle accelerators would be superfluous.

...we judge some zif-statements to be about impossible scenarios, and our confidence in such statements is sometimes low and sometimes high. This does not comport with the hypothesis that zif-statements with impossible antecedents are vacuously true (or vacuously false). (Barnett 2010, 289)

Yet Barnett does not say how *conditional counterfactual probabilities* may apply to impossible situations. What we would need is a detailed account in how far the supposed impossible circumstances interfere with stable features of the world and in how far they do not, as it is given e.g. by Nolan's nearness account of impossible worlds (Nolan 1997). So what remains is that counterfactuals with metaphysically impossible antecedents are true iff the antecedent logically entails the consequent; and they are false iff the antecedent is inconsistent with the antecedent. Or, if metaphysical entailment is at stake, such counterfactuals are trivially true given *ex falso quodlibet*. Nothing in between. We are left without any clue how to deal with (6a). No advantage compared to the standard account according to which all counterfactuals with impossible antecedents are vacuously true.

2. Constraints on Categorical Statements

Clue #3-6 are derived from 4 principles that Barnett takes to hold for categorical statements but not for 'zif':

Clue #3: However confident one is that S , one should be at least as confident that there is an answer to the question of whether S .

Clue # 4: On the supposition that there is no answer to the question of whether a is F , one should have zero confidence that a might be F .

Clue #5: However confident one is that S , one should be equally confident that it is true that S .

Clue #6: Intuitively, it cannot be objectively incorrect to assign probability 1 to a categorical statement *and* objectively incorrect to assign probability 0 to the statement.(cf. Barnett 2010, 290- 292)ⁱ

Barnett's argument entirely rests on applying the analysis of 'zif' to one example, not on any further piece of independent evidence:

(Goldilocks) If there were a Goldilocks girl, she would like candy.

To Barnett, (Goldilocks) is neither true nor false; the antecedent does neither entail nor contradict the consequent. So there is no answer to the question whether (Goldilocks). The girl might like candy and she might not like candy. Yet assessing probabilities gives rise to a high confidence that the girl would like candy.

Now there is no reason within the standard analysis why #3-#6 should not hold for counterfactuals. So Barnett's argument depends on his analysis of (Goldilocks) being superior

to the standard analysis. Let us compare Barnett's results to the standard analysis. It does not sound that unconvincing that (Goldilocks) is neither true nor false. How can the standard analysis accommodate that? I think Lewis would emphasize that (Goldilocks) is vague. Contrary to the first appearance, it is very different from everyday counterfactuals. In contrast to 'If I had got up earlier today...' which solidly hooks into a concrete actual situation, (Goldilocks) does not give us enough to envisage a concrete scenario. For instance, when and where does Goldilocks live? In Lewis' default nearness analysis, a small miracle or inconspicuous divergence from actual facts would have to bring about the antecedent (Lewis 1986). But where is this divergence to be located? What does it look like?

Here is Lewis on vagueness:

Thus we account for such pairs of counterfactuals as Quine's

If Caesar had been in command [in Korea] he would have used the atom bomb.

Versus

If Caesar had been in command he would have used catapults. ...

I could ... call on context rather to resolve part of the vagueness of comparative similarity in a way favourable to the truth of one counterfactual or the other.(Lewis 1973, 66-67)

In the same vein, (Goldilocks) may call for further ways of cashing out the story. In some of them it comes true, in some it comes out false. There are further possibilities of interpreting (Goldilocks): We may reckon a world where a Goldilocks girl likes candy more similar than a world where she does not. For instance, we may say that the latter world instantiates less high probability properties; after all, girls usually like candy (cf. Williams 2008). Then (Goldilocks) comes true. Or we insist that worlds where she likes candy and worlds where she

does not are equally close. Then the Goldilock case resembles chancy situations the paradigm of which is the throwing of a dice. In the standard analysis, both ‘If a dice had been thrown, it would have landed six’ and ‘If a dice had been thrown, it would have not landed six’ are false. Analogously, both ‘would like candy’ and ‘would not like candy’ turn out false. Nevertheless, we might feel inclined to ascribe a high probability to a Goldilocks girl liking candy. This is reflected in our accepting as true

(Goldilocksp) If there were a Goldilocks girl, she would probably like candy (cf. Lewis 1986, 63-65)

and

(Goldilocksm) If there were a Goldilocks girl, she might/might not like candy

In sum, the standard analysis can accommodate any plausible intuition with regard to (Goldilocks) or a close variant of it being probable, true, false, neither true nor false. Clue #3-#6 do not give us any independent evidence for or against Barnett’s view.

3 Further Linguistic Evidence

3.1 The Need for Qualifying

Clue #7

...there is no need to qualify the proposition that Jones is the murderer –by, say, ‘probably’, ‘definitely’, or ‘possibly’ in order for a categorical statement of it to be significant. By contrast, subjunctive contents stated relative to subjunctive do require qualification for their statements to be significant.(Barnett 2010, 295)

I disagree. Firstly, a normal categorical statement does not need qualification. A counterfactual does not *either*. But in both cases, we tend to be in a quandary when pressed:

A: Jones is the murderer/The glass would have shattered if dropped.

B: Definitely, probably, or possibly?

Normally, on the one hand A will feel pressed by her utterance to accept one of the options B presents; but on the other hand, she will often hesitate. ‘Definitely’ might sound too strong, ‘probably’ too weak. This, I guess, is due to a certain vagueness and intransparency of the threshold of certainty or vindication at stake in our attitudes such as belief or explicit acceptance and the threshold required by the qualification.ⁱⁱ At least there is no stronger commitment to qualification involved in counterfactuals than in categorical statements.

Secondly, to Barnett ‘definitely’ requires entailment. Thus, were ‘zif’ if, the following should be infelicitous:

A: Had I got up five minutes earlier, I should definitely have reached the train.

B: Definitely? After all, five minutes is not much, and the way is far.

A (who happens to be a sprinting champion): Definitely!

But this dialogue sounds perfectly in order. In contrast, what would definitely be infelicitous is the ziffy:

B: Come on, what about a sudden volcano eruption or a break in natural laws? You should mind your words. Just add ‘probably’ (and a nearness constraint) instead of this over-conscious ‘definitely’!

Furthermore, even when we hesitate to call a chancy counterfactual definitely true, we might not hesitate to call it *true* when qualified:

Ed: The glass would have shattered if dropped.

Ella: Is that so?

Ed: Well, that much is *true*: (a) It would *probably* have shattered if dropped / If the glass had been dropped, there would *definitely* have been a high chance of its breaking when dropped.

Although Barnett might be able to accommodate (a),ⁱⁱⁱ he seems unable to accommodate (b).

Compare the overwhelming evidential impact of these simple examples to Barnett's:

Ella: Suppose the glass had fallen!

Ed: It definitely would have shattered.

Ella: Well, I hate to be a stickler, but I don't think it's right to say that it *definitely* would have shattered. For, as unlikely as it sounds, a perfect gust of wind could have brought the glass to a gentle landing. ... just think of a couple of the ways that the glass could have fallen. It could have fallen due to a subtle difference in the initial conditions of the universe, say, one that led to your reactions being a bit slower than they actually were. This difference could also have led to the existence of a perfect gust of wind. Another way that the glass could have fallen is for there to have been a subtle difference in the laws of nature, say, one that led to the glass's accelerating slightly faster than it actually did. (Barnett 2010, 280)

I think our intuitive grip on such an example is loose. No one likes sticklers. Let us apply the standard analysis to get rid of them. Note that by Barnett's lights, Ella could as well appeal to

a huge difference in laws of nature. Such circumstances are definitely too far-fetched to count as closest antecedent worlds. The Lewisian standard nearness analysis eschews them as well as a subtle difference in the initial conditions of the universe and Ella's subtle difference in the laws of nature. In contrast, Lewis' standard analysis cannot make short work with certain very improbable chance processes, for instance the sudden gust of wind. They are candidates for closest antecedent worlds. There is a huge debate on that (cf. Williams 2008). Here I think the standard analysis is perfectly in tune with our intuitions. We tend to neglect certain chance processes (cf. Hájek unpublished). But when we are pressed, we are in a quandary how to deal with them.

But just in case you like sticklers, I offer a rival near-standard analysis. Counterfactuals are strict conditionals that bring about universal quantification over a contextually confined domain of worlds; yet they are very sensitive to shifts in local context (cf. Gillies 2007): We are prone to charitably open the range of possibilities considered such as to even accommodate differences in initial conditions of the universe and violations of laws. The context of possibilities considered broadens with the dialogue going on. So Ed is right at the beginning. But under pressure from Ella, context begins to shift until it comprises the most far-fetched alternatives.

I doubt that there is a more eligible way to handle Barnett's extremely artificial dialogue. If I feel any intuitive pull, then it is to accept Ed's initial statement as *perfectly in order*. This is what Barnett denies and what is accepted by the other analyses.

3.2 Further Linguistic Evidence: On Suppositions Denoting Situations

Clue #8 provides further linguistic evidence. While 'when' and 'where' denote times and places, a counterfactual 'if' does not denote a situation that is supposed to obtain. To

substantiate the difference, Barnett notes there are six places where ‘probable’ can be inserted into a counterfactual:

(10a) It is probable that hamsters would fly, zif they had wings

(10b) It is probable, zif hamsters had wings, that they would fly

(10c) Zif hamsters had wings, it is probable that they would fly

(10d) Zif hamsters had wings, that they would fly is probable

(10e) That hamsters would fly, zif they had wings, is probable

(10f) That hamsters would fly is probable, zif they had wings.(Barnett 2010, 297)

In contrast, there are only four places where ‘probable’ can be inserted into ‘when’ or ‘where’-statements:

(13a) It is probable that I will live where Sharon lives

(13b) It is probable, where Sharon lives, that I will live

(13c) Where Sharon lives, it is probable that I will live

(13d) That I will live where Sharon lives is probable.

The remaining two combinations are awkward, to say the least:

(13e) Where Sharon lives, that I will live is probable

(13f) That I will live is probable, where Sharon lives.(Barnett 2010, 298)

I do not deem this difference very significant. Note that for instance the German equivalent of (10), *Es ist wahrscheinlich, dass Hamster flögen, wenn sie Flügel hätten*, allows 5 variants at best (no equivalent to 10d). And try the following instead of (13e) and (f):

(13e') Where Sharon lives, there that I will live is probable / at that place that I will live is probable.

(13f') There/at that place that I will live is probable, where Sharon lives.

This is not elegant, but can one be sufficiently confident that it is infelicitous to build a deep distinction between 'if' on the one and 'where' and 'when' on the other hand on this verdict? At least concerning (13e') I have got mixed reactions from native speakers.

Barnett gives further evidence that 'if'-sentences do not denote a situation:

...whereas 'the time when Sharon leaves' and 'the place where Sharon lives' are grammatical, 'the hypothetical situation zif Sharon had left' is not.(Barnett 2010, 298, cf. 2006, 528-529)

Yet there is a rough and ready standard explanation: 'When' and 'where' in 'the time where', 'the place where' act like pronouns referring to a certain time or place. Their role in (13) is derived from this function. In contrast, the original function of 'if' is to act as a quantifier over possible worlds.

4. Integrating Counterfactuals into the Suppositional Approach

Even granting that Barnett's account provides adequate conditions for assessing counterfactuals, we may ask how it fits into his general picture of supposition. Barnett rejects that 'zif' denotes a situation; yet he accepts that there is denotation in play: conditional denotation. An A-situation is denoted provided there is one. If A is false, nothing is denoted:

Joe says, [(Pope)]‘Zif the Pope visited yesterday, then we will have a good year’. The outsider responds, ‘What do you mean *then* we will have a good year? There is no *then*, because there was no visit by the Pope’. To which Joe responds: ‘Surely you must recognize the possibility that you are wrong—that the Pope did in fact visit yesterday. *Suppose* this is so. *Then* we will have a good year. When I say ‘then’, I only *aim* to be talking about a situation in which the Pope visited yesterday *conditional* on there being such a situation. No Pope, no aim.’(Barnett 2006, 529)

‘Then’ in (Pope) denotes something *conditionally*. Yet putting into abeyance my above criticism of clue #8, I do not see any reason why the linguistic evidence for #8 does not apply as well to indicative suppositions.^{iv} But by Barnett’s lights, these suppositions do denote something (albeit conditionally).

How can Barnett’s template for indicatives be transferred to counterfactual situations? Consider

(Pope´) If the pope had visited yesterday, *then* we would have a good year.

Straightforward application of the template for indicatives gives: When the antecedent is false, there is nothing to be denoted by ‘then’. ‘No pope, no aim’; nothing to be aimed at; still there is ‘an *absent* attempt at reference rather than a *failed* attempt.’(Barnett 2006, 529-530)^v

How are we to understand an act which amounts to nothing but an *absent attempt* at denoting whatever ‘then’ is to denote? What does it mean to aim at something when it is at the same time conveyed that there is nothing to be aimed at, not even a seeming aim? The only way of making sense of such an act is to make the absent attempt parasitic on the success case: A obtains; at least it is somehow open whether A obtains. As Joe responds: ‘You must somehow recognize the possibility that you are wrong.’ Thus the problem of accounting for

suppositional statements when A is false becomes more grievous in the counterfactual case. It would seem odd to say that for any *genuine* counterfactual (with actually false antecedent), ‘then’ fails to denote; there is nothing but an *absent attempt* at reference. But then what does ‘then’ in (pope’) stand for?

Barnett criticizes that the proponent of ‘zif’ being a binary truth-functional connective must ask what the truth value of ‘zif A, C’ is under the supposition

...that it is false that A. This amounts to a request to evaluate whether C while supposing not just that A but also that it is not the case that A. And this is a request that we cannot satisfy. Hence our response: ‘We are at a loss as to how to respond, for we are unable to evaluate the statement under the supposition that it is false that A’.(Barnett 2006, 536)

Yet this seems precisely to be what the suppositional template demands when we evaluate a counterfactual. What remains is that nothing seems ever to be stated by a genuine counterfactual, not even C *under the supposition* that A. So for any counterfactual, we ‘are unable to evaluate the statement under the supposition that it is false that A’. To be sure, Barnett reminds us: ‘Keep in mind that our attention is limited to indicatives.’(Barnett 2006, 529) Yet when his attention widens, he would owe an account of ‘then’ in (pope’) that could complete his account of ‘then’ in (pope). A similar problem: ‘When we believe under a supposition, we aim at the truth, but we are only committed to this goal *on the condition that the supposition obtains*.’(Barnett 2006, 542) If this were transferred to counterfactuals, it would seem that one incurs no commitment at all by them. So it remains open how to accommodate *counterfactual* suppositions within Barnett’s overall approach.

There are further difficulties of transferring the suppositional view of indicatives to counterfactuals. A ‘zif’-statement ‘zif A, C’ is true iff C *is true* on the supposition that A. Provided we take this as a model for counterfactuals as well, C would be true on the

supposition that A iff A entails C; then the probability of C being true on the supposition that A is 1. 'Zif A, C' is n% probable iff: C *being true* on the supposition that A is n% probable.^{vi} But for the counterfactual, the condition of C being true on the supposition that A is that A entails C. If A does not entail C, the probability that it does entail C is 0. So how can the probability of 'zif A were the case, C would be', i.e. of C being true on the supposition that A ever be different from 0 or 1?^{vii}

Negation causes trouble, too:

A statement that it is not the case that, zif A, C is a statement of a unique thing—that it is not the case that C—within the scope of the supposition that A.(Barnett 2006, 546)

If we apply this to counterfactuals, from our accepting 'It is not the case that if the coin is/were thrown, it will/would fall heads' it seems to follow that if the coin is/were thrown, it will/would not be the case that it falls heads. So it will/would not fall heads. But we deny that if the coin is/were thrown, it will/would not fall heads.

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ⁱ Ad #6: Take Lewis' objective chances (Lewis 1994). We are going to throw a coin. It seems objectively correct to assign a credence of 0,5 to the statement that it will fall heads. It is objectively as incorrect to assign probability 1 as probability 0.

ⁱⁱ For intricacies of modals such as 'perhaps', 'surely' cf. Schnieder (2010) and the literature he gives.

ⁱⁱⁱ There are several uncertainties When is a counterfactual assertable? Does it have to be zif-true (by entailment) or merely zif-probable? At least the first alternative amounts to a major revision of our practice. Furthermore, what does qualification achieve? 'Definitely' might change truth conditions: A 'definitely'-counterfactual is true iff the corresponding counterfactual is true, false if the corresponding counterfactual fails to be true. And perhaps a 'probably'-counterfactual is true iff the corresponding unamended counterfactual is true or probable and false iff it is improbable. This would allow to accommodate Ed's (a). But what if Ed begins: Well, that much is *definitely true*: ...And how does the proposal square with the original 'zif'-rules which require entailment for truth?

^{iv} Consider the indicative: (10a') It is probable that hamsters fly, zif they have wings... There is no 'situation zif Sharon has left'.

^v Edgington has it that when A is false, nothing is asserted (Edgington 1995, 289). In contrast, Barnett insists: '...one who asserts that, zif A, C, asserts something -namely, that C- regardless of whether A.' (Barnett 2006, 543) Regardless of whether A, C is asserted *under the supposition that A*.

^{vi} 'How likely is it to be true that, zif this fair coin is flipped, it will land heads?' To which we respond: 'Fifty percent' (Barnett 2006, 540)

^{vii} For a parallel cf. DeRose (2010, 12-13).