Second North American Summer School in Language, Logic and Information Student Session Proceedings

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Preface

One of the most wonderful parts of the North American Summer School for Language, Logic and Information is the opportunity it affords young scholars to discuss their work with experts. By the same token, it is often inspiring for established researchers to see the creative directions in which recent work is being taken.

From this vantage point, it is certainly a privilege to present to the NASSLLI community such an promising collection of student work. Small in number but high in quality, the 2003 Student Session is sure to be an exciting event. This excitement is tempered by the news of immigration difficulties that prevent one of the authors from attending the Session. This paper is nonetheless included in these proceedings.

Thanks are due to the many people who assisted with preparations for the Student Session. Among them are the redoubtable **Student Session Program Committee**

Julia Hockenmaier, University of Edinburgh Gerhard Jaeger, Potsdam University Greg Kobele, UCLA Kai-Uwe Kühnberger, University of Osnabrueck Jens Michaelis, Potsdam University Yevgeniy Makarov, Indiana University Gideon Mann, Johns Hopkins University Ken Shan, Harvard University Christian Skalka, University of Vermont Rachel Sussman, University of Rochester

as well as the formidable **Local Arrangement Co-Chair**, Ignacio Viglizzo and our **Webmaster** Lei Qian.

Finally, our deepest thanks to Professor Lawrence S. Moss (Indiana) for his guidance.

John Hale Baltimore, Maryland

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Biscuit Conditionals and Common Ground

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Abstract

I argue that biscuit conditionals are best characterized in terms of a sequence of operations on the common ground. First, a biscuit conditional's antecedent is added to the common ground as a supposition to make an otherwise inappropriate assertion appropriate. Second, its consequent makes that assertion. Third, the supposition is lifted. I argue that my account handles some neglected data better than another recent approach defended by DeRose and Grandy.[†]

1 Introduction

Although the philosophical literature focuses on indicatives and subjunctives, there are remarkably many different kinds of conditionals. Here are examples of three:

Indicative conditionals: "If Oswald didn't shoot Kennedy, someone else did."

Subjunctive conditionals: "If Oswald hadn't shot Kennedy, someone else would have."

Biscuit conditionals: "If you're hungry, there's pizza in the fridge."

This paper develops what I will call a 'suppositional' account of biscuit conditionals. In brief, the account is as follows. To utter a biscuit conditional of the form 'If A, B' is not to perform a single speech act. Rather, it is to perform two speech acts, one after the other. A natural language analogue of the first is the imperative 'Suppose that A,' and a natural language analogue of the second is the assertion of B. So an utterance of a biscuit conditional 'If A, B' amounts to an assertion of B under the supposition that A.¹ Acts of

[†]Thanks to Danny Fox, Ned Hall and Bob Stalnaker for helpful discussion of the ideas presented in this paper, and to two anonymous referees for their comments.

¹In this paper I assume that the objects of supposition are propositions, and that propositions are exactly as finely grained as functions from possible worlds into truth values. When a proposition is supposed in a conversational context, it "becomes (temporarily) a part of the background of common assumptions in subsequent conversation" (Stalnaker 1974, 60). (This is a necessary condition for supposition; I won't try to give sufficient conditions for it here.) What makes assertion under a supposition different from assertion simpliciter is that what is asserted (in an act of asserting under a supposition) is asserted in a context in which some proposition has been supposed. For simplicity, in this paper I assume that the common ground can be modelled using no more than Stalnakerian context sets, i.e., using no more than sets of possible worlds that are compatible with the information in the common ground.

I also ignore the fact that in normal circumstances, when a speaker asserts that p, more than just the proposition that p is added to the common ground. For example, the proposition that the speaker asserted that p is also added to the common ground. Throughout, I am abstracting away from this and similar details, as though facts about the act of assertion per se were never added to the common ground.

supposition are by definition temporary changes to the common ground, and so we also need to say what happens to the common ground when the supposition is 'lifted.' Because the issues involved here are fairly complex, however, I will not discuss them in detail until I have done more to motivate the account and to explain its details.

My approach is opposed to that developed by Keith DeRose and Richard Grandy in their recent article on biscuit conditionals (1999). Drawing on Dorothy Edgington's account of indicative conditionals (1995), DeRose and Grandy argue that to utter a biscuit conditional is to make a "conditional assertion." After presenting some data that I think any theory of biscuit conditionals must account for, I will criticize the conditional assertion approach on the grounds that it cannot explain all the pertinent facts. I will then explain my own theory of biscuit conditionals in more detail and show how it can account for those facts.

Biscuit conditionals deserve careful study for a number of reasons. Here are two especially significant ones. First, I think it is important to give a relatively unified account of the semantics of biscuit and indicative conditionals.² If I am right about this, then we can use data about biscuit conditionals to help us evaluate candidate theories of other sorts of conditional expressions.³ Second, if my account is correct, biscuit conditionals are an interesting example of a construction that speakers use specifically to operate on the common ground when they realize that it would not be appropriate to simply assert the proposition they want to assert in the standing common ground. Indeed, it is important to see that there *are* such constructions, because further work on them may help shed light on the nature of common ground and the ways in which it can be updated.

2 What are biscuit conditionals?

Biscuit conditionals get their name from J. L. Austin's 1956 paper "Ifs and Cans," where Austin gives the sentence

(1) There are biscuits on the sideboard if you want them. (158, 160)

Broadly speaking, biscuit conditionals raise two questions. First, in general a speaker has the right kind of evidence to make her qualified to utter (1) just in case she has the right kind of evidence to make her qualified to utter (2).⁴

(2) There are biscuits on the sideboard.

But if she is qualified to utter (2), why does she instead use the (prima facie) weaker sentence (1)? Second, a speaker who utters (1) seems to be committed to the truth of (2) whether or not her addressee wants biscuits. With other kinds of conditionals, by contrast,

²Here are three reasons to prefer a unified account. First, there are biscuit conditionals in many languages other than English, and they have similar surface structure to indicatives, just as they do in English. Second, biscuit conditionals and indicative conditionals exhibit much if not all the same presupposition projection behavior. Third, the antecedents of both biscuit and indicative conditionals license negative polarity items (NPIs), such as non-free choice 'any,' 'ever,' 'a damn,' and so on. Biscuit conditionals of the form "If you want any, there are some . . . " are clear examples of this phenomenon.

Of course, these facts do not show that we *must* give biscuit and indicatives conditionals a uniform semantics. It is open to the objector to insist that we need different semantics for these two kinds of conditionals, and thus to maintain that nothing about the semantics of indicatives turns on the problems that the conditional assertion account, or any other account, has with biscuits. I will not try to show that this objection is wrong, but I think that the similarities I have already mentioned are very suggestive.

³I do not have time to say more about indicative conditionals in this paper, but in unpublished work I have been developing an account on which indicatives and biscuits have a relatively unified semantics.

⁴When I say here that a speaker is 'qualified' to utter some sentence ψ , I mean that her evidence for the proposition expressed by ψ meets the standards that must be met for it to be appropriate for her to utter ψ . In this sense, speakers are often qualified to say things that it would be conversationally inappropriate for them to say, although they usually will have evidence that it would be inappropriate to say such things.

it seems that the speaker's commitment to the truth of the consequent is (or, at least, can be) conditional on the truth of the antecedent. I think Austin's description of the way biscuit conditionals involve non-conditional commitment to the truth of their consequents is apt: "I do not know whether you want biscuits or not, but in case you do, I point out that there are some on the sideboard" (160). But consider other kinds of conditionals, like

- (3) a. If the glass fell, it broke.
 - b. If the glass had fallen, it would have broken.

It would clearly be wrong to paraphrase (3a), for example, by saying that 'I do not know whether the glass fell or not, but in case it did, I point out that it broke.'⁵

Here are two more examples of biscuit conditionals, from DeRose and Grandy's article:

- (4) If you're interested, there's a good documentary on PBS tonight.
- (5) Oswald shot Kennedy, if that's what you're asking me. (405)

These sentences are most naturally used as biscuit conditionals, and I think that Austin's basic observation about (1) applies well to all of them. A speaker who utters (4) doesn't know whether his addressee is interested in watching a documentary on PBS, and a speaker who utters (5) doesn't know whether his addressee is asking about who shot Kennedy.⁶

2.1 Relevance and truth

It is important to recognize, however, that not all biscuit conditionals involve the speaker's being unsure about the truth of the antecedent. Here is an example.

(6) If you get thirsty soon, there is juice on your tray.

The context that I have in mind is this: the speaker is a doctor, the addressee is her patient. The doctor has just given the patient a drug that will make him very thirsty in about half an hour, and the doctor knows this. So the doctor knows that the antecedent of the biscuit conditional obtains. But the patient isn't at all thirsty now—we can imagine, for example, that the patient's lack of thirst is precisely the reason that the doctor gave the drug in the first place—and the doctor knows this, too. So the doctor doesn't believe that the patient knows or even believes that the antecedent of (6) is true.⁷ It is the *addressee's* failure to believe the proposition expressed by the antecedent that warrants the speaker's use of the biscuit conditional. This case shows that the doubt indicated by the use of a biscuit conditional need not be doubt on the speaker's part about the truth of its antecedent. Instead, it may be the speaker's doubt that the addressee thinks the antecedent is true. A good theory of biscuit conditionals should account for this sort of use.

2.2 Presupposition projection

Another important phenomenon is presupposition projection. Although there is much work in the linguistics literature on the presuppositions of other kinds of conditionals, there is so

⁵Thanks to Bob Stalnaker for helpful comments on the issues discussed in this paragraph.

 $^{^{6}(5)}$ is a slightly strange example, since it's not entirely clear which question it is that the speaker intends to refer to in the antecedent of the biscuit conditional. That is, he could be unsure whether the addressee wants to know who shot Kennedy, or to know who Oswald shot, or to know how Oswald killed Kennedy, or to know whether Oswald shot Kennedy, or to know some variation on these. Focus or auxiliary insertion (e.g., "Oswald [shot]_F Kennedy, if that's what you're asking me," "Oswald did shoot Kennedy, if that's what you're asking me,") would generally help disambiguate, but DeRose and Grandy do not indicate whether any particles in the sentence are to be read as focused.

⁷Indeed, instead of (6) the doctor might have said: "You'll get thirsty soon. There is juice on your tray." The biscuit conditional is simply a less direct way of informing the patient that there is juice on his tray, one which doesn't involve informing the patient that he will get thirsty soon.

little work that looks specifically at the presuppositions of biscuit conditionals that it will be worthwhile to spend some time on the issue. Consider the following sentences:

- (7) a. If it matters to you, the car is over there.
 - b. If it matters to you, the car isn't over there.
 - c. If it matters to you, maybe the car is over there.
 - d. If it matters to you, it's unlikely that the car is over there.
- (8) a. If you don't already know, it was Dawn who bought the flowers.
 - b. If you don't already know, it wasn't Dawn who bought the flowers.
 - c. If you don't already know, maybe it was Dawn who bought the flowers.
 - d. If you don't already know, it's unlikely that it was Dawn who bought the flowers.
- (9) a. Ken will have lobster again today, if that's what you mean.
 - b. Ken won't have lobster again today, if that's what you mean.
 - c. Maybe Ken will have lobster again today, if that's what you mean.
 - d. It's unlikely that Ken will have lobster again today, if that's what you mean.
- (10) a. If you're wondering, Max knows that the game is tonight.
 - b. If you're wondering, Max doesn't know that the game is tonight.
 - c. If you're wondering, maybe Max knows that the game is tonight.
 - d. If you're wondering, it's unlikely that Max knows that the game is tonight.
- (11) a. Sue has started swimming, if that's what you're asking me.
 - b. Sue hasn't started swimming, if that's what you're asking me.
 - c. It's unlikely that Sue has started swimming, if that's what you're asking me.

(7a)-(7d) presuppose that there is exactly one salient car; (8a)-(8d) presuppose (among other things) that someone bought the flowers; (9a)-(9c) presuppose that Ken has already had lobster once today; (10a)-(10d) presuppose (among other things) that the game is tonight; and (11a)-(11c) presuppose that Sue hasn't been swimming in the recent past.⁸ Thus the presuppositions of definites, clefts, iterative adverbs, factives, and change-of-phase predicates can all project out of the consequents of biscuit conditionals.

For my purposes, what is particularly important to note is that this kind of presupposition projection occurs whether or not the antecedent of the biscuit conditional is true. Suppose that the addressee of (9a) *didn't* mean that Ken will have lobster again today: she meant that he will have lobster for dinner, for the first and only time today. She could obviously still complain that the person who uttered (9a) had presupposed that Ken had lobster earlier today, thereby committing himself to the truth of that proposition.

Other tests also show that presuppositions project out of the consequents of biscuit conditionals whether or not their antecedents are true. For example, consider the so-called "Hey, wait a minute!" test applied to some of the sentences I just mentioned. Intuitively, the "Hey, wait a minute!" test gives infelicities when what has just been asserted is echoed by the addressee, and gives felicities when what has just been presupposed is so echoed.

- (12) a. If you don't already know, it was Dawn who bought the flowers.
 - b. Hey, wait a minute! I had no idea someone *bought* the flowers.

⁸There is, perhaps, a reading of (9b) and a reading of (11b) on which the negation particle serves to effect something like metalinguistic negation, and the standard presuppositions arguably do not project on that reading. This phenomenon is not unusual, and it does not count against my claim that presuppositions can and often do project out of the consequents of biscuit conditionals.

- c. # Hey, wait a minute! I had no idea that Dawn did that.
- (13) a. If you're wondering, Max doesn't know that the game is tonight.
 - b. Hey, wait a minute! I had no idea the game is tonight.
 - c. # Hey, wait a minute! I had no idea Max doesn't know that.

Again, this test shows that presuppositions project out of biscuit conditionals' consequents irrespective of the truth of their antecedents. For example, it is easy to imagine for (13a) and (13b) that the addressee wasn't wondering whether Max knows that the game is tonight because the addressee himself didn't know that the game is tonight. That is just the kind of situation that might cause the addressee to respond to (13a) with (13b).⁹

3 Biscuit conditionals and 'conditional assertion'

DeRose and Grandy think that the key differences between indicative and biscuit conditionals lie in their assertibility conditions. On their account, speakers use standard indicative conditionals when they believe that the "simple probability" of the consequent's truth isn't high enough to warrant asserting the consequent by itself, but do believe that the *conditional* probability of the consequent's truth (C) given the truth of the antecedent (A) is high enough to warrant assertion (412–413). A speaker uses a biscuit conditional, by contrast, when she isn't "sufficiently sure that C is conversationally relevant, but does know that C is relevant if A is true" (413). Thus DeRose and Grandy clearly believe that the relevance of the consequent of a biscuit conditional turns on the *truth* of its antecedent. This aspect of their position makes it unclear how they would handle biscuit conditionals like

(6) If you get thirsty soon, there is juice on your tray.

In the relevant context for (6), the doctor knows (and knows that she knows) that the patient will get thirsty soon, so there is no question in her mind as to the truth of the antecedent. But the doctor believes that the patient believes the antecedent is false, and as a result the doctor also believes that the consequent isn't conversationally relevant. The doctor uses a biscuit conditional precisely because she believes that the *patient* doesn't believe the antecedent is true. That is, she uses a biscuit conditional because the antecedent isn't part of the common ground—not because the antecedent isn't true. For other examples of biscuit conditionals, like (1), (4), and (5), it is more plausible to think that the relevance of the consequent turns on the truth of the antecedent, because in those cases it is the speaker who isn't sure whether the addressee in fact wants any biscuits, or in fact is interested in

Additive particles: If you want to go to the movies, Henry and Iris are going, too.

These sentences raise many subtle issues, but unfortunately I will have to leave them for another time.

⁹It is hard to find cases of presupposition filtering with biscuit conditionals for two reasons. First, the antecedents and consequents of biscuit conditionals are typically so distantly related that it is hard to construct a case in which they are closely enough related that the presuppositions of the consequent are satisfied by the antecedent. Second, if the consequent of a biscuit conditional did rely on its antecedent for some of its presuppositions to be satisfied, then in contexts in which those presuppositions weren't already satisfied, its consequent would not be assertible (without the supposition or assertion of its antecedent, or something close to it). But one of the hallmarks of biscuit conditionals is that they are used when an otherwise assertible sentence threatens to be *irrelevant*—not when it threatens to exhibit presupposition failure.

That said, there are sentences that arguably can be interpreted as biscuit conditionals and that arguably exhibit the presupposition filtering behavior associated with indicative conditionals. Here are a few examples:

Factive verbs: If you're hungry, there are cookies on the table whether or not you want to admit that you're hungry.

Definite NPs: If anyone wants one, there are puppies looking for their new owners in the backyard.

PBS documentaries, or in fact is asking who shot Kennedy. But this is just one way for the common ground to be such that the consequent isn't relevant until the antecedent of the biscuit conditional is uttered. The doctor / patient situation I discussed as a context for (6) is another way for the common ground to be such that the consequent isn't relevant until the use of a biscuit conditional makes it so, and in this case the failure of the consequent to be relevant has nothing to do with the truth or falsity of the biscuit conditional's antecedent.

On the other hand, DeRose and Grandy hold that the key similarity between indicative and biscuit conditionals is that they are used to make conditional assertions.

... whenever stating 'A \rightarrow C'¹⁰ does result in a truth-evaluable assertion, that assertion is true iff C is true. When does 'A \rightarrow C' result in an assertion of C? When A is true. What, then, is asserted where A is false? Nothing. 'A \rightarrow C' is used to *conditionally assert* that C. (407, cf. 411)

In other words, what is asserted by an utterance of 'If A, C' depends on whether A is true. If A is true, an utterance of 'If A, C' will be an assertion of the proposition expressed by C. If A is false, an utterance of 'If A, C' will not be an assertion of any proposition whatsoever. If as a matter of fact you're not hungry, when I say to you 'There are biscuits on the sideboard if you're hungry,' I have not succeeded in asserting any proposition. What I have done, according to DeRose and Grandy, is to *implicate* that there are biscuits on the sideboard.¹¹ Thus DeRose and Grandy rightly acknowledge that a speaker has committed herself to something even if the antecedent of the biscuit conditional she utters is false. I think they are wrong, however, to think that that commitment is effected through an implicature. I say this because if the antecedent of the biscuit conditional is false, then according to their own analysis no assertion has been made. It is hard to see how a speaker could implicate anything without having asserted something. Gricean conversational implicature is standardly thought of as a process that relies on the speaker's "saying (or making as if to say) that p" (Grice 1987, 30). But on DeRose and Grandy's view, when a speaker utters a biscuit conditional, she does not say anything unless the antecedent of the biscuit conditional is true. The burden is on DeRose and Grandy to explain how the calculation of the implicature works if the speaker has not said or made as if to say anything.¹²

DeRose and Grandy's claim that biscuit conditionals with false antecedents express what they do through implicature also makes it hard for them to explain presupposition projection out of biscuit conditionals. Perhaps DeRose and Grandy would say that presuppositions can somehow project out of implicatures. After all, presuppositions can project from certain non-assertoric contexts, since they generally project out of questions and commands. But it seems almost like a category mistake to think that *implicatures* have presuppositions. Indeed, it seems to be nearly as bad as saying that implicatures themselves have implicatures. It would certainly be interesting if DeRose and Grandy could offer independent evidence of presupposition projection out of implicatures, but without such evidence it is hard to justify positing such projection simply to save their account of biscuit conditionals.

 $^{^{10}\}mathrm{DeRose}$ and Grandy use the standard 'A \rightarrow C' to stand for sentences of the form 'If A, C.'

 $^{^{11}\}mathrm{As}$ they put it: " . . . even where the proposition on which your assertion of C is conditioned proves false, and you end up not asserting C, you do implicate that C and generate a simple commitment to the truth of C" (414).

¹²Perhaps DeRose and Grandy would say that a speaker "makes as if" he has asserted the consequent of a biscuit conditional when its antecedent is false, thereby implicating that the consequent is true. I think this response is a non-starter, however. For if we in fact only "made as if" to say something whenever we uttered a conditional with a false antecedent, it would in many cases be just as easy to violate the maxim of relevance by making as if to say that **p** as it is to violate it by *saying* that **p**.

4 Biscuit conditionals and common ground

I think that the suppositional account I began to sketch earlier fares better with the phenomena I have been discussing. My account relies on three key ideas to handle biscuit conditionals. The first has to do with the function of antecedents; the second has to do with the function of consequents; and the third has to do with how the context set is updated when the supposition introduced by the antecedent is lifted.

The first important idea behind my approach is that speakers use biscuit conditionals when they want to assert some proposition the assertion of which might violate the maxim of relevance in a way that cannot be easily accommodated. To avoid violating that maxim, a speaker uses a biscuit conditional in order to get the addressee to temporarily suppose that the antecedent of the biscuit conditional is part of the common ground. Once the antecedent becomes part of the common ground, the assertion of the consequent will no longer threaten to violate the maxim of relevance.

There are a number of ways that the common ground can be such that the assertion of a given proposition would violate the maxim of relevance. One way is for the speaker to be unsure whether the proposition expressed by the antecedent of the biscuit conditional is true. But there are other ways for the context to be such that the utterance of a biscuit conditional is felicitous, as my example (6) is supposed to illustrate.

(6) If you get thirsty soon, there is juice on your tray.

Because the doctor doesn't believe that the patient believes he will get thirsty soon, the proposition that the patient will get thirsty soon is not part of the common ground. My account addresses this use of biscuit conditionals directly, for it says that the antecedent of (6) introduces the proposition that the patient will get thirsty soon into the common ground as a supposition.¹³ But my account can also handle more familiar cases like (1), (4) and (5), because there too the propositions that the addressee wants biscuits, that the addressee is interested in PBS documentaries, and that the addressee is asking whether Oswald shot Kennedy are not part of the common ground. Again, the antecedent of the biscuit conditional serves to make them part of the common ground, as temporary suppositions.

The second important idea is that the proposition expressed by the consequent of a biscuit conditional is *always* asserted, whether or not the antecedent is true, in the sense that the consequent is always added to the appropriate stage of the context set. In particular, it is added to the stage between the supposition that the antecedent is true and the lifting of that supposition. Indeed, what makes appropriate the assertion of the consequent is the way that the antecedents of biscuit conditionals temporarily update the common ground. Thus the worries I raised about presupposition projection out of the consequents of biscuit conditionals are easy for my account to handle. The presuppositions of a biscuit conditional's consequent project because the consequent updates the common ground whether or not the biscuit conditional's antecedent is true.

Finally, the third important idea specifies the ways in which biscuit conditionals modify the common ground. Call the state of the context set C_n $(n \in \mathbb{N})$, where subscripts indicate stages in the updating of the context set. Call the initial state of the context set C_0 . Now

¹³Of course, there are other ways for a proposition to fail to be part of the common ground. For example, suppose the patient has been researching his condition, and knows that the drug the doctor gave him will make him thirsty soon. Suppose, moreover, that the doctor knows this—she has noticed him reading certain books, say, and looking carefully at the labels of the drugs he has been administered—but that the patient isn't aware of what the doctor knows, and that the doctor knows this as well. In such a situation the proposition that the patient will be thirsty soon is not part of the common ground, because although all the participants in the conversation believe it, not all of the participants believe that all the participants believe it. For this reason my account predicts, rightly, that in such a situation it will be felicitous for the doctor to use a biscuit conditional like (6). Thanks to Ned Hall for this observation.

suppose that a sentence of the form 'If A, B' is uttered in C_0 , and that the utterance is felicitous, the addressee is cooperative, and so on. The first operation that will take place is the (temporary) supposition of A:

Step 1:
$$\mathcal{C}_1 = \mathcal{C}_0 \cap \mathsf{A}^{14}$$

Next we have the assertion of B, under the supposition that A:

Step 2:
$$C_2 = C_1 \cap B$$

Then the supposition that A is lifted. Now when a speaker uses a biscuit conditional she is as a rule not worried that she might wrongly assert B in the sense that B might be false. Rather, she is typically sufficiently sure that B is true to simply assert B in an appropriate context, and she is as committed to the truth of B as she is to the truth of any other proposition she would ordinarily assert. Her reluctance to simply assert B is due solely to relevance constraints imposed by the context in which she finds herself. She uses a biscuit conditional in order to meet these constraints, and her addressees, as competent language users, understand this. So when an addressee interprets a conditional as a biscuit conditional, he accordingly treats the supposition as a mere relevance-ensuring device. The addressee realizes that the speaker's assertion of B under the supposition of A in Step 2 might well have been an assertion simpliciter of B, had the context set been appropriate for such an assertion. So the lifting of the supposition in Step 3 returns to the context set only those $(B \land \neg A)$ -worlds that were part of the initial context set, for those were the only B-worlds disregarded by the assertion of Step 2. Step 3 corrects for the effects of the supposition by returning to the context set those worlds that had been excluded for the sake of B's relevance:

Step 3:
$$C_3 = C_2 \cup ((\mathsf{B} \cap C_0) \cap -\mathsf{A})$$

This step captures the way in which, when a speaker uses a biscuit conditional, she nonconditionally commits herself to the truth of the consequent. The final effect of these calculations is of course no different from

Net effect: $C_3 = C_0 \cap B$

But as we saw earlier, part of the function of biscuit conditionals is to update the context in a way that will prevent the violations of the maxim of relevance that would occur if B were simply asserted. The context change necessary to avoid such violations is captured by Step 1, above.

5 Conclusion

This paper has presented some new data, having to do with considerations about relevance and with presupposition projection, that any successful account of biscuit conditionals must be able to account for. I argued that one approach defended in the literature cannot explain that data, and presented a new theory, that involves a sequence of operations on the common ground, that can. In future work I plan to extend that theory to other kinds of natural language conditional constructions.

¹⁴For clarity, I have put my context change calculations in terms of set-theoretic operations on the context set. 'A' and 'B' stand for sets of worlds, the characteristic functions of which are propositions.

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