But if...
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1 The Orthodox View of 'But'

The orthodox view in philosophy of language is that non-exceptive uses of *but* expresses the same literal content as *and* and moreover conveys what we might call a *contrastive* content — some kind of contrast between its two arguments. This contrastive content is assumed to be distinct from and independent of the literal conjunctive content because the truth conditions of the literal content appear to be independent of the truth conditions of the contrastive content, and vice versa. For example, if a speaker asserts the sentence in (1), what she *literally* expresses is that Matt Damon is both rich *and* famous.

    (1)   Matt Damon is rich but famous.

    However, the speaker also intuitively conveys that being both rich and famous is somehow contrary to what is generally expected. While this contrastive content will likely seem strange (as presumably it is not commonly accepted that wealth precludes fame), nevertheless the speaker's assertion of (1) is typically judged to be true as long as Matt Damon is both rich and famous. So, the contrast expressed by *but* is not part of the literal meaning of (1).

    The orthodox view is, of course, due to H. P. Grice (1989).[1] Grice famously introduced the distinction between WHAT IS SAID and WHAT IS IMPLICATED where what is said by a sentence is its truth conditional/literal content and what is implicated is an additional non-literal content that is calculated on the basis of various pragmatic principles. Grice maintained that what defines literal content is that it is *conventional* and *non-cancelable*. In particular, if what is said by a sentence S is the content p, then p must be consistently expressed by S and it will be infelicitous and incoherent to deny or reject p upon an assertion of S. This explains, for example, why the continuation in (2) is infelicitous.

    (2)   Matt Damon is rich and famous. #However, I don't mean to suggest that he is rich.

    By contrast, implicated contents are neither conventional nor non-cancelable. Using a familiar example to illustrate, if a speaker asserts (3), then she literally expresses the content that some—and possibly all—actors give to charity, but in many contexts she will convey something different, namely that some—but not all—actors give to charity.

    (3)   Some actors give to charity.

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[1]Even though, one might argue, Frege already made the relevant observations prior to Grice.

This CONVERSATIONAL IMPLICATURE, as Grice labeled it, is not part of the conventional meaning of (3), because (*a*) utterances of (3) will not always trigger this implication and (*b*) in contexts where it will, the speaker may cancel it without this resulting in infelicity or incoherence. That is, generally speaking there is nothing linguistically inappropriate about following an assertion of (3) with (4).

(3) Some actors give to charity.
(4) ... In fact, it's possible that all actors do.

If the conversational implicature above is part of what is said, i.e. if the content literally expressed by (3) is that *some but not all* actors give to charity, the subsequent assertion of (4) should be both infelicitous and incoherent as evidenced by (5).

(5) Some but not all actors give to charity. #In fact, it's possible that all actors give to charity.

The coordinator *but*, however, presents something of a problem for Grice since it does not fit neatly into the category of literal/conventional content nor the category of implicated/non-conventional content. As mentioned above, the contrastive content expressed by *but* is not intuitively part of the literal content which suggests that it belongs in the category of implicature. Yet, the contrastive content is arguably conventional as it appears to be conveyed in all contexts. It also appears to be non-cancelable as cancelations seem to invariably produce infelicity. Consider, for example, the attempt at a cancelation in (6).

(6) Matt Damon is rich but famous. #/? Although, I don't mean to suggest that being rich normally precludes being famous.

Grice was, of course, aware of this and therefore introduced the notion of a CONVENTIONAL IMPLICATURE. A conventional implicature is a content that is not part of the literal meaning, yet is conventionally triggered by some expression. In other words, according to Grice, (1) conventionally conveys that it is contrary to expectation that a person is both rich and famous, but this content is not literally expressed by (1). In addition, since this content is conventional, it is not calculated on the basis of various conversational principles. Rather, it is part of the meaning expressed by *but*.

In 'Logic and Conversation' where Grice first introduces the concept of a conventional implicature, he also very quickly sets the concept aside. As a result, he provides very limited details about the nature of these alleged implicatures. The reason is that Grice is primarily interested in providing an account of the "general features of discourse" that explain how conversational implicatures are derived. And since in the case conventional implicatures, "the conventional meaning of the words used will determine what is implicated" (Grice, 1989, 25), Grice seems uninterested in providing a thorough analysis of these alleged implicatures. Despite this, the category of CONVENTIONAL IMPLICATURE has become firmly entrenched in

philosophy of language and linguistics and is often appealed to in explanations of various linguistic phenomena.

1.1 The Two Propositions View

There is one very general reason to be skeptical of the idea that *but* triggers a conventional implicature. As emphasized by Bach (1999), if the allegedly implicated content conveyed by *but* is conventional—and consequently this content is not calculated on the basis of various conversational principles—it then seems that there is no obvious reason to assume that this content is in any relevant sense *implicated*. If the relevant contents are just straightforwardly part of the meanings of the expressions themselves, then characterizing these contents as implicated seems misleading.

Bach therefore proposes an alternative view. Instead of analyzing the contrastive content of *but* as an implicature (of any kind), Bach suggests that sentences such as (1) express *two* propositions rather than one, namely one proposition with the simple conjunctive content of (1) and another proposition with the relevant contrastive content. Using Bach's terminology, a speaker who asserts a sentence such as (1) is performing two simultaneous speech acts, namely a primary and a secondary speech act. Specifically, if a speaker asserts (1), she expresses both of the propositions in (6a) and (6b).

(1) a. Matt Damon is rich and famous.
     b. Normally, if an individual *a* is rich, then *a* is not famous.

Bach provides arguments both against the general notion of *conventional implicatures* and in favour of his alternative *two propositions* view, but the details of these arguments will not be important for the purposes of this paper. What I want to emphasize here is simply that Grice's and Bach's views are similar in at least one respect. Both maintain that literal and contrastive contents are thoroughly distinct and independent. In other words, according to both views the contrastive content expressed by *but* should not be able to linguistically affect anything that relates to the literal content. The contrastive content is expressed *in addition* to the literal content. Moreover, while the contrastive content conveyed by *but* may be entered into the common ground, it will not be available for anaphoric reference in the way that the literal content (or the content of the primary speech act) will.

2 Counterexpectation, Correction, and Semantic Opposition

Grice's and Bach's proposed analyses of 'but' both suffer from one particular problem, namely a lack of generality. As stressed by e.g. Toosarvandani (2014), both of these views are incapable of capturing a couple of alternative uses of *but* where what is conveyed is something clearly different from the implications considered above.

Following Toosarvandani, I will refer to the implication in (1) as a *counterexpectation* implication. The counterexpectation implication can be generally characterized as follows:

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When speaker asserts 'ϕ but ψ', she literally expresses ϕ and ψ, but in addition she conveys that it is normally the case that if ϕ, then $\neg\psi$. This is a *counter*-expectation in the sense that a general expectation about ϕ and $\neg\psi$ is conveyed, but then asserted to not be met in this particular case. The counterexpectational use of *but* is essentially the only use that Grice and Bach considers, but as mentioned above, there are alternative uses where *but* does not trigger this kind of implication. Consider, for example, the dialogue below.

(7)   a. I believe Alfred dances.
      b. Alfred doesn't dance, but he sings.[2]

The answer in (7b) does not convey any implication of *counterexpectation*. In particular, it is not the case that if a speaker asserts a sentence of the type '*a* doesn't *F*, but *a Gs*', then the speaker generally conveys that normally if an individual does not *F*, then she doesn't *G* either. In the specific case of (7b), the speaker does not convey the implication in (8).

(8)   Normally, if an individual doesn't dance, then that individual doesn't sing.

Rather, what is intuitively communicated by (7b) is merely the simple conjunctive meaning that Alfred does not dance and that Alfred sings. So, the function of *but* in sentences such as (7b) is intuitively to *correct* a false (if tentative) contextual assumption rather than to convey some counterexpectation. These uses of *but* are therefore standardly referred to as *corrective* uses and they are characterized by a polarity opposition typically generated by the presence of a negation in the first conjunct. However, as noted by Toosarvandani, the term *corrective* is somewhat misleading, because there are many instances of these uses of *but* where the speaker is not correcting anything or anyone. For example, uses such as the following are perfectly felicitous.

(9)   a. Does Alfred dance?
      b. Alfred doesn't dance, but he sings.

(10)   a. I'm certain that Alfred doesn't dance.
       b. You're right. Alfred doesn't dance, but he sings.

There is clearly no sense in which *b* is correcting *a* in these cases, but these uses of *but* are intuitively identical to the use in (7b). Despite this, I will follow Toosarvandani in continuing to refer to these uses as *corrective* uses.

In addition to the corrective use of *but*, there are also so-called *semantic opposition* uses. Here is an example.

(11)   John is tall, but Bill is short.[3]

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[2]Example adapted from Toosarvandani (2014, 4)

[3]Example from (Toosarvandani, 2014, 4)

As in the case of corrective uses discussed above, there is intuitively no counterexpectation implication in (11). That is, (11) does not convey that normally if an individual a is tall, then another individual b is also tall. Again, what is intuitively conveyed by (11) is simply a single proposition with the conjunctive content that John is tall and that Bill is short. Arguably, the linguistic function of *but* in these kinds of cases is merely to emphasize a contrast between an antonymic pair — in this case *tall* and *short*.

The existence of these alternative uses of *but* suggests that any analysis that consistently predicts counterexpectational meanings is incorrect. However, there is of course the option to argue that *but* is lexically ambiguous or polysemous and hence that the corrective and semantic opposition uses of *but* really involve distinct lexical items that are merely homonyms with a similar syntactic distribution. This is not entirely implausible as it seems that some languages do mark a difference between these uses, e.g. the distinction in German between *aber* and *sondern*, see e.g. Abraham (1979), and in Spanish between *sino* and *pero*, see e.g. Vicente (2010).

However, since this difference is not marked in a very wide variety of languages, e.g. English, Swedish, French to name a few, some have argued that a uniform analysis of *but* that accounts for all its uses is preferable. One such analysis is the analysis proposed by Toosarvandani (2014).

3   Implications and Questions under Discussion

Toosarvandani (2014) sets out to give a unified semantics for *but* that captures all of the uses described above. Like Grice, he assumes that *but* conventionally conveys two types of content, namely a literal content and a non-literal content. In particular, Toosarvandani adopts the distinction introduced by Roberts (1996) between AT-ISSUE content and PRESUPPOSED content.[4] The at-issue content is simply the literal contents of the two coordinated constituents. Hence, the at-issue content of 'ϕ but ψ' is simply ϕ and ψ. The additional content is non-literal but nevertheless conventionally conveyed, namely through a rather complex set of presuppositions. Toosarvandani's actual proposal looks as follows:

(12) $[\![\phi \text{ but } \psi]\!]$ = AT-ISSUE: $[\![\phi]\!] \wedge [\![\psi]\!]$
                     PRESUPPOSITION: $\exists p: p \in \text{QUD}([\![\phi]\!] \Rightarrow p) \wedge$
                                                    $\exists p: p \in \text{QUD}([\![\psi]\!] \Rightarrow \neg p)$

Let's carefully work through what this says. As mentioned above, the *at-issue* (or literal) content of 'ϕ *but* ψ' is simply its two conjuncts, ϕ and ψ. However, the coordinator *but*

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[4]For present purposes, you can think of *at-issue* content as equivalent to *literal* content. Although Potts (2005) was, I believe, the first to use the terms *at-issue* and not *at-issue*, I think Roberts was the first person to characterize the relevant distinction. Roberts actually uses the term *proffered content* for *at-issue* content, but the latter has now become standard.

triggers a presupposition that relates each of the conjuncts to a QUESTION UNDER DISCUSSION (QUD) in the context. Here, again, Toosarvandani is following Roberts (1996) in assuming that any conversational context has a question under discussion. Formally, a QUD is a set of propositions, namely the set of its possible answers. So, what is presupposed by *but* is that for each conjunct there is an answer to the QUD, viz. a proposition p, such that the first conjunct implies p and the second conjunct implies the negation of p. However, it is important to note that these propositions may be different. For example, the first conjunct ϕ may presuppose that there is an answer p to the QUD that is implied by ϕ while the second conjunct ψ may presuppose that there is an answer q to the QUD and $\neg q$ is implied by ψ. Cases where each conjunct is related to the same proposition in the QUD will correspond to counterexpectational uses, whereas cases where each conjunct is related to different propositions in the QUD will correspond to corrective and semantic opposition uses. Why this is will be explained shortly.

Before turning to the explanation of how this proposal is supposed to capture the three uses of *but* described above, we need to turn our attention to the semantics of '$\Rightarrow$' in (12). Toosarvandani assumes a modal semantics similar to the modal semantics for indicative conditionals proposed by Kratzer (1981, 1991). On Kratzer's view, indicative conditionals are essentially generalized quantifiers over possible worlds, i.e. functions that take two sets as arguments and output a truth value. So, a sentence of the form 'if ϕ, then ψ' roughly has the form $\Box(\phi, \psi)$ where $\Box$ is a universal quantifier over possible worlds, ϕ is a restrictor on the modal domain of quantification, and ψ is the nuclear scope. In addition, Kratzer assumes that the domain of the modal quantifier is contextually restricted — as is also standardly assumed for nominal quantifiers. In the case of modal quantifiers, the contextual restriction may, for example, be *epistemic*, viz. restricting the set of possible worlds in the domain to worlds that are consistent with the knowledge or evidence of the relevant subject(s), or *nomological*, viz. restricting the set of possible worlds in the domain to the worlds that conform to a set of relevant laws, regulations, or rules. In addition to this contextually determined restriction of the quantificational domain, Kratzer also assumes that the domain is further constrained by an *ordering source*. For example, if the modal domain is contextually restricted to the set of epistemically possible worlds, then given a so-called *stereotypical* ordering source, these worlds will be ranked according to how "normal" they are. There are a variety of other types of both contextual domain restrictions and ordering sources, but here I will mainly be concerned with *epistemic* modal domains and *stereotypical* ordering sources.

Toosarvandani represents both the domain and ordering source as a simple accessibility relation constraint, and hence formalizes the Kratzerian semantics as follows:

(13) $\quad [\![\phi \Rightarrow \psi]\!]^{w_c} = \forall w'\big((R(w_c, w') \wedge \phi(w')) \rightarrow \psi(w')\big)$

This says that the indicative conditional '$\phi \Rightarrow \psi$' is true at world w of the context c if and only if ψ is true at every ϕ-world accessible from the world of the context. Here it is assumed that a world is accessible only if it is a member of the set of the highest ranked worlds in the modal base given the ordering source. Hence, for any of the highest ranked possible worlds

v in the contextually restricted modal domain where ϕ is true, ψ also has to be true at v in order for the conditional to be true.

Let's now work through an example involving a counterexpectational use of *but* and review what Toosarvandani's proposed account predicts. Consider the example below.

(14)   The player is tall, but agile.

Intuitively, a speaker who asserts (14) conveys (*a*) that the player is tall and agile, and (*b*) that normally, if a player is tall, she is not agile. Let's suppose that (14) is asserted in response (15), so that (15) is the contextually salient QUD.

(15)   What is the player like?

As mentioned above, the denotation of (15) will be the set of possible answers to (15), i.e. a set of propositions such as (16).

(16)   {the player is fast, the player is slow, the player is thick, the player is thin, the player is clever, the player is athletic, the player is clumsy, the player is agile, ...}

So, one of the possible answers to (15) is (17).

(17)   The player is clumsy.

Now, according to Toosarvandani, (17) is implied by the first conjunct of (14), presumably because it is generally assumed that in the most normal worlds, tallness impedes agility and hence promotes clumsiness. So, normally, being tall implies being clumsy. However, the negation of (17) is implied by the second conjunct of (14), again presumably because it is generally assumed that in the most normal worlds, agility precludes clumsiness — after all, the word *clumsy* is standardly listed as an antonym of *agile*. This yields the following implications.

(18)   The player is tall $\Rightarrow$ the player is clumsy.
(19)   The player is agile $\Rightarrow$ the player is not clumsy.

In other words, according to Toosarvandani, there is an answer p to (15) such that the first conjunct of (14) implies p and the second conjunct of (14) implies $\neg p$. Given this, the two presuppositions of (14) are satisfied.

The crucial question is in what way this proposed analysis captures the intuitive counter-expectation implication triggered by (14), namely the denial of the expectation that being tall precludes being agile? Moreover, since the presuppositions of (14) and the literal content of

(14) seemingly entail a contradiction, a further question that needs to be addressed is how this account avoids predicting that an assertion of (14) is judged to be inconsistent?[5]

Starting with the latter question, Toosarvandani argues that a contradiction only arises when the implications are assumed to be *strong* rather than *weak*. So, what is meant by this? Well, an implication is *strong* if and only if the actual world must be a member of the set of worlds that are relevant to evaluating the consequent. But Toosarvandani maintains that nothing in Kratzer's analysis requires this to be the case. While Kratzer's analysis assumes that the modal base is *realistic*, i.e. includes the actual world, it does not require that the actual world is in the set of highest ranked worlds in the modal base. So, (18) can be true, even if the actual world is not such that the relevant player is tall and clumsy. The reason is that this conditional simply expresses something about what is the case at the most *stereotypical* worlds, viz. the most normal worlds. Since the actual world may deviate from what is normal, the actual world need not be included in this set. This means that (14), (18), and (19) can all be true at the same time without contradiction.[6]

Let's now turn to the question concerning how Toosarvandani's account predicts the counterexpectation implication. Remember, what is intuitively implicated by (14) is that tallness (normally) precludes agility. How is this conveyed by (14)? Well, since the first conjunct of (14) combined with the presupposition in (18) triggered by *but* intuitively licenses the inference that the player is clumsy and since being clumsy is literally the opposite of being agile, the speaker conveys the expectation that if the player is tall, then the player is not agile. This expectation is then immediately countered by the assertion of the second conjunct. In other words, the situations where *but* triggers the counterexpectation implication are cases where the presuppositions of each conjunct are related to the same proposition in the QUD, but one entails the proposition and the other entails the negation.

Let's work through another example. Consider (20) below.

(20)   Is Alfred any good at basketball?

Now consider the response in (21).

(21)   Alfred is tall, but he is no good at basketball.

Again, this is arguably a counterexpectational use of *but* because the speaker seems to convey that being tall (normally) implies being skilled at basketball. Normally we take it for granted that tallness yields a significant advantage in basketball, so the first conjunct of (21)

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[5]In particular, given that the literal content of (14) is ($p \land q$), and the presuppositions of (14) are ($p \Rightarrow r$) and ($q \Rightarrow \neg r$), a contradiction can be derived as long as simplification is valid and the semantics for '$\Rightarrow$' validates modus ponens.

[6]But this also means that this analysis of indicative conditionals invalidates modus ponens. See Charlow (2013) for a more extensive argument in favor of this conclusion.

can reasonably be taken to imply that Alfred *is* good at basketball. This, of course, is precisely one of the answers to the question 'Is Alfred good at basketball'. So, the first presupposition triggered by *but* is satisfied. However, the second conjunct, viz. that Alfred is no good at basketball, implies the negation of this answer, and this is trivially satisfied since it is literally the implication ($\neg\phi \Rightarrow \neg\phi$). And, again, the proposed explanation for why *but* triggers a counterexpectation implication is that the first conjunct triggers the presupposition that being tall, normally implies being good at basketball and that this can be true even if Alfred is in fact tall but no good at basketball. The expectation is then subsequently denied by the assertion of the second conjunct.

Let's now move on to corrective and semantic opposition uses. The key difference between these cases and the counterexpectation cases is that the implications in the presuppositions are strong rather than weak. That is, Toosarvandani assumes that when *but* is used correctively or to express a semantic opposition, the ordering source for the conditionals are empty. Hence, given that the modal base is realistic, viz. the actual world is a member of the relevant set of evaluation worlds, the presuppositions triggered by *but* must relate each conjunct to different answers in the QUD in order to avoid generating a contradiction. Let's consider an example involving a corrective use. Assume the QUD is (22).

(22)   What doesn't Alfred do? I know he doesn't dance.

And let's further assume that (23) is asserted in response to (22).

(23)   Alfred doesn't dance, but he sings.

The denotation of (22) is something along the lines of (24).

(24)   {Alfred doesn't dance, Alfred doesn't sing, Alfred doesn't run, Alfred doesn't jump, Alfred doesn't eat vegetables, ... }

So, we get the following:

(25) $[\![(23)]\!]$ = AT-ISSUE: $\neg$dance(Alfred) $\wedge$ sing(Alfred)
                PRESUPPOSITION: $\exists p: p \in$ QUD($\neg$dance(Alfred) $\Rightarrow p$) $\wedge$
                $\exists p: p \in$ QUD(sing(Alfred) $\Rightarrow \neg p$)

These presuppositions are satisfied. With respect to the first conjunct, '$\neg$dance(Alfred)', there is a proposition in (24) that is entailed by this, namely that very proposition. Moreover, '$\neg$sing(Alfred)' is a member of the QUD, and the negation of this proposition, namely '$\neg\neg$sing(Alfred)' is entailed by the second conjunct.

However, since the presuppositions are related to different propositions, it is clear why no counterexpectation implication is triggered. There is simply no expectation that is being denied. In addition, Toosarvandani's account also explains why a negative polarity, typically in the form of a negation, is required for corrective uses. First, note that (26) is infelicitous.

(26)   #Alfred dances, but he sings.

The explanation for the infelicity of (26) is that the presuppositions triggered by *but* cannot be satisfied. Suppose that the QUD is (27).

(27)   What does Alfred do?

Again, the denotation of (27) will be something like (28).

(28)   {Alfred dances, Alfred sings, Alfred runs, Alfred acts, Alfred writes, ...}

Now, the first conjunct will, of course, entail a proposition in (28), but the second conjunct will not. Hence, the presuppositions triggered by *but* cannot be satisfied, and consequently the sentence is predicted to be infelicitous—which it is.

This should suffice to give you a rough idea of how Toosarvandani's account works. I'm going to skip explaining how the account deals with the semantic opposition uses since all that is really required for the purposes of this paper is to have a general understanding of Toosarvandani's account. Instead, I am going to turn now to what I consider some general problems for Toosarvandani's analysis as well as all the analysees that Toosarvandani's account was supposed to be an improvement over.

4   Problems

I think there are essentially three kinds of problems with Toosarvandani's proposed analysis. First, it seems that its predictions are not in fact accurate in that it doesn't succeed in predicting, in full generality, what should be predicted. Second, there are further, and I think quite normal, uses of *but* that the analysis is unable to capture. And, third, there are uses of *but* where its contrastive content has a very clear and direct semantic effect which neither Toosarvandani's account nor any other existing account is equipped to explain. Specifically, I will show that there are cases where the function of *but* is essentially to effect a kind of modal subordination.

4.1   Predictive Problems

The first problem I will focus on is specific to Toosarvandani's proposal. Consider again (21) – repeated below.

(21)   Alfred is tall, but he is not good at basketball.

It is widely agreed that if a speaker asserts (21), she will convey at least two things. First, she will convey the literal content that Alfred is tall and that Alfred is no good at basketball and, second, she will convey some additional contrastive content. The key question, of course, is what exactly this contrastive content is. As it turns out, it is quite difficult to precisely pin this down. However, in my view, it is clear that this contrastive implication (or whatever it is)

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is perfectly *general*. It is not an implication solely about Alfred. That is, the implication is not merely that Alfred's being tall somehow implies that *he* is good at basketball. Intuitively, the implication applies to anyone who is tall. But this is not what Toosarvandani's account actually predicts. It predicts an implication that is specifically about Alfred. It predicts that the "expectation" conveyed by *but* is the expectation that because *Alfred* is tall, then *Alfred* is good at basketball, hence leaving it open that this implication might not generally apply to others.

So, the problem is that the predictions of Toorsarvandani's account are not sufficiently general. If as an attempted insult, I say 'Alfred is a fan of F.C. Barcelona, but a decent human being', I am intuitively insulting all Barcelona fans and not just Alfred. But Toosarvandani's account will only predict that I am conveying an expectation about Alfred. Unfortunately, this predictive inadequacy does not appear to have any easy fix, because when the QUD is a question about a specific individual, in this case Alfred, and the contrastive content is to be calculated on the basis of that QUD, then it is somewhat unclear how a completely general conclusion could be derived.

4.2 Alternative Uses of 'But'

Consider two scenarios. In both scenarios, the interlocutors are discussing who to add to a certain sports team roster, but it is unclear to you whether the relevant sport is basketball or gymnastics. However, you know that the sport in question is one of the two. You also know that being short is generally an advantage in gymnastics and a disadvantage in basketball. In the first scenario, you overhear the exchange in (29).

(29)   *a*. What about Patterson? Would she be a good choice?
        b. She has great technique and she is short.

In the second scenario, you overhear the exchange in (30).

(30)   *a*. What about Patterson? Would she be a good choice?
        b. She has great technique, but she is short.

My contention is that if you overheard the exchange in (30), your most likely conclusion would be that the sport in question is basketball. By contrast, if you overheard the exchange in (29), you would likely conclude that the relevant sport is gymnastics. The intuitive explanation is that the use of *but* in (30) conveys that being short is a *dis*advantage but the use of *and* in (29) intuitively conveys that it is an advantage. This leads to the conclusion that the topic of conversation is gymnastics in (29) and basketball in (30).

This use of *but* is arguably distinct from the uses considered so far, namely the semantic opposition uses, corrective uses, and counterexpectational uses. First, it is not a semantic opposition use because the relevant properties ascribed to Patterson are not antonymic. Second, it does not look like a corrective use, since there is no negative polarity present in the

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first conjunct. Third, it is not a counterexpectational use as *b*'s assertion in (30) clearly does not involve the denial of an expectation that having good technique normally implies not being short. In other words, this is a use of *but* where its general contrastive effect is different somehow. I will refer to this use of *but* as the PROS-VS-CONS use.

So, how should this use be analyzed more generally? The linguistic function of *but* in the cases above seems to be to signal that the second conjunct will not support the answer to the QUD implied by the first conjunct. When *and* is used, the expectation is that the second conjunct will support the same answer to the QUD as the first conjunct, but when *but* is used, the expectation becomes that the second conjunct supports the opposite answer of the first conjunct. In (29), for example, both conjuncts are naturally assumed to support the same answer, namely a positive answer, viz. that Patterson would be a good choice. By contrast, in (30), the first conjunct supports a positive answer, but the second conjunct intuitively supports a negative answer. So, *but* signals a kind of contrast, namely the contrast that the second conjunct supports the opposite answer of the first conjunct. In support for this hypothesis, notice that if the speaker considered both conjuncts to be reasons in favor of the same answer, e.g. choosing Patterson, then the use of *but* would intuitively be infelicitous.

(31)　*a*. What about Patterson? Would she be a good choice?
　　　b. She has great technique, but is short. #Both are strong reasons to choose her.[7]

At first glance, it might seem as if Toosarvandani's account is capable of capturing the pro-vs-cons use of *but*. Let's suppose that the topic of conversation is whether or not to add Patterson to the basketball team, so the QUD is (32).

(32)　Would Patterson be a good choice for the basketball team?

Since this is a polar question, its denotation will be (33).

(33)　{Patterson would be a good choice for the basketball team,
　　　Patterson would not be a good choice for the basketball team}

On Toosarvandani's account, an assertion of (30b) triggers two presuppositions. First, the presupposition that there is a proposition p in the QUD such that 'Patterson has great technique' implies p and, second, the presupposition that there is a proposition q in the QUD such that 'Patterson is short' implies $\neg q$ (leaving it open whether $p = q$).

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[7] Admittedly, there is a reading of (31) where it is felicitous, namely when Patterson is being compared to someone who has great technique but is not short and where it is assumed that being short is an advantage. For example, suppose *b* says 'I prefer Patterson over Maroney. Maroney has great technique but she is tall. By contrast, Patterson has great technique, but she is short.' Here I think both conjuncts are easily interpreted as favoring the same answer to the QUD. However, as long as we assume that the case has no comparative component, then I think (31b) sounds clearly awkward.

Assuming that it is common ground that having good technique is generally an advantage in basketball, then arguably the first presupposition is satisfied, because in the most stereotypical worlds, someone with good technique will, other things being equal, be a good choice for a basketball team.

(34) Patterson has good technique ⇒ Patterson would be a good choice

On the other hand, assuming that it is common ground that being short is a disadvantage in basketball, then arguably the second presupposition is also satisfied, because in the most stereotypical worlds, someone who is short will, other things being equal, not be a good choice for a basketball team.

(35) Patterson is short ⇒ Patterson would not be a good choice

In other words, it seems that there is a proposition p in (33) such that the first conjunct of (30b) implies p and there is a proposition q in (33) such that the second conjunct of (30b) implies $\neg q$. However, in this case, $p = q$. This means that the presuppositions generated by (30b) must be *weak*, otherwise an assertion of (30b) should seem inconsistent (which it decidedly does not). So, we have to assume that the actual world is not among the most stereotypical worlds. That is, we have to assume that (34) is true because at the most stereotypical worlds where Patterson has good technique, Patterson is a good choice, but at the actual world, Patterson has good technique but is in fact not a good choice. And, assuming the Kratzerian semantics for indicative conditionals adopted by Toosarvandani, there is nothing that prohibits this. So, (34) is true even though it is false at the actual world.

Prima facie, this looks very promising for Toosarvandani's account. However, there are, I think, two problems here. First, notice that in the motivating setup for the pros-vs-cons uses, it was stipulated that you are unaware what the QUD is. Specifically, you are unaware whether the QUD is (32) or (36).

(32) Would Patterson be a good choice for the basketball team?
(36) Would Patterson be a good choice for the gymnastics team?

The general point of the case is that the speaker's use of *but* allows you to infer that the QUD is (32) rather than (36). The initial problem, then, is that on Toosarvandani's account, you must know what the QUD is in order to determine what is conveyed. So, if you do not know what the QUD is, then you cannot calculate what is conveyed by *but*. But, you clearly can, because whatever is conveyed by *but* is precisely what permits you to determine what the relevant QUD is.

Now on to the second (related) problem. A proponent of Toosarvandani's account might respond that in this kind of case where you know that one of two questions is the QUD, in order to determine what is conveyed by *but* you simply consider both possibilities. That is, you consider the possibility that the QUD is (32) and you consider the possibility that the QUD

is (36). Then if you find that the presuppositions triggered by *but* are only satisfied by one of the questions, you can safely infer that this is the relevant QUD.

I already demonstrated above that when the QUD is (32), the presuppositions are satisfied. Let's now consider what happens if the QUD is (36). Again, an assertion of (30b) will trigger two presuppositions, namely that there is a proposition p in the QUD such that the first conjunct implies p and that there is a proposition q in the QUD such that the second conjunct implies $\neg q$. If we suppose that the QUD is (36), then its denotation will be (37).

(37) {Patterson would be a good choice for the gymnastics team,
        Patterson would not be a good choice for the gymnastics team}

Assuming that it is common ground that having good technique is generally an advantage in gymnastics, then the first presupposition is satisfied, because (as before) in stereotypical worlds, someone with good technique will be a good choice for a gymnastics team.

(38) Patterson has good technique $\Rightarrow$ Patterson would be a good choice

Moreover, assuming that it is common ground that being short is in fact an *advantage* in gymnastics, then arguably the second presupposition is also satisfied, because in the most stereotypical worlds, someone who is short will be a good choice for a gymnastics team.

(39) Patterson is short $\Rightarrow$ not(Patterson would not be a good choice)

Consequently, it seems that there is a proposition p in (37) such that the first conjunct of (30b) implies p and there is a proposition q in (37) such that the second conjunct of (30b) implies $\neg q$. And in this case, $p \neq q$.

In other words, regardless of the question considered as the QUD, the presuppositions triggered by *but* will be satisfied. Now, they will be satisfied in different ways, because in one case the implications must be weak whereas in the other case the implications are strong. So, we might think, that different things should be conveyed depending on what the QUD is. This now raises the following problem: If you assume that in order to determine what is conveyed by *but* you must know what the QUD is, then the conclusion of the pros-vs-cons case above should be that multiple things could be conveyed (depending on what the QUD in fact is). But that is precisely the opposite of what the case shows. What the pros-vs-cons case shows is that the use of *but* makes it clear what the QUD is and it seems to me that there is simply no explanation for this on Toosarvandani's account.

However, even if we assume that the relevant QUD is given, Toosarvandani's account still faces a problem.[8] When the QUD is given as the question in (32), Toosarvandani's analysis

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[8]For example, one might argue that if we assume (as it sometimes is) that the denotation of a polar question is a singleton set consisting of its positive answer, then the presuppositions of (30b) would not be satisfied relative to (36). In that case, it can therefore be concluded that the QUD must be (32). And, hence, in that case the QUD would be given.

of (30b) is then identical to the analysis that would be given for a counterexpectational use of *but*. Yet, what is conveyed by the pros-vs-cons use of *but* in (30b) is markedly different from what is conveyed in general by counterexpectation uses. So, this leaves it unclear how to explain why what is in fact conveyed in (30b) is not a counterexpectation implication and instead something else.

4.3 Coordinators and Modal Subordination

In order to elucidate a further and, I think, underappreciated feature of *but*, a bit of terminological ground clearing is necessary. First, presupposition triggers such as definite descriptions (e.g. *the poker table*) and aspectual verbs (e.g. *stop*) are widely assumed to place constraints on the common ground that must be satisfied for it to be felicitous to use these expressions. For example, using the definite description *the poker table* will trigger the presupposition that it is common ground, i.e. accepted among the discourse participants (including the speaker), that there is a (unique) poker table (in the contextually salient domain). Similarly, the verb *stop* will trigger the presupposition that it is common ground that the individual who is claimed to have stopped ϕ'ing was ϕ'ing at some prior time. If the presuppositions triggered by these expressions are not common ground, i.e. not accepted among the discourse participants, using them will generally seem linguistically inappropriate.

The infelicity caused by presupposition failure is particularly conspicuous in cases where the speaker herself makes clear that she is agnostic about the status of the presupposition. For example, it is clearly infelicitous for a speaker to assert either of the sentences in (40) and (41) below.

(40)   # I am not sure there is a poker table at the venue. The poker table can only seat five people.

(41)   # I am not sure Alfred ever gambled. Alfred stopped gambling.

The natural explanation for the infelicity in (40) and (41) is that there is a conflict between the speaker's assertion and what the speaker must believe in order for that assertion to be linguistically appropriate. The speaker declares herself agnostic about the status of a certain proposition p, but then subsequently uses an expression that triggers the presupposition that p is common ground. Since the speaker is transparently agnostic about the status of p, p is by definition not common ground. Hence, the assertion of the second sentence is infelicitous.

One standard characteristic of presuppositions is that they cannot be targeted or obviated by sentential connectives or modal operators. For example, the presuppositions triggered by *the poker table* and *stop* above intuitively place the exact same constraints on the common ground even when occurring within the scope of a sentential connective or a modal operator. To illustrate, consider (42)–(47).

(42)   # I am not sure there is a poker table at the venue. The poker table is not big enough.

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(43)   # I am not sure there is a poker table at the venue. If the poker table can only seat
         five people, we are going to need a different one.
(44)   # I am not sure there is a poker table at the venue. The poker table might only seat
         five people.
(45)   # I am not sure Alfred ever gambled. Alfred did not stop gambling.
(46)   # I am not sure Alfred ever gambled. If Alfred stopped gambling, his wife will be
         very pleased.
(47)   # I am not sure Alfred ever gambled. Alfred might stop gambling.

What these examples show is that even when the presupposition triggers occur in the scope of a negation, an if-clause, or an epistemic modal, the sentences remain infelicitous. It is as if the presuppositions are immune to the semantic effects that these operators standardly have. This phenomenon is standardly called PRESUPPOSITION PROJECTION.

The fact that presuppositions project, i.e. survive under embedding, in this way is prima facie surprising. One might have thought that it would be possible to use a presupposition trigger under e.g. en epistemic modal whenever the possibility of the presupposition being true is not eliminated from the context. However, this is simply not the case. Because presupposition triggers exhibit this projective behavior, it is widely agreed that the presuppositional content conveyed by these expressions is not part of the literal contents. Consequently, presuppositions are generally treated as partial functions—functions that place some constraint on the context, but otherwise add nothing to the truth conditional content. Simply put, if a presupposition is not true, then the relevant sentence containing an expression triggering that presupposition is neither true nor false.

Let's now return to the semantics and pragmatics of *but*. One very puzzling feature of this expression—which to my knowledge has not been discussed before—is that it can license presuppositions in certain specific linguistic contexts where its literal counterpart *and* cannot. Let me attempt to illustrate what I have in mind here. Consider again (43) and (46)—repeated below.

(48)   # I'm not sure there is a poker table at the venue. If the poker table can only seat
         five people, we're going to need a different one.
(49)   # I'm not sure Alfred ever gambled. If Alfred stopped gambling, his wife will be
         very pleased.

As explained above, these seem infelicitous because the speaker is explicitly agnostic about the status of a relevant presupposition. Unsurprisingly, this infelicity does not go away if the sentences are conjoined using the coordinator *and*.

(50)   # I'm not sure there is a poker table at the venue and if the poker table can only seat
         five people, we're going to need a different one.
(51)   # I'm not sure Alfred ever gambled and if Alfred stopped gambling, his wife will be
         very pleased.

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However, if we change *and* to *but*, the infelicity almost entirely disappears.

(52)   I'm not sure there is a poker table at the venue, but if the poker table can only seat five people, we're going to need a different one.

(53)   I'm not sure Alfred ever gambled, but if Alfred stopped gambling, his wife will be very pleased.

This is quite puzzling for a variety of reasons. First, given standard assumptions about the behavior of presuppositions, these should not be felicitous. After all, the standard assumption is that presuppositions project and hence survive embedding under various sentential and modal operators. For this reason, (52) and (53) should sound just as infelicitous as (50) and (51). However, they clearly do not. Second, given that the sentences are infelicitous with *and*, but not clearly infelicitous with *but*, this suggest a rather significant difference in the linguistic function of these two coordinators—a difference that is not, at least prima facie, captured by any of the categories of contrastive meaning previously discussed. Third, this effect appears to be limited to *but if*-constructions. That is, it appears that *but* is capable of having this effect only when the subsequent sentence is a conditional. One might have thought that a similar effect would be observable with other modal expressions, in particular epistemic modals. But with an epistemic modal in place of the conditional, I (and the informants with whom I have checked) find that the sentences sound noticeably worse.

(54)   ? I am not sure there is a poker table at the venue, but the poker table might only seat five people.

(55)   ? I am not sure Alfred ever gambled, but Alfred might have stopped gambling.

This is a bit strange and surprising too. At present I simply do not have a good explanation for why this seemingly only works with conditionals.

Returning to the observations above regarding (52) and (53), one key question is what the linguistic function of *but* is in these sentences? Intuitively, it seems that when *but* is used, an interpretation is licensed where the hearer is permitted to ignore certain possibilities that are otherwise left open by the common ground. Specifically, if we follow Kratzer in assuming that the *if*-clause is a modal restrictor, then *but* appears to license an interpretation where the domain of the *if*-clause is confined to those possible worlds in the context where the presupposition is in fact satisfied. So, paraphrasing, the conditional parts of (52) and (53) are interpreted as follows:

(56)   Assuming there is a poker table at the venue, if it can only seat five people, we're going to need a different one.

(57)   Assuming Alfred was once a gambler, if he stopped gambling, his wife will be very pleased.

This is supported by a further observation, namely that if the speaker is not agnostic about the status of the presupposition and instead asserts it as outright false, then the sentences become infelicitous regardless of the coordinator is used.

(58)   # There is no poker table at the venue, and/but if the poker table can only seat five people, we're going to need a different one.

(59)   # Alfred was never a gambler, and/but if Alfred stopped gambling, his wife will be very pleased.

In short, it seems that the speaker and context must leave open whether the presupposition is true in order for *but* to have this kind of effect.

There are good reasons to think that what is actually going on in cases such as (52) and (53) is a kind of MODAL SUBORDINATION. Modal subordination is a phenomenon where a modal expression M is interpreted as subordinate to another modal expression M' despite M being syntactically adjacent to M'. This phenomenon has been extensively discussed by e.g. Roberts (1987) who also introduced a number of now classic examples, for example (60).

(60)   A wolf might walk in. It would eat you first.

The point of this example is that the modal *would* in the second sentence is subordinate to the modal *might* in the first sentence in the sense that the domain of the second modal must be interpreted as restricted to the domain of the first modal. In support of this hypothesis, notice that without a subordinating modal in the second sentence, it sounds clearly infelicitous.

(61)   # A wolf might walk in. It eats you first.

In order for an anaphoric relation between the pronoun *it* and the indefinite description *a wolf* to be established, worlds where a wolf does not walk in must somehow be excluded. This appears to be achieved by introducing another modal with a subordinated interpretation—an interpretation where its domain is restricted to worlds where a wolf walked in.

In cases such as (60), one could argue that *might* is performing dual tasks. First, from a strictly semantic perspective, it simply expresses that its prejacent is consistent with the set of possible worlds in the context. In other words, it expresses that worlds where a wolf walks in are not ruled out by the context. In most cases, this will imply that worlds where a wolf does not walk in are also not ruled out by the context. Second, it raises to salience those worlds where the prejacent is true and, intuitively, this is then what is exploited by the second modal. Because these worlds are raised to salience, it opens the possibility of interpreting subsequent modals as only quantifying over those salient worlds. However, if this is correct, i.e. if the domain of the second modal is restricted as a result of the first modal raising certain worlds to salience, then this looks very much like a *semantic* effect on the second modal. It is constraining what the second modal literally says.

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I think something quite similar is happening in (52) and (53). To see this, notice that we can get a similar kind of effect with *and* as long as the worlds raised to salience are worlds where the presupposition *is* satisfied, cf. (62) below.

(62)   There might be a poker table at the venue and if the poker table can only seat five people, we won't need extra chairs.

(63)   Alfred might be a gambler and if he stops gambling, his wife will be very pleased.

Again, assuming that the speaker is genuinely agnostic as to whether the presuppositions are true, (62) and (63) should be infelicitous. Why? Because they trigger presuppositions that are required to be common ground, but transparently are not. Nevertheless, (62) and (63) sound perfectly fine. I think the best explanation of this pattern is one that is analogous to the explanation of the modal subordination data discussed above. Despite the fact that the second sentence has a presupposition trigger embedded in its antecedent that requires the presupposition to be common ground, the sentence is intuitively felicitous because (*a*) what is raised to salience by the first sentence is a set of worlds where the presupposition is satisfied and (*b*) the *if*-clause somehow permits a subordinating reading where its restriction is limited to those possible worlds. The crucial difference, though, between the cases with *and* and the cases with *but* is that in the latter, the worlds that are raised to salience are worlds where the presuppositions are not satisfied. This provides an important clue as regards the difference between *and* and *but*. Specifically, it seems that the linguistic function of *but* in cases such as (52) and (53) is to work as a kind of *salience shifter*. A set of possible worlds *A* are made salient by the first sentence, but by using *but* rather than *and* the speaker signals that the subsequent sentence will concern the complement of *A*. In support of this explanation, notice that if what is raised to salience in the first sentence is the complement set, then the continuation with *and* is infelicitous.

(64)   # There might not be a poker table at the venue and if the poker table can only seat five people, we won't need extra chairs.

Yet (64) is felicitous if we change *and* to *but*.

(65)   There might not be a poker table at the venue, but if the poker table can only seat five people, we won't need extra chairs.

Summing up, in order to construct a uniform and predictively accurate theory of the meaning of *but*, we need an analysis that captures not only semantic opposition uses, correction uses, and counterexpectation uses. We also need an account that captures the pros-vs-cons uses and a way of capturing the salience-shifting effect exemplified by the modal subordination cases. It will probably come as no surprise that I at present do not have such a uniform analysis to offer. However, the data presented above can, I think, afford us some important insights. For example, the modal subordination data in particular seems to me

to strongly suggests that an analysis of *but* where its contrastive content (whatever this is) is explicated in terms of either conventional/conversational implicatures or semantic presuppositions is unlikely to work. I will discuss why I think this in the following and final section.

4.4   Contrastive Content: Implicatures or Presuppositions

In the modal subordination cases discussed above, the linguistic function of *but* seems very different from its function in the semantic opposition, correction, and counterexpectation cases. Moreover, it seems that none of the existing accounts of the meaning of *but* are prima facie compatible with this subordination data—including Toosarvandani's account. It seems to me that the modal subordination cases reveal something quite important about the nature of the meaning of *but*, namely that analyzing the content that *but* conveys over and above *and* as either a conventional or conversational implicature is quite implausible. The reason is, plainly, that the contrastive content conveyed by *but* (and not by *and*) has a direct semantic effect in subordination cases. Not only can *but* effect a restriction on the domain of modal quantifiers in ways that *and* (and simple sequential assertion) cannot, it can also license *anaphors* in such cases, cf. (66)–(68) below.

(66)   I'm not sure [there is a poker table]$_1$ at the venue, but if it$_1$ can only seat five people, we are going to need a different one.

(67)   # I'm not sure [there is a poker table]$_1$ at the venue, and if it$_1$ can only seat five people, we are going to need a different one.

(68)   # I'm not sure [there is a poker table]$_1$ at the venue. If it$_1$ can only seat five people, we are going to need a different one.

If the linguistic function of *but* over and above expressing the same literal content as *and* is simply to convey an additional content via an implicature, then one would have to think that the implicature is in fact the very thing licensing the anaphoric relations above. But one reason to think that this cannot be correct is that content conveyed by such non-literal means cannot normally function as anaphoric anchors. To demonstrate, consider the sentence in (69).

(69)   Jane, **who owns a donkey**, is from Texas.

(69) contains a non-restrictive relative clause (in bold) and such clauses are nowadays generally agreed to be a type of conventional implicature, i.e. a conventional content that is not part of the literal meaning. However, content that is conveyed through non-restrictive relative clauses cannot serve as the anaphoric anchor for a subsequent pronoun, cf. (70).

(70)   # Jane, who owns a donkey, is from Texas and it's her favorite pet.

So, if the "contrastive" meaning of *but* is a conventional implicature, one would then need a further explanation as to why an anaphoric relation is not licensed in cases such as (70).

Similarly, content that is conveyed as a result of a conversational implicature (particularized or generalized) cannot do this either. Consider, for example, this modified example from Grice:

(71) a. Is Smith is single again?
      b. Well, he has been paying a lot of visits to New York lately.

Here, the standard story is that *b* conversationally implicates that Smith has a girlfriend. However, notice that it is not possible to use the content of this implicature as an anaphoric anchor:

(72) a. Is Smith is single again?
      b. Well, he has been paying a lot of visits to New York lately. She lives near Houston and Bleecker.

By contrast, if the implicated contents are made explicit, using an anaphoric pronoun is perfectly acceptable.

(73) a. Is Smith is single again?
      b. No, he has a girlfriend in New York. She lives near Houston and Bleecker.

As regards the question whether contents conveyed via semantic presuppositions can license anaphors, this is slightly more difficult to test. But it is important not to be mislead into thinking that the answer is clearly yes. Consider for example (74) below.

(74) [The man]$_1$ walked in. He$_1$ was wearing a hat.

Here it might be thought that the definite description *the man* triggers a presupposition, namely that there is a contextually salient man, and that the subsequent pronoun is anaphoric on this presuppositional content. If this is correct, this would straightforwardly show that content introduced via a semantic presupposition can serve as the anchor for subsequent anaphors. However, there is, of course, a much simpler explanation than this, namely that the anchor for the pronoun *he* is the definite description in the previous sentence. If so, the pronoun is *not* anaphoric on any content introduced via the presupposition, but rather anaphoric on the definite description which is part of the literal content.

So, to test whether content introduced via a semantic presupposition can serve as the anchor for subsequent anaphors, one needs to avoid examples where a potential anchor is also literally introduced. Having worked through several examples, I am not sure that it is possible to do this in reliable way.

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However, what is clear, I think, is that even if the contrastive content of *but* is assumed to be a presuppositional content of some kind, it would have to a presuppositional content quite unlike the contents conveyed by standard presupposition triggers. Normally, presuppositions are constraints on the common ground, namely propositions that must be mutually accepted by the discourse participants. However, in a case such as (66), it seems clear that what serves as the anaphoric anchor for the pronoun has already been introduced prior to the use of *but*. The anaphoric anchor for the pronoun is the indefinite description occurring in the previous sentence. In other words, *but* is not intuitively introducing any content (either literally or via implicature or presupposition) that then serves as the anchor for this pronoun. Rather, the function of *but* is simply to facilitate an interpretation of the subsequent sentence where this pronoun can be resolved in a certain way. To put the point differently, it seems unclear that a sentence such as (66) places any specific constraints on the common ground. And, at the very least, if it does, it is not obvious (*a*) what these constraints are and (b) why the sentence seems felicitous when we are effectively unaware whether the relevant constraints are met. So, in conclusion, while it is possible that the contrastive content of *but* is a presuppositional content, it seems rather implausible given how different it would have to be from standard presuppositional contents.

5   Conclusion

This is admittedly a rather disappointing ending to this paper as I have no solution to offer to these problems. The main aim in this paper was simply to show that the existing analyses of *but* leave out important details and as a result are incapable of capturing all the facets of this complex word's meaning. Ultimately, I think a rather radical departure from the previous approaches is necessary if a uniform analysis is to be given, but as confessed above I do not know what such an analysis should look like.

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References

Abraham, Werner 1979. 'But'. *Studia Linguistica*, XXXIII, II: 89–119.
Bach, Kent 1999. 'The Myth of Conventional Implicature'. *Linguistics and Philosophy*, 22, 4: 327–366.
Charlow, Nathan 2013. 'What We Know and What We Do'. *Synthese*, 190: 2291–2323.
Grice, Paul 1989. 'Logic and Conversation'. In *Studies in The Way of Words*. Cambridge, Massachusetts: Harvard University Press, pp. 22–41.
Kratzer, Angelika 1981. 'The Notional Category of Modality'. In Eikmeyer, H.-J. and Rieser,

H. (eds.) *Words, Worlds, and Contexts, New Approaches to Word Semantics*. Berlin: Walter de Gruyter, pp. 38–74.

———1991. 'Conditionals'. In von Stechow, Arnim and Wunderlich, Dieter (eds.) *Semantik: ein internationale Handbuch der zeitgenössichen Forschung*. Berlin: Walter de Gruyter, pp. 651–657.

Potts, Christopher 2005. *The Logic of Conventional Implicatures*. Oxford University Press.

Roberts, Craige 1987. *Modal Subordination, Anaphora, and Distributivity*. Ph.D. thesis, University of Massachusetts, Amherst, Massachusetts.

———1996. 'Anaphora in Intensional Contexts'. In Lappin, Shalom (ed.) *Handbook of Contemporary Semantic Theory*, chap. 8. Blackwell Publishing, pp. 215–247.

Toosarvandani, Maziar 2014. 'Contrast and the structure of discourse'. *Semantics and Pragmatics*, 7, 4: 1–57.

Vicente, Luis 2010. 'On the syntax of adversative coordination'. *Natural Language & Linguistic Theory*, 28, 2: 381–415.