CONDITIONALS: TRUTH CONDITIONS, PROBABILITY, AND CAUSALITY

Counterpossibles, story prefix and trivialism

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Abstract
The aim of this paper is to argue in favor of the view that some counterpossibles are false. This is done indirectly by showing that accepting the opposite view, i.e., one that ascribes truth to each and every counterpossible, results in the claim that every necessarily false theory has exactly the same consequences. Accordingly, it is shown that taking every counterpossible to be true not only undermines the value of debates over various alternative theories and their consequences, but also puts into question the very possibility of such debates. In order to explicate this thesis, the close bond between counterpossibles and the so-called story prefix (i.e., the sentential operator 'According to fiction *F*, *P*') is explored. A number of possible responses to this criticism are also presented, and it is argued that none of them address the main problem.

Keywords Counterfactuals · Counterpossibles · Possible worlds · Impossible worlds · Fiction · Pragmatics

Counterpossibles are subjunctive conditionals of the form 'If it were/had been the case that A, then it would be the case that C' ('A > C'), where 'A' expresses impossibility (necessary falseness). For instance:

(1) If whales were fish, they would have gills.
(2) If whales were fish, they would not have gills.
(3) If Kate squared the circle, mathematicians would be impressed.
(4) If Kate squared the circle, mathematicians would not be impressed.

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The problem of counterpossibles revolves around the question of whether an adequate theory of counterfactuals should consider every counterpossible to have the same truth-value. Advocates of what has been called in the literature the orthodox view (ORT) give a positive answer to this question and argue that despite pre-theoretical intuitions, every counterpossible is vacuously true (Lewis, 1973; Stalnaker, 1968; Williamson, 2016a).[1] The orthodoxy is developed in terms of possible worlds semantics and has it that:

> (CF) 'A > C' is true in the actual world iff either (i) there is no possible world where 'A' is true, or (ii) there is a possible world w where 'A' and 'C' are true, and w is more similar to the actual world than any world w^* where 'A' is true but 'C' is false.

Along with the assumption that the antecedents of (1)–(4) express impossibilities, all of them satisfy the first of the abovementioned conditions. Therefore (1)–(4) are vacuously true.

The unorthodox (UNORT) opposition argues in favor of a modified account, according to which some counterpossibles are true and others are false (e.g., Berto et al., 2018; Brogaard & Salerno, 2013; Nolan, 1997; Priest, 2009; Yagisawa, 1988). This is meant to be partly motivated by the observation that in some contexts the modal status of the antecedents does not have to play a role when it comes to evaluating counterfactuals. Accordingly, while we tend to consider (1) and (3) true, (2) and (4) seem to be false. The modification centers on extending the standard approach by introducing impossible worlds. Consequently, (CF) becomes:

> (CF*) 'A > C' is true in the actual world iff there is a possible or impossible world w where 'A' and 'C' are true and w is more similar to the actual world than any world w^* where 'A' is true but 'C' is false.

This paper aims to argue in favor of UNORT. It demonstrates that accepting ORT results in the claim that every necessarily false theory has exactly the same consequences. Since that undermines the existence of the plurality of such theories, it puts into question the plausibility of ORT and indirectly supports the opposing view.

The structure of this paper is as follows: Sect. 1 aims to show that—contrary to appearances—counterpossibles are not merely eccentric examples you hear during seminars on conditionals, rather they play an essential role in our intellectual life. Moreover, this role is no less important than the one played by counterfactuals with possible antecedents. In Sect. 2, I argue that accepting ORT—along with the counterfactual analysis of the so-called story prefix (or fictional operator)—results in the

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[1] While Robert Stalnaker, David Lewis, and Timothy Williamson hold that each and every counterpossible is *true*, there is also Nelson Goodman's view, which has it that every counterpossible is *false* (Goodman, 1947: p. 118). Although both approaches share the claim that all counterpossibles have the same truth-value, I am going to focus on the debate among advocates of possible worlds semantics. It is worth mentioning, however, one reason for which the thesis of the falseness of every counterpossible is implausible: it runs contrary to a commonly accepted assumption of counterfactual semantics, which has it that 'A > A'—regardless of whether 'A' is possible or impossible—is always true. For this reason, at least some counterpossibles should be considered true, e.g., 'If whales were fish, they would be fish.'.

false thesis that every necessarily false theory has identical consequences. If that is a consequence of orthodoxy, there are good reasons to lean towards the opposite, unorthodox approach.

One of ORT's defense strategies is to argue that UNORT's intuitions can be explained away in terms of pragmatics without giving up CF. This is meant to be done by moving the burden of the problem from the question of truth-value to the question of utterances of counterpossibles. Possible explications of this strategy are the subject of Sect. 3. While three of them (3.1, 3.2, and 3.4) have been proposed within the debate over counterpossibles, one (3.3) is related to a similar issue, i.e., the question of reverse Sobel sequences.[2] I argue that none of them succeed in addressing the main problem, i.e., none of them explain why—regardless of the vacuous truth of all counterpossibles—utterances of some counterpossibles are felicitous and assertions of others are infelicitous. Thus, the view that all counterpossibles are vacuously true should be rejected.

Before going any further, there are three things to note. I do not intend to consider any particular theory of counterfactuals. Just as there are some discrepancies between advocates of ORT, one can also find a plurality of UNORT views. They usually differ with respect to how they characterize the logical and metaphysical structure of worlds, which has its effect on how the problem of counterpossibles is addressed.[3] Instead of getting into these details, I have restricted the debate to two *families* of views on counterpossibles, and argue against the thesis of one of them, i.e., the thesis that every counterpossible is vacuously true. Secondly, I do not intend to argue that there is tension between ORT and the thesis that the consequences of necessarily false theories follow trivially from their premises. It has already been shown that the thesis is a natural consequence of ORT (Lewis, 1973; Williamson, 2016a). It is, however, one thing to justify the coherence of ORT and that thesis, and it is another to believe in the plausibility of that thesis. Accordingly, I am going to argue that the consequences of believing in the vacuous truth of every counterpossible are problematic enough to undermine ORT. Finally, the paper is not meant to deliver a *decisive* argument for the debate between ORT and UNORT. If '*p*' is impossible, one may provide methodological reasons for questioning the expectation that we should be able to indicate the consequences that follow non-trivially from the assumption of '*p*' being the case. Nevertheless, if there is a view that gives justice to non-vacuous reasoning about impossible fictions and necessarily false theories, one is justified in preferring this view to the view that forfeits the plausibility of such reasoning.

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[2] I am thankful to a referee of the previous version of this paper for drawing my attention to this problem.

[3] See, e.g., (Priest, 1997a; Bjerring, 2014; Berto & Jago, 2018; Sandgren & Tanaka, 2020).

1 On the role of counterpossibles

The popular examples of counterpossibles—such as (1)–(4) above—may suggest that the question of their truth-values is somewhat peripheral, and how one handles such examples should not be a factor that tips the scale in favor one or another view on counterfactuals. Moreover, since a belief in different truth-values for propositions such as (1) and (2) usually results in radical changes of what is considered the default analysis of counterfactuals (e.g., commitments to impossible worlds), these changes may not seem worth the effort. Consequently, it seems that one could ignore folk insights about the falseness of some counterpossibles without significant loss for the analysis of counterfactuals in general.

While, there is no doubt that—compared to counterfactuals with merely possible antecedents—we are rarely engaged in the use of counterpossibles, that does not yet prejudge that their use is unimportant. Their importance is partly grounded in the commonness and the role of counterfactuals and counterfactual thinking in general (Byrne, 2016; Epstude & Roese, 2008; Perner & Rafetseder, 2011; Stenning & Van Lambalgen, 2012; Williamson, 2016b). An example of this relates to the philosophy of fiction and to the very notion of 'truth-in-fiction'. It is often claimed that propositions about fictional entities such as (H): 'Holmes lived at Baker Street 221B' are not literally true, but rather true *according to Doyle's novel*. Thus, a proper analysis of (H) requires revealing its precise structure by introducing a sentential, non-factive, fictional operator (or story prefix) '*According to fiction F…*,' '*Fiction F has it that …*', or '*In F, …*' Hence the precise paraphrase of (H) is (H_{SP}): '*According to Doyle's novel*, Holmes lived at Baker Street 221B.' In terms of possible worlds semantics, (H_{SP}) is understood to mean that worlds that corresponds to Doyle's novel are such that in those worlds Holmes lived at Baker Street 221B. This, further, is analyzed as a counterfactual (H_{CF}): 'If what was described in Doyle's novel were true, Holmes would live at Baker Street 221B.' In virtue of this, (H_{SP}) is true iff (H_{CF}) is true (Lewis, 1978: p. 42).

If the above applies to fictions that share the laws of our world, it is difficult to find a non-ad-hoc reason for which it should not apply to fictions that are different in that respect. Consequently, if there is a fiction about some impossible object, e.g., *Sylvan's Box*,[4] and if it is true that (S_{SP}): 'According to *Sylvan's Box,* there is a box that simultaneously does and does not contain an object,' one is justified in claiming that (S_{CF}): 'If what was described in *Sylvan's Box* were true, there would be a box that simultaneously does and does not contain an object.' Importantly, it is not the case that everything is true according to *Sylvan's Box*. Consequently, 'If what was described in *Sylvan's Box* were true, there would be a bridge between Sydney and London' is false. Just as it is false that 'If what was described in Doyle's novel were true, there would be a bridge between Sydney and London.'

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[4] *Sylvan's Box* is a short story which describes an impossible box that simultaneously does and does not contain an object (Priest, 1997b). A better known example of an impossible fiction is *The metamorphosis* by Franz Kafka. After all, a man can't become a bug.

Although fiction and imagination play an important part in our lives, some may still consider them rather peripheral, and consequently not important enough to warrant believing in non-vacuous counterpossibles. Analysis of fiction, however, does not exhaust the reasons for believing in unorthodoxy. Just as counterfactuals with merely possible antecedents facilitate our wondering about what would happen if reality were different, something similar takes place in the case of counterpossibles. The difference here is that while counterfactuals with merely possible antecedents help us understand contingent aspects of reality, counterpossibles help us understand necessary truths, which are usually considered the subject of mathematics, logic, metaphysics or semantics. Hence if mathematics, logic, metaphysics or semantics has it that A, and it is actually the case that A, then it cannot be otherwise.[5]

If one would like to explain why it is impossible for zero to be a divider, one could argue that (5): 'If there were numbers $n \neq 0$ and k, such that $n \div 0 = k$, then $k \times 0$ would equal n,' and further indicate that the consequent is incompatible with the mathematical thesis that any number multiplied by 0 equals 0. Likewise, some arguments in favor or against a given view reflect counterfactual thinking about this view. That includes the procedure of choosing between alternative theories, which is usually settled by considering the consequences of accepting a given theory, e.g.[6]:

(6) If paraconsistent logic were correct, every proposition would be true.
(7) If there were an impossible world, there would also be a true contradiction in the actual world. (Lewis, 1986)
(8) If UNORT were correct, some worlds would be impossible.
(9) If there were nonexistent objects, there would be non-self-identical objects.
(Quine, 1948; van Inwagen, 2005)

The above are reports that meant to indicate that such-and-such view entails such-and-such consequences. In other words, they respond to the question of 'what would happen if A were the case?' where 'A' stands for the impossible. Importantly, some of the above are considered true, some false, and some are subject to debate. Some of them face replies, where it is argued that either the indicated consequences are not as problematic as they may seem or that they do not hold at all. Accordingly, advocates of paraconsistent logics argue against (6), advocates of Meinongianism argued against (9), and advocates of UNORT argue that the notion of impossible worlds does not have to be as controversial as many have claimed.

The use of counterfactuals is present not only in debates about the consequences of what is merely possible, but also in those where we consider the outcomes of impossibilities. Moreover, even though (6)–(9) are counterpossibles,

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[5] I assume that the laws or principles of logic, mathematics, semantics, and metaphysics are non-contingent. While some question this assumption (e.g., Miller, 2012; Mortensen, 1989), it seems that most (if not all) advocates of ORT consider the mentioned laws or principles non-contingent as well.

[6] For the sake of argument, lets us assume that the actual world (and any other possible world) is accurately described by classical logic, modal realism, and orthodoxy about counterfactuals and existence. By orthodoxy about existence I mean allism—the view according to which everything exists (Quine, 1948; Lewis, 1990; van Inwagen, 1998).

there are debates over their truth-values. Consequently, it seems that due to the thesis of the vacuous truth of every counterpossible, there is some tension between ORT and the practice of academic inquiry. Accepting ORT not only undermines the value of debates over various alternative theories and their consequences, but—as is argued below—also puts into question the very possibility of such debates.

2 Counterpossibles and the story prefix

Just as the counterfactual 'If the match had been scratched, it would have lighted' allows us to indicate a consequence of a possible situation of scratching a match, (6) indicates the consequences of paraconsistent logic being correct. What—in virtue of ORT—differentiates those two is that while the former is contingently and non-vacuously true (or false), the latter is necessarily and vacuously true. This means that (6) is true regardless of what its consequent is. Therefore, all of the below are (vacuously) true:

(10_{CF}) If paraconsistent logic were correct, there would be truth-value gaps.
(11_{CF}) If paraconsistent logic were correct, some contradictions would be true.
(12_{CF}) If paraconsistent logic were correct, every object would be red.
(13_{CF}) If paraconsistent logic were correct, 5 would be the highest prime number.
(14_{CF}) If paraconsistent logic had been correct, the Vatican would have won the World Cup in 2018.

This list can be easily extended, because—according to ORT—*everything* is a consequence of paraconsistent logic being correct. This turns the view that this logic is correct into trivialism, i.e., the view that every proposition (and its negation) is true.

As mentioned above, there is a close bond between counterfactuals and propositions that contain a story prefix. While the fictional operator is usually considered one that helps in analyzing the question of 'truth-in-fiction,' the theoretical mechanism that stands behind making use of this operator goes beyond that:

> In general, the fiction mentioned in a story prefix can be *any representation whatsoever*: a story, a scientific theory, or a metaphysical speculation. The basic point is unaffected: so long as you are not independently committed to regarding this representation as true, when you assent to 'In *F*, *P*' you incur no obligation to assent to '*P*' by itself. (Rosen, 1990: pp. 331–332)

In virtue of this, even though it is actually false that (L) 'There exists a planet between Mercury and the Sun,' it is true that (L_{SP}) 'According to Le Verrier's hypothesis, there exists a planet between Mercury and the Sun.' Just as in the previous cases of expressions that contain a story prefix, the truth-value of (L_{SP}) depends upon the truth-value of its paraphrase, (L_{CF}) 'If Le Verrier's hypothesis had been correct, there would have existed a planet between Mercury and the Sun.' Likewise,

the falseness of ($L*_{SP}$) 'According to Le Verrier's hypothesis, phlogiston exists' is grounded in the falseness of the corresponding counterfactual ($L*_{CF}$) 'If Le Verrier's hypothesis had been correct, phlogiston would have existed.'

Nowadays we know that Le Verrier's hypothesis is false. Nevertheless, since it is contingently false, the domain of possible worlds contain worlds that correspond to the hypothesis. This allows one to contrast Le Verrier's hypothesis with other contingently false theories and hypotheses, such as the Ptolemaic model or the phlogiston theory, by pointing out different consequences of them being correct. Nevertheless, even though ORT allows for justifying the truth of (L_{CF}) and the falseness of ($L*_{CF}$), it breaks down when it comes to hypotheses that are necessarily false. That seems to be an important limitation, for in an appropriate conversational situation, e.g., a lecture on Meinongianism, one may stipulate (M): 'Some objects do not exist,' and further draw consequences from its truth. Naturally, one does not have to believe in the literal truth of (M), but rather in (M_{SP}): '*According to Meinongianism*, some objects do not exist.' The truth-value of (M_{SP}) is independent of what your view on the existence is. This is merely a report of what the thesis of Meinongianism is, and as long as it is not shown that Meinongianism is not committed to the nonexistence of some objects, (M_{SP}) is true. It is safe to assume that for the same reason (MR_{SP}): '*According to Meinongianism*, every object is red' is false.

In virtue of the bond between analysis of the story prefix and counterfactuals, 'According to *F*, *P*' is true iff 'If what was described in *F* were the case, *P*' is true. Consequently (M_{SP}) is true iff (M_{CF}) 'If Meinongianism were correct, some objects would not exist' is true as well. Accordingly, the falseness of (MR_{SP}) should entail the falseness of (MR_{CF}) 'If Meinongianism were correct, every object would be red.' Since advocates of ORT are committed to the vacuous truth of this counterfactual, they are also committed to the truth of (MR_{CF}).[7] Moreover—in virtue of ORT—the truth of (10_{CF})–(14_{CF}) entails the truth of:

(10_{SP}) According to paraconsistent logic, there are truth-value gaps.
(11_{SP}) According to paraconsistent logic, some contradictions are true.
(12_{SP}) According to paraconsistent logic, every object is red.
(13_{SP}) According to paraconsistent logic, 5 is the highest prime number.
(14_{SP}) According to paraconsistent logic, the Vatican won the World Cup in 2018.

This however should not be the case. Just as it is false that 'According to Le Verrier's hypothesis, phlogiston exists,' it is also false that 'According to paraconsistent

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[7] Here I assume that advocates of ORT favor an analysis of the story prefix in terms of counterfactuals. While not all of the advocates of ORT explicitly argued in favor of this analysis, that seems to be partly grounded in the fact that not all of them were interested in an analysis of fiction in the first place. Nevertheless, those, who indeed were involved in it pointed to the close analogy between the story prefix and counterfactuals: "Reasoning about truth in fiction is very like counterfactual reasoning" (Lewis, 1978: p. 42). Further, as long as one does not want to consider the story prefix to be a primitive notion (Rosen, 1990: p. 344), there are good reasons to believe the most accurate analysis of "According to *F*, *P*" is the one provided in terms of corresponding counterfactuals (Hale, 1995: p. 76).

logic, 5 is the highest prime number,' or 'According to Meinongianism, every object is red.'

Paraconsistent logic and Meinongianism are not the only ones that, in virtue of ORT, have consequences that follow trivially. Since every counterpossible is true, every proposition is a consequence of every false theory of mathematics, logic, metaphysics or semantics. Moreover, since there is not a single consequence of paraconsistent logic being correct that is not also a consequence of UNORT, Meinongianism, or intuitionistic logics being correct, it is not easy to draw a distinction between them. Even if their initial assumptions, axioms, and subjects had been different, all of them result in the very same consequences. This ultimately makes counterfactual thinking about necessarily false theories either impossible or pointless. After all, there is no consequence of one necessarily false theory that is not a consequence of any other necessarily false theory. The existence of academic inquiries shows the opposite. Even if classical logic is the one that adequately described our reality, we can draw a distinction between various non-classical logics. Thus, if the consequence of ORT denies this, one can question the plausibility of ORT.

An advocate of orthodoxy might respond to the above criticism in two ways. The first one is to argue that our intuitions about the falseness of some counterpossibles can be explained away without rejecting ORT. Varieties of this response are the subjects of Sects. 3.1–3.3. The second is to argue that the mere truth of every counterpossible does not prove that every necessarily false theory turns into trivialism. This response is the subject of Sect. 3.4.

3 Assertions and arguments

One of the reasons for which some counterpossibles are considered false is due to the non-vacuous consequences of necessarily false theories. Thus, some propositions of the form 'According to F, P' or 'If F were correct, P' (where F stands for an implicit or explicit impossibility) are false. While (7) is true, the negation of this, (7*) 'If there were an impossible world, there would be no true contradiction in the actual world' is false.[8] This leads to the question of how to reconcile the intuition that (7*) is false and the ORT's thesis that it—as any other counterpossible—is actually true.

3.1 David Lewis on counterpossibles

One way of explaining this is to move the burden of the problem from semantics to pragmatics and claim that the mentioned intuition has its roots in a conflation of a counterpossible's truth-value and its assertion. Consequently, the mere fact that we do not assert (7*) does not entail its falseness. While this seems to be the case, one

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[8] In this particular case I assume Lewis' modal realism and spatiotemporal nature of worlds.

might raise the question of why (7*)—contrary to (7)—has not been asserted. To this, David Lewis responded:

> We have to explain why things we do want to assert are true (or at least why we take them to be true, or at least why we take them to approximate to truth), but we do not have to explain why things we do not want to assert are false. We have plenty of cases in which we do not want to assert counterfactuals with impossible antecedents, but so far as I know we do not want to assert their negations either. Therefore they do not have to be made false by a correct account of truth conditions; they can be truths which (for good conversional reason) it would always be pointless to assert. (Lewis, 1973: p. 25)

The above could act as an explanation only if neither (7) nor (7*) had been asserted. That, however, is not the case. The first one expresses the problematic consequence of conjoining modal realism's understanding of 'p is true in world w' and the notion of impossible worlds. As Lewis later argued, a belief in an impossible world w_1, such that in w_1 $p\&\sim p$, would entail the truth of 'at w_1 p, and it is not the case that at w_1 p' at the actual world (Lewis, 1986: p. 7). This was meant to show that since a belief in w_1 entails the truth of a contradiction in the actual world, one should not believe in impossible worlds. Counterfactual (7) adequately describes the consequence of extending modal realism by introducing spatiotemporal impossible worlds, and it has indeed been asserted. Hence, we do assert counterfactuals with impossible antecedents. Importantly, we do not assert all of them, but only some. Just as in the case of other counterfactuals.

Lewis' response leaves open one more option. This is to claim that the reason for which one does not assert those counterpossibles, which advocates of UNORT recognizes as false, is that—considering conversational reasons—asserting such counterpossibles is pointless. While this could apply to cases such as (13_{CF}) or (14_{CF}), where it is not easy to find any relevance between the antecedent and a consequent, many examples seem to be worth asserting. Since there are conversations in which (7) is asserted, and since (7) and (7*) have the same subject matter and (according to ORT) both are true, it is difficult to find a reason for which (7*) would be pointless to assert. As a matter of fact, asserting (7) and (7*) would allow one to indicate some highly implausible consequences of extending modal realism by introducing impossible worlds. In virtue of the commonly accepted rule of conjunction of counterfactual consequences, conjunction of (7) and (7*) results in (7**)[9]: 'If there were an impossible world, some contradictions would be true in the actual world *and* no contradiction would be true in the actual world.' Counterpossible (7**) shows that the extension of modal realism would result not only in true contradictions, but also in the apparent inconsistency of such an extension of modal realism. There is an important difference between those two outcomes. The first one makes the extension unacceptable for those who do not believe in a true contradiction. The last one makes it unacceptable even for those who believe in the truth of some contradiction, but who do not want to believe in a theory that is self-contradictory. For it is one

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[9] The rule has it that $(A > C)\&(A > B) \rightarrow (A > (C\&B))$.

thing to believe in true contradictions, and it is another to believe in an inconsistent theory.[10]

(7) and (7*) are by no means special cases. If every counterpossible 'A > C' is vacuously true, any assertion of 'A > (C& ~ C)' allows one to prove the inconsistency of 'A.' Thus, if 'A > C' (as in (7)) is meant to indicate the disturbing consequences of 'A' being the case, so is 'A > (C& ~ C)' (as in (7**)). Accordingly, if both 'A > C' and 'A > ~ C' are true, and it is not pointless to assert the first one, then the assertion of the second is also motivated. Therefore, if conversational irrelevance is supposed to be the only difference between (7) and (7*) (i.e., a counterpossible that UNORT considers to be false), the question of why the latter is not asserted remains unaddressed.

3.2 Assertions and counterpossibles

Another orthodox approach to counterpossibles has been proposed by Nina Emery and Christopher Hill (2017). The main difference between theirs and Lewis' approach to counterpossibles is that they do admit that some counterpossibles are asserted. Their explanation of which counterpossibles are asserted and which are not is based on reference to the well-known views of Paul Grice (1975) concerning the maxims and implicatures of conversation. Among the maxims that are supposed to govern conversations, the Maxim of Quantity advises you *to make your contribution as informative as is required for the current purposes of the exchange*. Accordingly, Emery and Hill claim that.

> if a speaker asserts a proposition that is trivially true, and therefore uninformative, the audience will assume that the speaker intends to communicate a more substantial proposition that is related to the asserted proposition in subject matter and will look around for salient propositions that have these properties. (Emery & Hill, 2017: p. 139)

Thus, assuming that a speaker and his or her audience obey Gricean maxims, the aim of asserting (1) is to communicate (1*): 'Every fish has gills.' The fact that (1*) is a true and substantial proposition, which is related to (1), and which cannot be communicated by asserting (2), explains why we tend to assert (1) and not (2). The mere assertion of (1), however, does not have to entail the falseness of (2) (Emery & Hill, 2017: p. 139). Accordingly, one does not have to change the semantic analysis or introduce impossible worlds in order to address the intuitions that underpin the problem of counterpossibles. These intuitions may be explained away by indicating that the reason for which some counterpossibles are asserted is that such assertions allow for an indirect expression of a true and substantial (i.e., non-vacuous) proposition.

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[10] One of the few examples of this is dialetheism (Priest, 2006). While dialetheism has it that 'Some contradictions are true,' that does not have to make the theory inconsistent. To render it inconsistent, one would have to prove that dialetheism is also committed to the thesis that 'No contradiction is true.'.

There are two problematic aspects of this approach. The first one is directly related to examples such as (10_{CF})–(14_{CF}), the other concerns a more general question concerning the debate over counterpossibles. Following Emery and Hill's analysis, one would have to admit that the reason for which we tend to assert (11_{CF}) and not (10_{CF}) is that it allows for expressing 'a more substantial proposition that is related to the asserted proposition in subject matter.' It seems that what one might communicate by asserting (11_{CF}) (as opposed to asserting (10_{CF})) is precisely a consequence of paraconsistent logic. Considering that, (11_{SP}): 'According to paraconsistent logic, some contradictions are true' is one of the natural candidates of a proposition that could be indirectly expressed by asserting (11_{CF}). Proposition (11_{SP}), however—in virtue of the paraphrase of the story prefix to subjunctive conditional, and the thesis of ORT—is vacuously true. Assuming that by 'more substantial proposition' Emery and Hill mean a proposition that is not vacuously true, their analysis does not explain why (11_{CF}) is asserted and (10_{CF}) is not. In order to change this, one would have to provide either an alternative paraphrase of expressions that contain a story prefix or reasons for which (11_{SP}) should not be considered a proposition that is indirectly expressed by asserting (11_{CF}).

The second problem is that this approach allows to put into a question the standard possible world semantics. Emery and Hill use a line of argumentation which is meant to support the orthodox view against the charge outlined by advocates of UNORT. This means that it purports to reveal that one can explain away pre-theoretical intuitions about counterpossibles with the view that while some counterfactuals with merely possible antecedents are false, each and every counterfactual with an impossible antecedent is true. However, if—as Emery and Hill claim—an assertion of (1) does not affect the truth-value of (2), one may adopt the very same strategy to claim that every *counterfactual* is vacuously true. After all, just as in the case of counterpossibles, we can indicate propositions that are indirectly expressed by asserting counterfactuals with merely possible antecedents. Thus assuming—for the sake of argument—that every counterfactual is vacuously true, the assertion of 'If Christopher Columbus had reached the place he was planning to reach in 1492, he would have arrived in India' can be explained by the fact that this allows one to indirectly express a more substantial proposition that is related to the asserted proposition in subject matter, e.g., 'Christopher Columbus was planning to reach India.' As a result, this pragmatic approach equally undermines believing in non-vacuous counterpossibles as it does believing in the non-vacuous truth of counterfactuals with merely possible antecedents. This consequence, however, goes against the primary motivation for the orthodox analysis of counterfactuals.[11]

3.3 Epistemically irresponsible utterances

From ORT's point of view, the problem of counterpossibles is not the only one where the assertion of a true counterfactual is infelicitous. The other one is known

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[11] See (Sendłak, 2019).

as the problem of reverse Sobel sequences (RSS). Consider a conversation about Sophie, who is a fan of a baseball player, Pedro:

> (Sa) If Sophie had gone to the parade, she would have seen Pedro.
> (Sb) But if Sophie had gone to the parade and been stuck behind a tall person, she would not have seen Pedro.

Both counterfactuals are true, and both can be asserted in the same conversation. The above is an example of a Sobel sequence, and it finds an elegant explanation in terms of the standard possible worlds semantics (e.g., Lewis, 1973: p. 10). The sequence, however, becomes more problematic to explain if one changes the order of assertions, i.e., in the case of a reverse Sobel sequence:

> (S*a) If Sophie had gone to the parade and been stuck behind a tall person, she would not have seen Pedro.
> (S*b) But if she had gone to the parade, she would have seen Pedro.

While the truth-values of the above counterfactuals did not change, it seems that there are good reasons to consider such a sequence of assertions infelicitous. This observation led some to argue against the standard possible worlds semantics for counterfactuals and to propose alternative dynamic approaches towards RSS (Gillies, 2007; von Fintel, 2001). Others seek to explain the infelicity of reverse Sobel sequences without giving up the standard view. One such explanation has been proposed by Sarah Moss, and it is based on the notion of epistemically irresponsible utterances (EI):

> It is epistemically irresponsible to utter sentence *S* in context C if there is some proposition φ and possibility μ such that when the speaker utters *S*:
> (i) *S* expresses φ in C
> (ii) φ is incompatible with μ
> (iii) μ is a salient possibility
> (iv) The speaker of *S* cannot rule out μ. (Moss, 2012: p. 568)[12]

In virtue of EI, since the assertion of (S*a) raises the salient possibility of Sophie being stuck behind a tall person, assertion of (S*b) is epistemically irresponsible. As Moss explains:

> Someone who utters (S*b) generally will not be able to rule out the possibility that if Sophie had gone to the parade, she might have been stuck behind a tall person. Hence EI entails that it is epistemically irresponsible to utter (S*b), since:
> (i) (S*b) expresses the proposition that Sophie would have seen Pedro if she had gone to the parade.

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[12] A possibility μ is taken to be either a true proposition (e.g., 'If Sophie had gone to the parade, she *might* have been stuck behind a tall person') or a possible world (e.g., a world where Sophie attends the parade and where she stands behind a tall person) (Moss, 2012: pp. 569–573). While this leaves room for slightly different interpretations and applications of EI, it should not affect the main point of my argument.

(ii) The proposition that Sophie would have seen Pedro if she had gone to the parade is incompatible with the possibility that Sophie might have been stuck behind a tall person if she had gone to the parade.

(iii) The possibility that Sophie might have been stuck behind a tall person if she had gone to the parade is a salient possibility.

(iv) The speaker of (S*b), at the time at which she utters (S*b), cannot rule out the possibility that Sophie might have been stuck behind a tall person if she had gone to the parade. (Moss, 2012: p. 569)

Thus, even though both (S*a) and (S*b) are true, there is a pragmatic explanation for why the utterance of one of them is infelicitous. The explanation has it that the assertion of (S*b) is an example of an epistemically irresponsible assertion.

As mentioned, the problem of RSS is in some sense similar to the problem of counterpossibles. In both cases, an advocate of the standard possible worlds analysis (or ORT) faces the question of why an utterance of some true counterfactuals is infelicitous. Moreover—as Sarah Moss claims—EI does not just explain RSS but is meant to be a general principle governing assertability (Moss, 2012: p. 568). That suggests that EI might be a helpful tool for orthodoxy in the debate over counterpossibles, for it may explain why—regardless of their vacuous truth—the utterance of some counterpossibles is felicitous and the utterance of others is infelicitous. It seems, however, that the notion of epistemically irresponsible assertion fails to provide support for ORT against UNORT. The reason for this is that as far as counterpossibles go, it is impossible to satisfy one of the essential conditions of EI. Consider two counterpossibles:

(M_{CF}) If Meinongianism were correct, some objects would not exist.
(MR_{CF}) If Meinongianism were correct, every object would be red.

An advocate of UNORT believes that, of the two, the first one is true and the second is false. This difference makes it felicitous to assert (M_{CF}) and infelicitous to assert (MR_{CF}). An advocate of ORT may try to explain the infelicity of an utterance of (MR_{CF}) by showing that such an utterance is epistemically irresponsible. This, however, requires (MR_{CF}) to express a proposition that is incompatible with a possibility raised by (M_{CF}). Meanwhile, there is no such possibility. After all, if it is impossible for Meinongianism to be correct, it is also impossible for Meinongianism to be correct *and* for some objects to not exist.

Alternatively, one may combine Moss's view with the proposal of Emery and Hill. This will result in considering μ correlated not with a possible world but with an indirectly expressed, true proposition. Thus, in the case of (M_{CF}), μ has it that (M_{SP}) 'According to Meinongianism, some objects do not exist,' and the proposition φ expressed by (MR_{CF}) is (MR_{SP}) 'According to Meinongianism, every object is red.' While this may help overcome the problem of μ not being possible, it still does not explain the infelicity of the assertion of (MR_{CF}). This is due to the failure to satisfy condition (ii) of EI, which has it that (MR_{SP}) has to be *inconsistent* with (M_{SP}). Since, in virtue of ORT, both are vacuously true, there is no inconsistency between them. As Moss claims, the question of whether there is any inconsistency between μ and φ is meant to be determined by conversational common ground (Stalnaker,

2002; Moss, 2012: p. 560). Thus, unless ORT is *not* part of the common ground, there is no inconsistency between (MR_{SP}) and (M_{SP}). Accordingly, since there is no possible μ raised by (M_{CF}), there is no reason for which an utterance of (MR_{CF}) should be considered epistemically irresponsible.[13]

The assumption about μ being possible not only makes EI difficult to apply to the problem of counterpossibles but also raises a worry about whether the notion of epistemically irresponsible utterances provides a complete explanation of RSS. This worry relates to those case of RSS that are sequences of counterpossibles, e.g., (K) and (K*):

(Ka) If Kate had squared the circle, she would have become a famous mathematician.
(Kb) But if Kate had squared the circle and it had never been revealed, she would not have become a famous mathematician.

Regardless of whether one favors ORT or UNORT, both (Ka) and (Kb) are considered true. Moreover, the above sequence is a felicitous one. As opposite to this, it seems that advocates of ORT and UNORT will consider the sequence below infelicitous:

(K*a) If Kate had squared the circle and it had never been revealed, she would not have become a famous mathematician.
(K*b) But if Kate had squared the circle, she would have become a famous mathematician.

In order to justify the irresponsibility of an utterance of (K*b), there would have to be a possibility raised by (K*a) that would be incompatible with a proposition expressed by (K*b). Since it is impossible to square the circle, it is also impossible to square the circle and to never reveal doing so. Likewise, if μ is meant to be a true proposition and not a possible world, in the case of (K*b) it ought to be 'If Kate had squared the circle, it *might* never have been revealed that she did.' Due to the necessary truth 'If Kate had squared the circle, it would have been revealed that she did,' the mentioned μ is necessarily false. Hence it is not a salient possibility. That means that there is no μ raised by (K*a). Thus, there is no reason for considering an assertion of (K*b) epistemically irresponsible.

Sequences (K) and (K*) provide motivation for an alternative explanation of the pragmatics of counterfactuals—one which takes into consideration utterances of counterpossibles. Importantly, such an explanation ought to be of interest to both ORT and UNORT. While in the case of UNORT it would aim to explain the infelicity of sequences such as (K*), in the case of ORT it ought to go beyond that and explain why it is infelicitous to assert the vast majority of (vacuously) true counterpossibles. The question of whether it is possible to provide an explanation of RSS

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[13] While Moss considers some cases of violations of conditions (iii) or (iv) of EI, they are cases where μ is either not salient or where it is justified for a speaker to rule μ out. Both of them, however, still require μ to be a possibility (Moss, 2012: pp. 573–576).

without rejecting ORT is an important and open one, but I do not intend to answer it here.

3.4 Arguments and counterpossibles

Another way of addressing the question of the reasons for which we tend to assert (7) and not (7*) is to recognize an important difference in the epistemic aspects of these counterpossibles. This difference is related to *reductio ad absurdum* arguments.[14] As a matter of fact, many of such arguments are counterfactuals. In some cases, their antecedents express impossibilities, which—in virtue of ORT—makes them vacuously true. One should not, however, consider every counterpossible to be a *reductio ad absurdum* argument. Compare (7) and (13_{CF}). As already pointed out, the first one expresses the problematic consequence of conjoining modal realism's understanding of '*p* is true in world *w*' and the notion of impossible worlds. It is difficult to find a similar argument that could be expressed as (13_{CF}). Nevertheless, both of them are vacuously true.

The above shows that there is a difference between a proof or an argument for the necessary falseness of 'A' (e.g., (7)) and a conditional of which 'A' is an antecedent, and of which we know (or assume) that it is impossible for 'A' to be the case (e.g., (7*), (13_{CF})). As Timothy Williamson noticed:

> the mere truth of a claim does not permit one to rely on it in a proof. For that, the claim must have some epistemically appropriate property: it must be an axiom, or have been already proved, or the like […] More generally, assertibility requires some epistemically appropriate status, such as being known by the asserter, for which truth is insufficient. (Williamson, 2016a: pp. 5–6)

Thus, neither Andrew Wiles could simplify his proof of Fermat's Last Theorem by saying, 'If Fermat's Last Theorem were false, $2+2$ would be 5′ (Williamson, 2016a: p. 5) nor David Lewis could simplify his argument by saying 'If there were an impossible world, every object would be red.' This shows that for a claim to be a proof, the claim has to be not only true, but it also has to be *known* to be true. Because of this the orthodoxy's explanation of unorthodoxy's intuitions about the falseness of counterpossibles such as (13_{CF}) or (14_{CF}) could be that, while these are actually true, due to a lack of the above-mentioned 'epistemically appropriate property,' they are not asserted.

Although increasing the standards for a true claim to be a proof is reasonable, this does not help to justify the claim that (13_{CF}) or (14_{CF}) does not satisfy a proper condition of assertion. Assuming that 'A' is impossible, the mere acceptance of ORT's thesis justifies the assertion of any counterfactual of which 'A' is an antecedent. Thus both (13_{CF}) and (14_{CF}) (and any other, of which it is known that its antecedent is impossible) have the mentioned epistemic property after all. This property is

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[14] For a discussion of the relation between counterpossibles and *reductio ad absurdum*, see (Lewis, 1973: p. 25; Williamson, 2016a: pp. 7–8; Berto et al., 2018: pp. 702–704).

guaranteed by the acceptance of ORT's thesis. Just as the disjunction introduction and the knowledge of the truth of A proves the truth of A $\bigvee$ B.

Hence, in virtue of ORT, if it is known that 'A' is impossible, every 'A > C' is *known* to be true, and one is justified in considering every one of them to be a proof. What differentiates (7) and (7*) is what they are proofs of. The first one proves (by *reductio ad absurdum*) the falseness of the hypothesis of the extension of modal realism. The second assumes what (7) proved, and along with ORT's thesis, proves one of the consequences of the hypothesis of the extension of modal realism. Consequently, the truth of every counterpossible of the form 'A > C,' where 'A' expresses (implicitly or explicitly) a truth of a necessarily false theory, is a proof of any arbitrary consequence of this theory. Thus, ORT allows for proving that every necessarily false theory has exactly the same consequences, which makes debates over them either pointless or impossible. Once again, this is in conflict with the fact that there is more than one necessarily false theory, and that we can truly ascribe them different consequences.

A way of blocking that would be to say that the fact that we know the impossibility of 'A' being the case is not enough to prove the truth of every proposition being A's consequent. This could be done by pointing out that when considering consequences of 'A,' one should abstract from its actual truth-value and modal status.[15] Accordingly, the procedure of proving that 'C' is a consequence of a given necessarily false theory T being correct should narrow the premises to only axioms and theorems of that theory. Since ORT's thesis does not have to belong to those axioms or theorems, one should abstract from this thesis when proving the consequences of T being correct. This restriction would block the arbitrary consequences of necessarily false theories and at the same time allow one to indicate those consequences of T being correct that follow non-trivially (assuming that T is not trivialism). While these may sometimes differ from what the author(s) of T assumed, as long as they are consequences of T's axioms and theorems, it would be appropriate to take them as a proof of 'C' being a consequence of T being true.

The above gives justice to differences between various necessarily false theories. At the same time, positing this restriction is not available to advocates of ORT. After all, that would entail considering counterpossibles in the same manner as counterfactuals with merely possible antecedents. While advocates of UNORT argue in favor of this approach, advocates of ORT are strongly against it. Further, if one could abstract from the modal status of antecedents when considering the consequences of necessarily false theories, it is not clear why the same could not be done in the cases of other counterpossibles, such as (1)–(4).[16] For this reason, UNORT appears to provide a more accurate analysis of counterpossibles and ultimately counterfactuals in general.

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[15] Likewise, when reasoning about a possible, counterfactual situation A, we do not consider worlds where it is both A and ~ A, even though it is *actually* the case that ~ A.

[16] This does not have to mean that it is impossible for an advocate of ORT to provide an alternative method for distinguishing various necessary false theories and their consequences. It does mean, however, that she cannot do so by through the use of counterfactuals, which seems to be an allover accurate and popular theoretical tool for this purpose.

At the very end, it is worth to consider what may seem to be a problematic consequence of UNORT. It is commonly claimed that 'any logical truth of the form A→B gives rise to the true conditional A>B' (Priest, 2009: p. 331).[17] Assuming that the actual world is ruled by classical logic and *ex contradictione sequitur quodlibet*, every counterfactual with logically inconsistent antecedent would be true. Thus both (V): 'If it had been raining and not raining at the same time, the Vatican would have won the World Cup' and (V*): 'If it had been raining and not raining at the same time, the Vatican would not have won the World Cup' are true. This could put into a question the plausibility of unorthodoxy's intuitions and tip the scale in favor of orthodoxy.

Nevertheless, it does not have to be so. The truth-value of a counterpossible—just as the truth-value of any other counterfactual—often depends upon the context (Vander Laan, 2004). Thus as long as we are interested in what *in virtue of classical logic* are consequences of contradiction being true, every counterpossible with logically impossible antecedent is vacuously true. This, however, does not depends on whether one believes in ORT or UNORT, but on what are theorems of classical logic. Accordingly, assuming this particular context of conversation, advocates of ORT and advocates of UNORT can agree on what are truth-values of (V) and (V*). However, as pointed above, this is not the only context in which we make use of counterpossibles. Thus one can find a context where (V*) is true and (V) is false, or perhaps even a context where none of them is true (Berto et al., 2018: 707). Since what is a logical truth of classical logic does not have to be a truth of a given non-classical logic, it is fair to assume that the mentioned relation between 'A→B' and 'A>B' is always restricted to a particular logic. Hence, just because 'A→B' is a logical truth of logic L_1, this does not yet mean that 'A>B' is *simply* true, but rather that it is true *in virtue of* L_1. Because of this, there is no tension between UNORT and the relation between logical truths and truth-value of counterfactuals.

4 Summary

Accepting ORT's thesis results in the fact that every arbitrary proposition becomes a consequence of every necessarily false theory. This has two consequences. The first one is that every necessarily false theory turns into trivialism. Therefore, for every actually necessarily false theory T, and for every proposition 'P,' 'According to T, P' is true. The second outcome is that since every necessarily false theory can be ascribed exactly the same consequences, it is difficult to differentiate them. Contrary to this, there is a variety of necessarily false theories, and they do have different consequences. While they are not always consequences that were intended or explicitly stated by the author(s) of a given theory, it is not the case that every necessarily false theory is trivialism in disguise.

Regardless of the belief that classical logic is correct, we know that there are differences between the consequences of paraconsistent and intuitionistic logics.

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[17] See also (Lewis, 1973: p. 24; Gibbard, 1981; Kratzer, 2012: pp. 87–89).

Likewise, in the case of alternative views of metaphysics or semantics, just as we know that there are differences between the consequences of Le Verrier's hypothesis being correct and those of the Ptolemaic model being accurate. The common way of differentiating false theories is by indicating the consequences of a given theory being correct. And a very natural way of doing this is through the use of counterfactuals. Thus, if a theory that is under consideration is necessarily false, we describe its commitments through the use of counterpossibles. Since the vast majority of necessarily false theories are not forms of trivialism, some counterpossibles should be considered false. Therefore, one is justified in preferring the view that explains the non-vacuity of some counterpossibles to the view that requires putting into question the plausibility of counterfactual thinking about necessarily false theories. While some believe that pragmatics allows us to consider UNORT's intuitions without giving up the standard possible worlds semantics, the need for an explanation of utterances of some vacuously true counterpossibles—as Sect. 3 showed—remains unaddressed. For this reason, when it comes to analyses of counterfactuals, preferences are on UNORT's side.

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