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Another way to look at counterfactuals

Abstract: Counterfactuals such as *If the world did not exist, we would not notice it* have been a challenge for philosophers and linguists since antiquity. There is no generally accepted semantic analysis. The prevalent view, developed in varying forms by Robert Stalnaker, David Lewis, and others, enriches the idea of strict implication by the idea of a "minimal revision" of the actual world. Objections mainly address problems of maximal similarity between worlds. In this paper, I will raise several problems of a different nature and draw attention to several phenomena that are relevant for counterfactuality but rarely discussed in that context. An alternative analysis that is very close to the linguistic facts is proposed. A core notion is the "situation talked about": it makes little sense to discuss whether an assertion is true or false unless it is clear which situation is talked about. In counterfactuals, this situation is marked as not belonging to the actual world. Typically, this is done in the form of the finite verb in the main clause. The *if*-clause is optional and has only a supportive role: it provides information about the world to which the situation talked about belongs. Counterfactuals only speak about some nonactual world, of which we only know what results from the protasis. In order to judge them as true or false, an additional assumption is required: they are warranted according to the same criteria that warrant the corresponding indicative assertion. Overall similarity between worlds is irrelevant.

Keywords: assertion; counterfactual; information structure; maximal similarity; topic situation; warrant

> Quo melior grammaticus, eo melior philosophus.
> Vaihinger (1923)

1 Introduction

We can talk about what is the case right now, at the place at which we are, in the world which we believe to be the real world. We can also talk about what is the case

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at other times, at other places, and in worlds which we believe not to be the real world. Languages provide their speakers with many means to make clear about which situation they talk. In English, for example, the finite form *was* in *The pope was dead* indicates that according to the speaker a situation with the properties [the pope be dead] obtains at a time before the speech time. It does not say that a situation with those properties does not obtain at the speech time; in fact, it most likely does. But that is not asserted; it only holds under the assumption that the pope did not resurrect. Adverbials such as *over there* can be used to indicate that the place of the situation talked about is not here. Again, that does not exclude that a situation with said properties also obtains here. If *In Soho, the crime rate is low* is true, then the assertion *In York, the crime rate is low* may be true, too.

At this point, I would like to introduce a few notional conventions. The word "situation" is used here as an overarching term for all sorts of events, processes, actions, states, etc. This terminology follows Comrie (1979); other, more or less equivalent, terms are, e.g., "eventuality" or "state of affairs". As an initial operational definition, we may say that a situation in this sense is everything that can be described by a declarative clause. The ontological status of a situation – is it something real in whichever sense of reality, or is it just a figment of our mind, in whichever sense of figment? – is a matter of dispute and beyond the scope of this paper (for a discussion, see Kratzer 2007/2017; Textor 2020). I do assume, however, that situations are no monads (pace Wittgenstein, Tractatus 1.2). They belong to a web of situations within which they are interrelated in many ways – causally, spatially, temporally, mereologically, whatever. A "world", as this word is used here, is such a web of situations. The nonfinite form of a clause in brackets is used to roughly indicate the descriptive content of that clause, as provided by the lexical meaning of its parts and the way in which they are put together. For example, [the pope be dead] is the descriptive content of *The pope is/was/would be dead*. Brackets are also used to indicate the descriptive content of nonfinite expressions. Thus, *yesterday at five* has the descriptive content [yesterday at five], and *John* has the descriptive content [be called John]. Sometimes, it will be useful to mention meaning features without a lexical counterpart; in that case, I will use capitals, e.g., PAST for "precedes the speech time".

Typically, speakers have various options to indicate that the situation talked about does not belong to what they consider as the real world but to a world of dreams, wishes, fancies. That can be achieved by expressions such as *Imagine that …, Suppose that …, Isa wished/hoped/feared that …* and others. Speakers may also leave nonfactuality unmarked, or they may pretend factuality, as usually happens in fictional prose. In English, there is a construction that is regularly used to express counterfactuality and which has gained a kind of canonical status as "the counterfactual" in the linguistic and in the philosophical literature. Examples are 1a–c:

(1) a.   If the world did not exist, we would still have to eat and drink.
      b.   If I had a hammer, I would hammer all day.
      c.   If Milton had been born in 1508, he would have been 100 years old on the day of his birth.

Roughly, they consist of an *if*-clause, the *antecedent* or *protasis*, and a main clause, the *consequent* or *apodosis.* Since the antecedent can also follow the consequent and since there need not be a before-after order between the situations described by these clauses (cf. *If this book were boring, I would not have recommended it*), I will use the terms protasis and apodosis. The finite verb of the protasis is in the subjunctive; the finite verb in the apodosis is a modal verb, usually *would*; others, such as *might* or *should*, are also possible. Similar constructions are found in numerous languages.

Most research on counterfactuality is devoted to that kind of construction; other possibilities are rarely examined. Two quotes may illustrate this. In the introduction to Collins et al. 2004, counterfactuals are defined as follows (p. 3):

> A counterfactual is a conditional sentence in the subjunctive mood. The term "counterfactual" or "contrary-to-fact" conditional carries the suggestion that the antecedent of such a conditional is false. Consider for example: "If this glass had been struck, then it would have shattered". The implication is that the glass was actually not struck and did not shatter.

The entry "Counterfactuals" in the *Elsevier Concise Encyclopedia of the Philosophy of Language and Linguistics* begins as follows (Barker 2010:109):

> Counterfactuals are a class of conditionals or *if-then* statements. […] Counterfactuals are those *if*-sentences that have a modal auxiliary as a main consequence verb and have as their antecedent and consequent clause a backward shift of syntactic tense to notional tense that renders those clauses incapable of self-standing assertion.

Counterfactual conditionals[1] have been extensively studied since antiquity, and they will also be the point of departure in what follows. The intention of this study is not to discuss this impressive literature[2] or to scrutinize existing analyses of

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1 The term "conditional" is used in various ways: it can mean (a) the whole construction, (b) the *if*-clause alone, and (c) in some languages, e.g., French, a verb form which is typically used in one of the two clauses. In this paper, I will use it in the sense of (a), unless indicated otherwise.

2 This should not be seen as a sign of disrespect. As any study of counterfactuals, the present one is based on the large body of work on the topic, and I am deeply obliged to its contributors. There are two reasons. First, I wanted to present the line of the argument as straightforward and clear as possible, without many stopovers and sidetracks. Second, any more than superficial discussion would have tripled the size of this paper. (https://philpapers.org/ lists about a thousand articles and books under the item "counterfactual", without giving much weight to linguistic or psychological work). Very informative surveys are, e.g., von Fintel 2009 from the linguistic side, and

counterfactuality. I will rather have a look at the phenomena from a somewhat different angle than is usually done and draw attention to a number of facts that have found little attention so far, if any. The resulting analysis diverges considerably from existing approaches; but it is in accordance with many linguistic facts above and beyond counterfactuality.

Section 2 recapitulates a few facts about counterfactuals, as they are traditionally analyzed, and points out some problems with this analysis. One consequence is that the role of the protasis is downgraded (Section 3). In Section 4, the role of *would* and *if* is reviewed. Section 5 prepares the ground for a different analysis, set out in Section 6. In Section 7, some of the problems discussed before are re-considered.

2 Basic properties

2.1 Form

Counterfactual conditionals are one of various conditional constructions. In English, the most important of these are "indicative conditionals", 3a, and "subjunctive conditionals", 2b:

(2) a. If the light is red, it is too late.
     b. If the light were red, it would be too late.

Both conditionals consist of a main clause and a subordinate *if*-clause that may precede, follow, or be embedded in the main clause. The main clause need not be declarative; it can also be interrogative, as in *If I were a carpenter, would you marry me anyway?* Interestingly, this does not extend to imperatives: *If the light were red, turn it off, please*! There is no counterfactual imperative conditional in English – the action asked for has to be done in the actual world.

The two conditionals differ in the finite form of the verb. In 3a, the verb in both clauses is marked as indicative. In 3b, the verb in the subordinate clause is

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Bennett 2003, Edgington 2007 or Starr 2019 from the philosophical side. Iatridou 2000, Van linden and Verstraete 2008 or Bohnemeyer 2016 are exemplary in-depth examinations of counterfactual verb forms in different languages, Comrie 1986 and Podlesskaya 2001 are excellent typological surveys on conditionals. Finally, Byrne 2005, 2016 are informative reviews of the psychological research by its leading expert. — I also regret that what follows is largely confined to English. Judging from the few languages which I know sufficiently well to form an opinion, the analysis suggested here can be extended in principle to other languages; but there are considerable differences in the linguistic detail, which are beyond the scope of this paper and my own competence.

subjunctive, and the verb in the main clause is compound: it consists of the finite element *would* and a nonfinite part:

(3) a.   If the light was red, it was too late.
     b.   If the light had been red, it would have been too late.

In both sentences, the situations are understood to be in the past. In an indicative conditional, this is marked by the simple past in both clauses. In a subjunctive conditional, *have been* must be used. As a result, the verbal complex in the apodosis consists of the finite element *would* and that infinitival (throughout this paper, the word "finite" is used in its grammatical sense, cf. Klein 2007). In the protasis, the first element of the verbal complex carries the subjunctive marking. This applies analogously when the verb is not the copula *to be* together with a predicative (as in *been red*) but a lexical verb such as *to blink*. A simple way to describe this is to say that in all constructions, the verbal complex consists of a "finite component" and a "nonfinite component". These may be merged in one word, in the examples *is*, *were* (present), or *was (past)*; if not, the nonfinite component consists of a nonfinite auxiliary and a past participle, as in *have been* or *have blinked*.

In Old Germanic, indicative and subjunctive were clearly differentiated (see, e.g., Dahl 1997). For example, the Gothic past indicative (third-person singular) of *haban* "to have" was *habaida*, whereas the corresponding form in counterfactuals (protasis as well as apodosis) was *habaidedi*. Over the centuries, the inflectional morphology of all Germanic languages was simplified. As one of many consequences, the English simple past and the subjunctive in the protasis have become identical in form (except for *was/were*); thus, *had* corresponds to *habaida* as well as to *habaidedi*. German has preserved the difference in very many cases (cf. German past indicative *ich hatte* and present subjunctive *ich hätte*). This is just as for most English verbs, the simple past and the past participle have become identical in form (*she slept – she has slept* versus German *sie schlief — sie hat geschlafen*). Some authors call the finite verb in the protasis of a subjunctive conditional a "past tense". That is certainly not false but confusing, since this form has no past meaning whatsoever; it is as if one would call the form *slept* in *he has slept* a simple past, rather than a past participle. I see this more as a terminological issue than as a content question. Thus, Iatridou's 2000 analysis of the past with nonpast meaning ("fake past") in the protasis is essentially the same as the one which is proposed in Section 6 below for the subjunctive in protasis and apodosis.[3]

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3 This is not to deny a certain semantic relationship between pastness and counterfactuality, in the sense that both of them lead away from the here and now of the speech situation (see, e.g., James 1982); but that also holds for the future, which, unlike the past, has a distinct flavor of non-factuality.

There are several variants of this pattern of English conditionals. For example, the complementizer *if* may be replaced by some other expression, such as *in case*. It may also be completely omitted and the finite element is put in the initial position, as *Had the light been red, it would have been too late*. The subjunctive of the protasis is often replaced by *would* + infinite, as in *If the light would be red, it would be too late*. This elegantly renders protasis and apodosis parallel, but many consider it as poor English; but it is very common in spoken language and documented in the written language since the 16th century (see Ishihara 2003; Molencki 2000); I leave the verdict to the natives. Finally, instead of *would,* modal verbs such as *could*, *might*, *should* can be used. As a rule, they combine a counterfactual marking with some (other) kind of modality. In what follows, such variants will not be considered, nor will I look in detail at the syntax of conditionals (a useful survey is Bhatt and Pancheva 2007).

2.2 Meaning I: the intuitions

Any semantic analysis of a natural language expression is ultimately based on the intuitions with which its speakers connect it. In the literature since antiquity, many characterizations of conditionals are found; the following five features stand out:

A. *Restrictedness:* In comparison to the simple assertion *It was too late*, the assertion made by *If the light was red, it was too late* is somehow restricted, weakened, relational. It depends on whether something else is the case, and this something else is specified by the protasis. This holds for indicative as well as for subjunctive conditionals.

B. *Consequence:* If the conditional is true and the protasis situation holds, it follows that the apodosis situation holds, too. This is mirrored in the classical inference rule "If the light was red, it was too late. The light was red. Hence, it was too late." This rule does not seem to apply for subjunctive conditionals; still, they have a flavor of consequence.

C. *Reality status:* The verb form indicates the speaker's opinion on how "real" protasis situation and apodosis situation are. A subjunctive marks that they are "not real/nonfactual/nonactual/counterfactual"; an indicative says that they are "real/factual/actual" or leaves this open.

D. *Probability*: The verb form indicates different degrees of subjective probability. With a subjunctive, the situation is presented as unlikely, with an indicative, it is felt to be more likely.

E. *Remoteness:* There is a difference in the degree of "remoteness" or "distance from present reality". A situation described by a subjunctive conditional is remote, a situation described by an indicative conditional is less remote (Huddleston and Pullum 2002; Iatridou 2000). This resembles the difference between a present tense clause and a past or future tense clause: the former presents the situation at the speech time, the latter two present it as remote from the speech time.

A satisfactory analysis must account for these intuitions. But they also raise various problems, three of which I will mention here. First, it is often not clear whether the intuitions are meant to apply to the protasis, to the apodosis, or to the whole conditional. Second, they are quite fuzzy: what does it mean that a situation is "remote"? In the case of past tense, there is a (in principle) measurable temporal distance between "now" and "not now", just as there is a measurable spatial distance between "here" and "not here"; but what is this distance in the case of the subjunctive or in a *would*-construction? Third and most importantly, a counter-factual protasis need not necessarily indicate the speaker's opinion that the situation is "against the facts", cf. 4a and 4b:

(4) a. If the door had been properly locked, it would have been impossible to open it. But the burglars came through that door. So, it was not properly locked.

  b. If the door had been properly locked, it would have been impossible to open it. Can you check, Dr Watson, whether the burglars came through that door?

In 4a, the speaker is convinced that the door was not properly locked, and that is confirmed by the continuation. This does not make sense in 4b: the speaker does not know whether it was properly locked or not and wants Dr. Watson to find out.[4]

Similar observations hold for the apodosis, rather than the protasis. Compare 5a and 5b:

(5) a. If Casillas had played, Madrid would have lost.

  b. If Casillas had played, Madrid would have lost as well/no less.

Both sentences make perfect sense. 5a is a typical football expert comment of the sort "The manager was wise not to choose Casillas", suggesting that Casillas did not play and that Madrid has not lost. But as 5b shows, it is absolutely possible that

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4 The examples in Anderson (1951: 37) were meant to demonstrate something slightly different: "Such examples indicate that it is incorrect to say that we can infer the falsity of the antecedent from a true subjunctive conditional in the past (or any) tense."

Madrid did lose; in that case, the comment amounts to something like "Even Casillas would not have made a difference" (note that *Madrid has lost* cannot be false if *Madrid has lost as well/no less* is true). If the counterfactual is true, then the apodosis can be false or true.

So, we may add another semantic intuition, which is not deeply rooted in the tradition but somehow on a par with A-E and which a satisfactory analysis must explain:

F.   *Counterfactual factuality:* While counterfactuals suggest that protasis and apodosis are "against the facts", there are clear examples that show that this is not mandatory.

2.3 Meaning II: the prevailing approach

2.3.1 Implication and *ceteris paribus* deviation

How can intuitions A – F be captured by a semantic analysis? There is no generally accepted solution. But there are converging views whose root is the truth-functional analysis of material implication: *if p then q* is false if and only if p is true and q is false; thus, it is always true when p is false. It has often been noted that this does not cover the intuitive understanding of simple conditionals in natural languages, such as *If Isa is in Berlin, she is in Marseille*. Intuitively, this sentence is false. But according to the material implication analysis, it is true, when Isa is in Salamanca.[5] And for the same reason, it cannot account for counterfactual conditionals such as *If Isa were in Berlin, she would be in Marseille*. One attempt to amend this was the introduction of "strict implication" by C. I. Lewis, which says (here phrased in terms of possible world semantics) that a conditional is true if and only if in every possible world in which the protasis is true, the apodosis is true as well. Experts are not agreed on whether this indeed matches the meaning of indicative conditionals (to my own mind, *If 221 is a prime number, it is no prime number* is false, but under strict implication, it is true). But relatively few assume that it satisfactorily accounts for subjunctive conditionals (see, however, Starr 2019, Section 2). Over the last decades, several authors have suggested a kind of analysis which, while in the same general line of thought, adds the idea that counterfactual conditionals are based on a sort of "*ceteris paribus* deviation" from

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5 This view is not shared by everybody, cf. Jackson 1987 or Lewis 1973a: 72fn: "I favor the view that the indicative conditional … has the truth conditions of the material conditional." But this does not extend to subjunctive conditionals: "By common consensus the material conditional is a non-starter as an analysis of the subjunctive" (Adams and Manor 1969: 1297).

what is actually the case: the protasis leads to some extent away from the actual world, but to the extent possible, everything else is the same. Consider 6:

(6)   If Dickens had died in 1849, he would not have finished *David Copperfield*.

Is 6 true or false? Since *David Copperfield* was written between May 1849 and November 1850, the immediate answer is "true". It can, however, be false, if one of these is true:

–   Dickens wrote it in 1848
–   Dickens died in 1849, but resurrected
–   Novels can be written by dead people

None of these holds in the actual world, as we believe it to be. But the world in which Dickens dies in 1849 is counterfactual. In that world, he may well have finished the book in 1848, people may resurrect, or some authors write novels after their death.[6] So, for 6 to be true, we must ensure that the world in which Dickens dies in 1849 deviates from the actual world only in (a) what the protasis states, and (b) what inevitably comes with that. In other words, for a counterfactual conditional to be true, the deviation from the actual world must be "a minimal revision". This idea was first spelled out in Todd 1964 and in Stalnaker 1968. The most-discussed version is by David Lewis, here reformulated from Lewis 1973b, p. 424/5:

(7)   A counterfactual conditional p >> q is true at the actual world iff (a) there are no (accessible) worlds at which p is true or (b) if some (accessible) world at which p and q are true is closer to the actual world than any world at which p is true and q is not.

There has been a continuous and intensive discussion of this and other variants, with a strong focus on the question of what it means that a world is "closer" to the actual world than any other world. In what follows, I will not delve into this discussion (see references in footnote 2) but raise four general problems with 7 and similar accounts. They concern clause 7a, clause 7b, the phrase *at the actual world*, and finally the overall similarity of worlds.

2.3.2 Problems with clause 7a

In all analyses that are based on the two-place connector idea, something must be said about what is the case when the protasis is false: is the

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6 By far more people on (our) earth believe in resurrection than not, and there are several novels, in which the author is the victim of a murder (e.g., Guy Cullingford's *Post mortem*). And in Philip Jose Farmer's *Riverworld* novels, Mark Twain dies and resurrects time and again.

conditional true, false, or does it have no truth-value at all? According to 7a, a protasis that is false in all worlds renders the entire conditional (vacuously) true in the actual world. False mathematical statements are a good example:

(8)   If 221 were a prime number, it would not divide by 17.

A teacher may point out that to a pupil. Clause 7a correctly states that it is true, although one does not have the impression that it is vacuously so. But according to clause 7a, 9 is true, as well:

(9)   If 221 were a prime number, it would divide by 17.

And that is certainly false. So, clause 7a cannot be part of a proper analysis of counterfactuals.[7]

2.3.3 Problems with clause 7b

All minimal revision approaches are based on a comparison between, (a) a world w_{cf}, in which protasis and apodosis are true, (b) the actual world w_a in which protasis and apodosis are typically understood as false (but see exx. 4/5), and (c) worlds w_x, in which p is true and q is false. In those latter worlds and typically in w_a, the apodosis is false, whereas it is true in w_{cf}. Hence, with respect to the apodosis alone, w_a diverges from w_{cf} and is identical to any world w_x. With respect to the protasis alone, w_a is equidistant from w_{cf} and from any w_x, since p is true in w_{cf} and in all w_x, while it is false in the actual world. According to clause 7b, *if Dickens had died in 1849, he would not have finished David Copperfield* should be true in the following constellation:

(10)	Some world w_{cf}	with	[Dickens die in 1849] is closer to	&	[Dickens not finish Copperfield]
	the actual world w_a	with	[Dickens not die in 1849] than	&	[Dickens finish Copperfield]
	any world w_x	with	[Dickens die in 1849]	&	[Dickens finish Copperfield]

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7 One might argue that 8 is NOT false in all worlds, since *221 is a prime number* may be true in the belief world of the pupil. That would substantially shrink the number of logically false sentences, since in many belief worlds, they are true. One way out would be to distinguish between ontologically possible worlds and epistemologically possible worlds. I shall not pursue this here (see, e.g., Nolan 2013 on "impossible worlds").

But it does not come out as true, as long as we only consider properties provided by p and q (and what necessarily comes with them) and do not weigh differences with respect to p higher than differences with respect to q. Now, the comparison of worlds does not only look at the properties provided by p and q. But whichever additional features are considered, it remains a fact that w_{cf} differs more from w_a than any w_x in the property expressed by q. And that property is not a marginal one in this context: it is that property that is asserted.

2.3.4 Problems with the phrase *true at/in a world*

What does it mean that a conditional is "true *at* the actual world" (Lewis in 7) or "true *in* the actual world" (many other authors)? For present purposes, I will assume that the actual world is the world in which the speech act is made.[8] Does *true in the actual world* then mean "true in the world *in which the speech act is made*", or does it mean "true in the world *about which something is said by the speech act*"? These two readings amount to the same if the speaker talks *about* the speech act world. But that need not be the case. Suppose someone says right now:

(11)   Sherlock Holmes fell into the Reichenbach Falls.

This is true when understood as an assertion about the nonactual world which Conan Doyle created. But it is not true when understood as an assertion about the speech act world: in that world, there is no situation with properties [Sherlock Holmes fall into the Reichenbach Falls].

What matters, therefore, is *to indicate the world to which the situation talked about belongs*; I shall call these "the topic world" and "the topic situation", respectively. In a counterfactual conditional, the topic world is a nonactual world, and in order to find out whether such a conditional is true, we must match it against the properties of that nonactual world. But the counterfactual alone does not tell us much about these properties: we know what the protasis says about it (and what comes with that), and we know what the apodosis says about it (and what comes with that – dear reader: henceforth, I shall omit the phrase "and what comes with that"). Other properties are not defined. Hence, additional assumptions must be made which somehow fill that gap. A simple way to do that is to assume that unless stated otherwise, the nonactual world is like the actual world. This is what the minimal revision analysis does. This idea is tempting, but it also runs into general problems.

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8 This assumption certainly has its problems. What, for example, is the speech act, and thus the actual world, of the present text — is it at the time and place at which I write this, or is it the time and place at which you read it? Is it possible that author and reader are not in the same world? And if so, which one is the actual one?

2.3.5 Problems with filling the gap

If we want to find out whether something is true in a world, we must either inspect the situation about which something is said; or we proceed from something already known or believed to be true to the truth of something else. In either case, there are numerous sources of evidence that come into play, and they lead to more or less reliable convictions. That will not be discussed here; but I would like to draw attention to a difference in that regard between the actual world and non-actual worlds. Verification by inspection requires that we have access to the relevant parts of the world; that is in principle always possible for the actual world, although it may be excluded in practice. We do not know how often Queen Victoria breathed in her lifetime, and we will probably never find out. But in principle, this number is defined, and so is everything else in the actual world, at least up to now; views are at variance on whether this also holds for the future of the actual world. About the Sherlock Holmes world, we only know what Conan Doyle said. If we want to go beyond that, we must either fill that gap by saying "it is just as is in the actual world", or we must try to make all sorts of inferences from what Conan Doyle said. But that runs into problems. Compare these three assertions about the Sherlock Holmes world, as created by Conan Doyle:

(12) a.   Sherlock Holmes had a brother.
      b.   Sherlock Holmes had a mother.
      c.   Sherlock Holmes had a sister.

12a is true in that nonactual world; those among us who have read "The adventure of the Greek interpreter" even know the name of his brother. It is true because Conan Doyle made the world like that. The case is less clear with 12b because Doyle did not say anything about that. But here, a "minimal revision stipulation" helps out: unless Doyle wrote something to the opposite, the Sherlock Holmes world is just as the actual world was around 1890. Accordingly, we might say that Sherlock Holmes did not have a mobile phone, but a father and a mother.[9] This does not work in the case of 12c. Conan Doyle did not say whether Sherlock Holmes had a sister or not, and a comparison with the actual world does not tell us, either. So, *Sherlock Holmes had a sister* and *Sherlock Holmes had no sister* are about equally justified. In the actual world, there are things that we do not know and maybe cannot know for practical reasons. In a nonactual world, few properties are defined in that sense. Others may be taken over from the actual world; but that possibility has its limits, just as the possibility to fill the gap further by inferences.

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9 Picky readers might be quite willing to accept that Sherlock Holmes was the misbegotten son of Queen Victoria, but not that he wore a Fedora hat, since at that time, only women wore Fedoras.

This case concerns nonactual worlds in which the deviation from the actual world is created by fiction. But the case in which we are primarily interested here are deviations brought about by counterfactual sentences in speech contexts in which we talk about the actual world. Suppose two literature students, Ira and Isa, each begin an essay about *David Copperfield* by listing a few facts they believe to know about its author:

(13) a. (Ira): Dickens was born in 1812 in Hampshire… His first novel, *Pickwick Papers*, appeared in 1836/7… *David Copperfield* was finished in 1850… He died in 1870.

b. (Isa): Dickens was born in 1812 in Hampshire… His first novel, *Pickwick Papers*, appeared in 1836/7… *David Copperfield* was finished in 1850… He died in 1849.

All sentences in 13a are true in the actual world, as historical evidence tells us, and they are true in Ira's belief world. In 13b, all sentences are true in Isa's belief world, but only the first three sentences are true in the actual world. So, the teacher might point out to Isa:

(14) If Dickens had died in 1849, he would not have finished David Copperfield in 1850.

And that is a perfectly valid argument, which Isa, if reasonable, will immediately accept. It is not an argument about the actual world; but it feeds back into the actual world. A counterfactual conditional says what is the case in a nonactual world; but by counterfactual reasoning, we usually want to find out something about the actual world. Note that 14 does not say whether *Dickens died in 1849* is false or not. It only says that its being true excludes that Dickens finished *David Copperfield* in 1850. About it's being false, nothing is said. The two sentences are incompatible in Isa's belief world, and they are incompatible in the actual world; hence, one of them is false in the actual world. This is so, as long as the reasoning is the same, no matter whether it is about the actual world or a nonactual world: dead people do not write novels. That does not mean that an indicative conditional is true if the corresponding subjunctive conditional is true, and vice versa. It means that the kind of evidence on which we base our judgment is the same for the actual world and for the nonactual world.

Consider now Liam's essay, which begins as follows:

(13) c. (Liam): Dickens was born in 1810 in Pontefract… His third novel, *Pickwick Papers*, appeared in 1842… *David Copperfield* was finished in 1850… He died in 1880.

Clearly, Isa's belief world is closer to the actual world than Liam's. But this does not matter for the correctness of the counterfactual conditional *If Dickens had died in 1849, he would not have finished David Copperfield in 1850*. Liam, too, if reasonable, will accept

it. Differences and similarities between the actual world and someone's belief world are irrelevant unless they play a role in our reasoning: what must be the same are the criteria according to which we judge about the actual world and the nonactual world. The revision need not be minimal, and there is no point in comparing how similar worlds as a whole are. All that is required is that our argument is warranted in the same way, here the idea that dead people do not write novels, nor do they resurrect.

3 Three neglected problems

3.1 The missing modus ponens

For *It is too late* to be true, it is necessary and sufficient that it is too late. For *If the light is red, it is too late* to be true, there is another requirement: the condition described by the *if*-clause must be met. If that is the case, the *if*-clause can be omitted and we can proceed to *(Hence), it is too late*. This venerable rule does not work for subjunctive *If the light were red, it would be too late*. We cannot add *(Now,) the light would be red*, and then proceed to *(Hence), it would be too late*.

3.2 The side role of the protasis

Kangaroos without tails would topple over seems to mean to me something like "If kangaroos had no tails, they would topple over". Similarly, *Blue kangaroos would be easier to detect* means almost the same as "If kangaroos were blue, it would be easier to detect them." If this is correct, a subjunctive protasis in a counterfactual contributes to its entire meaning; but it is not decisive. Many counterfactual expressions come without an *if*-clause, here are some typical cases:

(15)   Bare main clauses
        a.   Joe Cocker would have been a better goalkeeper than Ray Charles.
        b.   Few people would climb Mt. Everest in slippers.

(16)   Non-clausal adverbial phrases
        a.   At five o'clock, the bomb would have exploded.
        b.   In Mahagonny, they would have hanged him.
        c.   With a little help from my friends, I would have done it.

(17)   Embedded apodosis
         a.   This is a solution that would please everybody.
         b.   I have no clue of what would have happened without this warning.

Examples of this sort are quite common. But they play a very limited role in the analysis of counterfactuality (see, however, Van linden and Verstraete 2008). One might argue that they are a sort of "elliptical conditional": the protasis is omitted because it is given somewhere in the context and can be made explicit, when necessary. Three arguments speak against this way-out. First, many such sentences can be used without a protasis-providing context. Thus, 15b could easily be the beginning of a biography, continued by *My father was one of them*. One might accommodate an *if*-clause, for example, *If they climb the Mount Everest*; but that is as uninformative as if we accommodate *if they ever wear slippers*. Second, it is often anything but trivial — if possible at all — to give a re-formulation with a subjunctive *if*-clause: *If it had been five o'clock, the bomb would have exploded* is not exactly what is said by 16a. Or consider 18:

(18)   (Three days later, Isa got a job offer from Stanford.) Most people would
         have accepted.

An explicit introductory clause could be something like *Since Stanford is so attractive, …, Even when not desperately in need of a job, …*, or the conditional *if they had been in Isa's position, …*; but nothing like that is said in the context. The sentence just speaks about a nonactual world, and we may, of course, fancy many more or less plausible properties of that nonactual world.

    Third, and most importantly, while such recourse to a beneficial context might satisfy someone who is only interested in the overall meaning, it would be (is?) disastrous for the linguist who has to explain how this overall meaning results from its components: *blue kangaroos* means "blue kangaroos" and not "if kangaroos were blue".

3.3 A diffuse feeling

Often, a counterfactual is understood and not understood: it makes perfect sense; still, one would not be able to judge its truth:

(19) a.   If kangaroos had no tails, they would not be kangaroos.
      b.   If kangaroos were insects, they would not be kangaroos.

In a way, these assertions are easy to understand, but are they true or not? What are the defining properties of a kangaroo? In other words, a counterfactual changes

properties (here properties of kangaroos) in ways such that we often cannot judge the consequences of the change.

Here is a song, made famous by Billie Holiday, which illustrates this point blatantly[10]:

(20)   If I were you
       Here is what I'd do:
       I would love me
       My whole life through.

In English, the co-referentiality of subject and object requires the use of a reflexive pronoun for the latter. But *I would love myself* does not seem to express exactly the same as *I would love me*, nor does it mean the same as *You would love you,* or *You would love me*. The flavor of these variants is different, but what exactly is that difference? And why is it impossible to say in that case *You would love myself*, even if *you* and *me* are co-referential? Could it be that the speaker, when *if I were you* were true, would be the addressee, but the addressee would not automatically become the speaker? This, it appears, is simply left often. The protasis says that something is different from the actual world, but there is so much freedom in what actually changes and what the consequences of the change are that we have no real criterion to decide whether the conditional is true.

These observations suggest three important conclusions:

(21)   A.   The transition from a counterfactual like *If the light had been red, it would have been too late* to a simple assertion about the actual world (*It was too late*) or a nonactual world (*It would have been too late*) does not obey the usual detachment rule.
       B.   The protasis is not necessary for a counterfactual statement. It is an optional addition, just as it is an optional addition in an indicative conditional.
       C.   Counterfactual conditionals lead away from the actual world; but the consequences of this deviation remain often unclear.

An adequate analysis of counterfactuals has therefore to explain (a) what distinguishes a simple subjunctive sentence such as *The bomb would have exploded* from an indicative sentence such as *The bomb exploded*, and (b) what happens, when further (optional) specifications are added. These can be simple adverbials such as *five minutes later*, nominal attributes like *blue* or *without*

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10 Note that the point here is not so very much the vexing problem of cross-world identity (see, e.g., Kocurek 2018, for a recent analysis), but the question why cases like 19/20 lead to this fuzzy feeling in our reasoning about counterfactuals.

tails, or subjunctive *if*-clauses. To the extent possible, such an analysis should conform to the linguistic make-up of the sentence and only operate with grammatical rules that are needed anyway. In what follows, I will sketch such an analysis.[11]

4 *Would* and *if*

This section is largely based on what common English grammars and dictionaries say about these two ingredients of counterfactual conditionals. It is not meant to be a systematic and comprehensive examination of these expressions but tries to condense from received wisdom what they contribute to the meaning of counterfactuals.

4.1 The finite element *would*

English *would,* etymologically derived from the simple past as well as from the subjunctive of *will,* has several usages:

A. In main clauses, as in *The bomb would have exploded*, it marks that the assertion is not about the actual world; this main clause can be enriched by an adverbial phrase, e.g., an *if*-clause.

B. In the complement clause after verba dicendi vel sentiendi such as *to hope, to wish, to expect, to fear, to think*, and similar ones:

(22)   Ira wished/hoped/expected/feared/thought that Isa would be at the party.

These verbs relate to a "mind world", and the clause specifies an element of this mind world.

C.   In some other types of subordinate clauses:

(23)   a.   God created war such that Americans would learn geography. (Mark Twain)
       b.   This is the last thing that Ira would have done.

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11 An important inspiration for this line of analysis comes from Angelika Kratzer who noted many years ago: "The history of the conditional is the story of a syntactic mistake. There is no two-place *if … then* connective in the logical form for natural languages" (Kratzer 1986, revised version p. 106). In fact, it may be seen as a radical attempt to implement this idea.

D. It can designate a time after a past time, just as the pluperfect designates a time before a past time, 24a, or a habitual in the past, 24b:

(24) a. Nine months later, she would give birth to a boy with green eyes.
      b. In the evening, he would drink a beer or two and then go to bed.

This use of *would* is purely temporal, and it relates to the actual world.

E. There are a number of odd and often formulaic usages:

(25) a. Would you be so kind as to pass me the salt, dear!
      b. I would prefer not to. (Bartleby)

These usages are not "against the facts", but they rather tune down a wish, a question, or an assertion.

In Section 2.2, we noted three typical semantic intuitions of counterfactuality: against the facts, unlikely, remote. Usage A clearly meets these intuitions, whereas D and E do not. Usages B and C are more difficult to judge. What we wish and fear, hope for, and think is not marked as being real, and in that sense, it is remote from the actual world. But it need not be "highly unlikely", and even less is it marked as being against the facts.

To the extent possible, a word should be assigned a uniform meaning. That seems hardly possible for usages D and E. In A–C, *would* marks that according to the speaker, the situation talked about does not belong to the web of situations which he considers to be the actual world. Note that the "counterfactuality" expressed by *would* does not mean "false in the actual world". It could well be that a situation with the same properties as said to obtain in some nonactual world also obtains in the actual world. Suppose someone says:

(26)   Yesterday, Isa was in Berlin.

That does not preclude that Isa is in Berlin right now; it is just not asserted. Whether we can "transfer" a claim about something in the past to something right now depends on several factors, in particular the kind of properties that are assigned to the situation. Such a transfer is excluded in 27a since aunts don't die twice (but see fn. 7); it is more or less likely, 27b, and in 27c, it is probably certain.

(27) a. My aunt died.
      b. My aunt was cheerful.
      c. My aunt was dead.

In the same way, something that is true in a nonactual world may also be true in the actual world – but that is not asserted, and the mere fact that it is not asserted may lead us to believe that according to the speaker, it is not true.

4.2 *If*-clauses

If-clauses consist of three ingredients: the complementizer *if*, the descriptive content, and the finiteness marking on the verb. Their interaction results in an overall meaning that is traditionally characterized as "a condition". But as has often been noted, this need not be the case. Here are a few examples (for a more comprehensive survey, see Lauerbach 1979):

A. Non-assertive matrix clauses
The matrix clause of a conditional can be an assertion or a question:

(28) a. If the light was red, it was too late.
      b. If the light was red, was it too late?

(29) a. If the light had been red, it would have been too late.
      b. If the light had been red, would it have been too late?

Here, the *if*-clause intuitively provides "a condition". But consider the following examples:

(30) a. If Isa is that nice, why didn't you invite her?
      b. If the light had been red, would you have turned it off?
      c. If Oswald had not killed Kennedy, would he have been taken to court anyway?

In 30a, Isa's being that nice is certainly no condition for not having invited her; if anything, it is the opposite. In 30b, the light's being red is not a condition for its turning off; it just defined the case or cases to which the question is restricted. In 30c, the answer can be "yes" and it can be "no". In neither case is Oswald's innocence a condition for being taken to court or not. But an answer to the question is only asked for under Oswald's innocence.

B. Additive particles
In ex. 5b, repeated here as 31a, we noted that an apodosis need not be false; this is made clear by the additive particle *as well* in the apodosis; other additive particles or words such as *anyway* have the same effect. The same holds for a protasis with the particle *even* (note that if a sentence with a particle like *as well, anyway* or *even* is true, the corresponding sentence without the particle is also true):

(31) a. If Casillas had played, Madrid would have lost as well.
      b. Even if Casillas had played, Madrid would have lost.

In neither case is it a condition for Madrid's defeat that Casillas has played. It is conveyed that Madrid has lost, and the *if*-clause adds: and now consider the case that Casillas has played.

C.   Restriction according to evidence
The assertion may be relativized to specific evidence (see Bhatt and Pancheva 2007; von Fintel 2011: 5):

(32)   If the witness was right, the light was on.

It is not a condition for the light's being on that the witness is right. But the assertion is confined to situations for which there is some evidence; it can be expressed by an *if*-clause, but also by *to the best of my knowledge* or *according to the police report*.

D.   Restriction to relevant cases
In 33, the vodka's being in the fridge does not depend on whether the addressee wants something stronger. The *if*-clause rather means something like: What is said in the apodosis is only relevant for situations in which it is the case that the addressee wants something stronger (cf. Austin 1961: 210; Ebert et al. 2016):

(33)   If you want something stronger, there is vodka in the fridge.

In A–D, the *if*-clauses are adverbial clauses. In two other usages, this is not the case or arguable.

E.   Comparator clauses
By that, I mean subjunctive *if*-clauses that are preceded by the comparative element *as* (see, e.g. López-Couso and Méndez-Naya 2012 for a detailed discussion):

(34)   a.   Ira behaved as if he were the pope.
        b.   Ira behaved like the pope.

(35)   a.   It was as if it were in ancient Rome.
        b.   It was like in ancient Rome.

The *as+if*-clauses in 34a and 35a express more or less the same as *like*+NP in 34b and 35b, respectively. Comparators such as *as* or *like* combine with a predicative; that can be a noun phrase, a prepositional phrase, or a subjunctive *if*-clause. In some cases, the counterpart lacks a comparator like *like*; thus, Winston Churchill's grumpy comment on his portrait by Graham Sutherland, *I look as if I were straining on a toilet*, corresponds to *I look odd*, but not to *I look like odd*.

No one would consider the *if*-clauses in 34a and 35a as expressing a condition (of what?), just as little as one would consider the NP *the pope* or the adverbial phrase *in Rome* as conditions. The conclusion is thus: *if*-clauses are not conditional on their own; they describe a situation, and it is left open whether that situation indeed obtains.

F.   *If*-clauses as complement clauses

In some epistemic constructions, the *if*-clause is a nominal complement. In that function, it often alternates with *whether* (cf. Huddleston and Pullum 2002, p. 973–975):

(36)   a.   Isa knows if/whether Ira had drunk too much.
        b.   It is disputed if/whether the Prussians arrived at Waterloo before tea time.

Compare that with *that*-complement clauses:

(37)   a.   Isa knows that Ira had drunk too much.
        b.   It is disputed that the Prussians arrived at Waterloo before tea time.

Unlike a *that*-complement, an *if/whether*-complement is, so to speak, "sheltered" from the assertion; this even holds when the matrix verb is factive (cf. 36a and 37a). So, *if p* and *whether p* indicate that according to the speaker, "p is uncertain" or "it is open whether p is true or not". This seems in line with their etymology. According to the Oxford English Dictionary, *if* probably derives from a word which means "in doubt"; the same word is the source of German *ob*/Dutch *of* "whether". English *whether* in turn is derived from a word which means "which one of (the) two"; it is related to *either* or Latin *uter* "one of (the) two" and *neuter* "none of (the) two".

This suggests a very simple analysis of what *if* does: (a) Syntactically, *if* gives the clause the status of an adverbial phrase or of a subject/direct object; in the latter case, if competes with *whether*.[12] (b) Semantically, *if* indicates that according to the speaker, it is undecided whether the situation talked about has the properties specified in the clause. The word *if* is an "undecidedness marker". In a way, it is the counterpart to assertion marking, which indicates that according to the speaker the situation talked about indeed has these descriptive properties.

Summing up, the protasis is an adverbial clause which is explicitly marked as undecided. And like the initial adverbial in *at five, Isa left*, an *if*-clause specifies properties of the situation, about which the matrix clause asserts something – about the "topic situation".

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12 German and Dutch have a clear split in the syntactical function: *ob/of* is used for complement clauses, *wenn/as* for adverbial clauses. In Romance languages, the same word is used: *si* or *se*. In English, there is a partial split: *if* for adverbial clauses, *if* or *whether* for complement clauses. A rapid research in Google texts shows that *don't know if* is about five times more frequent than *don't know whether*, and *knows if* is about three times more frequent than *knows whether*.

5 The topic situation

The following presentation is sketchy and restricted to what is indispensable for present purposes (see also Klein 2007, 2018).

5.1 Relative to a situation

Is the following statement, made on May 8, 2016 in Berlin by Eva Musan, true or not?

(38)   No priest was present.

There is no answer to this question, unless you know which situation is talked about — the "topic situation".[13] If the topic situation in 38 happens to be the funeral of Pope John Paul II, the correct answer is "false". If it happens to be the funeral of Voltaire, the correct answer is "true". ANY ASSERTION IS RELATIVE TO THE SITUATION ABOUT WHICH SOMETHING IS SAID; THEREFORE, IT MAKES LITTLE SENSE TO SAY THAT AN ASSERTION IS TRUE OR FALSE, UNLESS IT IS CLEAR WHICH SITUATION IS TALKED ABOUT. This holds for main clauses, as in 38. It holds analogously for subordinate clauses such as *If no priest was present*, except that in this case, it is marked as undecided whether the topic situation has those properties or not; in an assertion, it is marked (typically by the position of the finite element and by final intonational fall), that the topic situation has certain properties.

Consider another example that illustrates the crucial point. One early morning, Ira looks out of the window and says to Isa:

(39)   It is snowing.

Then, this assertion relates to the scenery which Ira just sees. The utterance itself is somewhat fuzzy in what precisely the situation he talks about is, for example how far away its borders are. This is typical for natural language – there is some leeway for interpretation, which is often but not always filled by contextual information. In either case, the assertion relates to a particular situation, and its truth must be judged against that situation. In a speech situation like this one, it is certainly clear enough which situation is targeted in spite of the remaining fuzziness.

Rather than about a single situation, a speaker may talk about a set of situations. This can be explicitly indicated by a particular verb form (habitual), by a

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13 The idea of a "topic situation" is already found in Austin 1950, though in a somewhat different sense (see Kratzer 2007/2017, Section 3). Austin does not use that term. But in his analysis of truth, he relates statements to something particular in the (actual) world, when he talks about two types of conventions in language, descriptive conventions and "*Demonstrative conventions* correlating the words (=statements) with the historic situations, &c., to be found in the world." (1950: 122).

coordination like *When Liam was drunk* or *when Ira had missed the train, …* or by the use of quantifiers, such as *Sometimes/usually/when the weather was fine, …*; it may also be left to the context. The possibility to talk about a multitude of situations leads us into general problems of quantification, genericity, and questions like what a compound situation versus a simple situation is. These issues are highly interesting but complex and not specific to counterfactuality. Therefore, I will ignore them here and simply speak of "the" topic situation.

How can one know what the topic situation is? The necessary information may come from the context, for example, by a preceding question (*What do you know about Voltaire's funeral?*), by the fact that the utterance is part of a longer text, or by the communicative situation, for example if someone watching a football match says to his neighbor: *Fantastic* in relation to the action of the goalkeeper which they just saw. Or it may be provided by the utterance itself; in this case, part of its descriptive content is used to specify the topic situation. Usually, contextual and utterance-inherent information both interact, and their weight may vary from case to case.

This means that the information provided by the clause is normally divided into two parts: "topic-features", which help to identify the topic situation, and "comment-features" which are assigned to that situation. In an assertion, it is said that according to the speaker, the situation partly identified by the topic-features has the comment-features; in an interrogative, the addressee is asked to decide whether it has the comment-features; in an imperative, the addressee is asked to change things such that the situation corresponds to the comment features.

The topic-features include information about various components of the situation, such as "topic entity", "topic time", "topic place", and 'topic world'. Typically, the topic entity is specified by the grammatical subject, the three others by adverbials. Often, information about the topic entity, topic time, and topic world is encoded by verb inflection. The topic component may also be empty, as is the case in elliptic answers (*Who won? – Liverpool*) or in the football-example above; then, only the context identifies the topic situation.

How do we know which parts of a sentence express topic-features and which ones express comment-features? Languages use various means to indicate this – word order, intonation, special particles, or constructions like *As for Liam, I really like him* or *It is Liam whom I like*; the status may also be ambiguous, or information is doubled, as *Liam* and *he/whom* in the preceding examples. The result is complex systems of information packaging, none of which is really well understood so far (see, e.g., Féry and Ishihara 2016; Krifka and Musan 2011). For present purposes, I will assume – counterfactually – that the distinction is simply marked by word order: the part up to the finiteness marking (in assertions) expresses topic-features. Anything else, including the nonfinite component of a verb, expresses comment-features.

Consider now 40a and 40b:

(40) a.   Newton was born in Whoolsthorpe.
      b.   In Whoolsthorpe, Newton was born.

In 40a, the topic-features say that the topic time is in the past (*was*), and *Newton* is the topic entity; the situation so described is asserted to have the further properties [(he) be born in Whoolsthorpe]. In 40b, the initial adverbial has the topic status: the assertion is about a situation in the past, with Whoolsthorpe as the topic place and Newton as the topic entity; about that situation, it is said that it has the further properties [(he) be born (there)]. Very schematically:

(41) a.   [Newton, PAST] is asserted to have properties [(he) be born in
           Whoolsthorpe]
      b.   [in Whoolsthorpe, Newton, PAST] is asserted to have properties [(he) be
           born (there)]

If the assertion is true, the final result is in both cases that the topic situation has all descriptive properties [Newton be born in Whoolsthorpe]; the difference is only in the information structure of the assertion. That is important for many linguistic phenomena, as will be discussed in 5.2 below.

The initial phrase, i.e., with topic status[14], can also be an *if*-clause. Then, we deal with two situations, the protasis-situation and the apodosis-situation. An assertion is only made about the latter; but if both situations belong to the same web of situations, then the protasis-situation can be used to narrow down what the assertion is about. We shall come back to that in Section 6.2.[15]

5.2 Topic consistency

In one of the founding papers of formal semantics, Alfred Tarski (1935: 269) writes:

> "(3) „*es schneit*" *ist eine wahre Aussage dann und nur dann, wenn es schneit*" [„it is snowing" is
> a true statement if and only if it is snowing]

Tarski did not believe that the notion "is true" can be applied to everyday language because that leads to paradoxes. There is another problem with it in natural

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14 I do not look here at the role of *if*-clauses with comment status; their semantics is the same, and the difference as regards information status is on a par with the place adverbial in 40.

15 The idea that conditionals act as topics is not new, see, e.g., Dahl 1974 or Haiman 1978. In fact, it may be even implicit in von der Gabelentz 1875, to whom we owe the notion of "aboutness". Note, however, that the notion of topic varies considerably from author to author. Here, it means the whole situation about which something is said in a clause; topic entity, topic time etc. are only parts of it.

languages: whenever it is snowing, it is snowing somewhere. This place need not be mentioned, and in (3) above, it is not. But clearly, for (3) to be correct, the place of *es schneit* must be the same in both occurrences. There must be, as one may say, "topic consistency". Often, topic consistency is not explicitly marked but tacitly assumed: it is "a hidden parameter" that must be kept constant.

The need to take topic consistency into account shows up in many linguistic phenomena. Question-answer sequences normally require it; violations lead to peculiar effects. A particularly interesting case is the truth reversal of negations. Suppose the following utterances, made on March 31, 2015 by Chris, are true:

(42) a. It was cold.
      b. Georg came in.

Then, the classical analysis of negation says that 43a–b are false:

(43) a. It was not cold.
      b. Georg did not come in.

But that is only correct if the situation talked about is kept constant. If the topic time of 42a is January 15, 2015, its negation 43a may well be true, if its topic time is August 15, 2015. Similarly, the topic place must be the same: if *It was cold* is true in Alaska, *It was not cold* may well be false in Timbuktu, even if the topic time is the same. This also holds for 43b and its negation 43b: many people have the property [be named Georg]; but for a sentence and its negation to be mutually exclusive, the topic entity, and thus the topic situation which includes it, must be the same.

Topic consistency is also required in the modus ponens. In the case of indicative conditionals, this rule of inference seems iron-hard:

(44) a. If the light was red, it was too late.
      b. The light was red.
      c. It was too late.

Now, I remember many occasions where *If the light was red, it was too late* was true, for example when on the subway, the red light began to flash and I was still ten meters away. I remember many more occasions where bare *The light was red* was true, for example, when I was waiting at a crossroad. And I remember some sad occasions when it was too late. But there is only very limited overlap between these three types of occasions. So, if 44a was true, and if 44b was true, then this does not necessarily mean that 44c was true. For this to be the case, the situations talked about must be the same. More precisely, 44b must relate to the protasis situation of 44a, and 44c must relate to the apodosis situation of 44a. Whenever we apply the modus ponens, we tacitly assume that this is the case; but it does not follow from

the meaning of these three sentences alone: there is an additional requirement – there must be topic consistency.

Consider now 45:

(45)   a. At five, it was too late. b. It was five. c. It was too late.

This is not a case of modus ponens, since there is only "one proposition" in 45a. But clearly, it works the same way: if 45a and 45b are true, we can "detach" *it was too late* from the initial adverbial *at five*, and thus 45c is true – if there is topic consistency! Under topic consistency, *At five, it was too late* and *It was too late* relate to the same situation, they only differ in the extent to which this situation is explicitly described. In *At five, it was too late*, its time is made explicit. In bare *It was too late*, it is not made explicit; it could also be at four or at seven. In order to be sure that it is the same topic time, this information must be provided in some other way, and this is done by 45b: the precise topic time is specified in the context, in this case a separate sentence, rather than in the clause itself (the tense marking only indicates that time span must be in the past, not when in the past). Exactly this also happens in the modus ponens: The adverbial clause can be "detached" if the information it contributes is available in the context.

Thus, it appears that the most famous classical rule of inference is simply an instantiation of a general linguistic phenomenon: under topic consistency, explicit information can be omitted. It is just as we can go from *The red shirt was ugly* to *The shirt was ugly* or even to *It was ugly*, as long as we talk about the same entity in varying degrees of explicitness.

6 The analysis

In this section, I will try to integrate the various bits and pieces that gradually emerged so far into a coherent picture.

6.1 The semantics of the counterfactual and the indicative conditional

A conditional counterfactual such as *If Ito had eaten the fish, he would now be dead* consists of a main clause and an adverbial clause. Each clause consists of (a) the description of a situation, here roughly [Ito have eaten a fish] and [Ito now be dead], respectively, (b) some marking of what are the topic-features and what are the comment-features, and (c) the finiteness marking, here the subjunctive *were*

and *would*, respectively. Furthermore, the main clause includes (d) an assertion marking, and the adverbial clause includes (e) the complementizer *if*.

A. *The descriptive content*

The descriptive content of an expression results from the meaning of the lexical items and the way in which they are put together. This picture is clearly over-simplified, especially when deictic and anaphoric elements come into play; but that is not relevant for present purposes. The way how the compositional meaning of a sentence comes about follows the usual rules of English grammar and is not specific to the problem at hand; so, they will not be discussed here. But a few remarks about the relation between the descriptive content of a clause and the situation described by it may be useful.

This relation is not one-to-one. There are numerous situations in the actual world which can be described by [Ito have eaten the fish], just as there are numerous people which can be described by the descriptive content [be called Ito]. On the other side, when a specific situation is described by some clause, this description provides only a tiny selection of the properties which that situation has. Similarly, when a particular person is described by *Ito*, then that person has many other properties that could be used to describe it. Some of these are defined in relation to some other situation, others do not exploit such a relation, cf. *the kangaroo which I saw yesterday* versus *the blue kangaroo* or *in the year in which Dickens died* versus *in 1870 (*or *in 1849).*

These remarks may sound obvious, but they are important for what follows and should be kept in mind. Thus, *If Ito has eaten the fish, he is now dead* and bare *Ito is now dead* alone can describe one and the very same situation, although the description is less explicit in the second case. But *If Ito has eaten the fish, he is now dead* and *If Ito would have eaten the fish, he would now be dead* describe different situations — the first one is said to belong to the actual world, the second one is said not to belong to it. It may well be, however, that two situations with the same descriptive properties belong to two different worlds. Therefore, *Ito would have eaten the fish* and *Ito ate the fish* are not mutually exclusive.

B. Marking of topic-features versus comment-features

As discussed in 5.1, parts of the entire linguistic information may, together with the context, specify the topic situation, whereas other parts specify the properties that are potentially added to that situation. Languages mark the distinction by devices such as word order, intonation, special particles, and others; this is a vast and difficult field of research, in which little agreement has been reached so far. For

present purposes, we assume that in English, topic-features are clause-initial and end with the finiteness marking.

C. Finiteness marking

There are two possibilities, IND, i.e., the indicative form, and SUB; under SUB, I subsume the historical subjunctive (the alleged "past tense form") in the protasis and *would* in the apodosis (and for many speakers in the protasis, as well):

(46)   a.   IND indicates that the topic situation belongs to the actual world.
      b.   SUB indicates that the topic situation does not belong to the actual world.

This is reminiscent of what traditional grammarians called "realis" and "irrealis", phrased here in terms of possible worlds (whereas the classical "potentialis" means: in a world which can but need not be the actual world).[16] Both finiteness markings do not only indicate the topic world ("mood") but also the topic time ("tense") and the topic entity ("person").

IND and SUB look quite parallel; but there is an important difference: we normally assume that there is only one actual world, but very many nonactual worlds; SUB leaves open which one is meant. This is just as in a specific speech situation with *It was Bill* versus *it was not Bill*. For counterfactuality, the asymmetry has important consequences: if we want to judge whether something is true in the relevant world, we must somehow be able to access that world; but whereas this is in principle possible for the actual world, it is problematic for a nonactual world, at least for us who live in the actual world. This point will be taken up in Section 6.2.

D. *Marking of the illocutionary role*

Main clauses serve different illocutionary roles. An assertion indicates that according to the speaker, some situation with topic-features xyz has comment-features abc; a question instructs the listener to say whether that situation has those features; an imperative instructs the listener to change the situation such that it has said properties. Languages vary in how these roles are indicated; in English, the position of the finite verb as well as intonation play a major role

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16 There is some reason to assume that the indicative has a broader meaning than stated here. As a rule, it says something about "our reality". But it is also the mood of novels and other fictional texts, it is used in some commands, it is the usual form of deontic texts such as laws. So, an alternative to 46a is to say that IND is a neutral form, and only context makes clear about which world or worlds the clause speaks. This is like the present tense, which one may see as a default form, since it also may refer to future or past. For present purposes, I will stick to 46a.

(final fall normally indicates assertion). The details are found in any good grammar.

E.   *If*

Syntactically, *if* indicates an adverbial clause (or a complement clause, cf. Section 4.2, F). Semantically, *if* marks as UNDECIDED whether the topic situation of that clause has the comment-features or not. As with any topic situation, this one belongs to a web of situations; *if* itself does not say whether this is the actual world or not; this is done by the choice of the finite verb form (see C. above). So, we may paraphrase *if Tim is a carpenter* as well as *if Tim were a carpenter* as "in some world in which some topic situation described by topic-features [Tim, PRESENT] has comment-features [(he) be a carpenter]". More generally:

(47)   *If* p means: in a world in which some topic situation specified by the topic-features of [p] has the comment-features of [p]

When *if* p contributes to the topic-features of an assertion, that assertion is confined to topic situations in whose world there is also a "protasis situation". Whether this is indeed the case, is marked as undecided. This is just as *When I was young, I was very handsome* restricts the assertion to topic times at which the speaker was young; nothing is said about whether he is handsome right now.

We now may sum up the analysis of "(*if* p,) q" as an assertion as follows:

(48) a.   Bare q indicates that according to the speaker, a situation with the topic-features of q has the comment-features of q.
      b.   When *if* p is added, it contributes to the topic-features of q: it adds that the topic situation of q is in a world, in which a situation with the topic-features of [p] has the comment-features of [p].
      c.   In each clause, IND adds that the topic situation of that clause is in the actual world; SUB adds that it is not in the actual world.

Note that the topic-features of the apodosis are not just what is provided by the protasis: that is rather an optional addition to the topic-features which are inherent in the apodosis. Note, furthermore, that in *if* p, the IND-marking only says that its topic situation belongs to the actual world; it does not say that this topic situation has the comment-features of p and thus all properties of p. Whether that is the case, is open, but the assertion is restricted to cases in which it is. This is just as in *Blue kangaroos are easy to detect*, the assertion is restricted to blue kangaroos, but it is not asserted that there are any blue kangaroos.

If we ignore these important caveats for a moment, we may transform 48 into a characterization which, while less accurate than 48, comes very close to the way of looking at conditionals in traditional grammar:

(49) a.   A conditional expresses that the apodosis is true in some world that contains a situation with the properties of the protasis. Whether it is also true in other worlds, is left open.
      b.   IND adds that this world is the actual world ("realis"); SUB adds that it is not the actual world ("irrealis").

Under the analysis in 48, the semantics of counterfactual as well as non-counterfactual conditionals is quite simple. It matches the linguistic make-up of the construction, and it covers the semantics of counterfactuals without and with an *if*-clause. There is no need to deal with the problem of false protaseis (cf. Section 2.3.2); the protasis is just an optional adverbial clause that helps to specify the topic situation of the assertion (and analogously of a question). Remember, however, that a single assertion may speak about more than one topic situation; this is the case, for instance, in quantified constructions like *Often/typically/mostly, it was too cold, I got problems with the water pipes* or coordinations like *If the light had been red or if it had been off, it would have been too late*. These cases are not discussed here, since the problems which they raise are not specific to counterfactuality.

6.2 Warranted as in the actual world

Straightforward as the semantic analysis is – it does not answer a simple question: How can we judge whether a counterfactual conditional is true? The situation about which something is asserted belongs to some nonactual world, and in order to judge, we must know what that world is like. But as inhabitants of the actual world, we do not know the properties of that world other than what results from the protasis and from inherent topic-features of the apodosis (and, as always, from the context). One radical way to fill that gap is to assume that all other properties are just as in the actual world. But as was shown in Section 2.3.5 for the "Sherlock-Holmes-world", that way runs into principled problems. That is also the case for the nonactual world of a counterfactual conditional. Is 50 true or not?

(50)   If Frederick the Great had had a child, his nephew would not have become his successor.

Since there was no female succession in Prussia, the correct answer depends on the sex of the child. The protasis of 50 does not reveal that. With the same right, we may

say that 50 is true, and we may say that it is not true. Nevertheless, 50 is a statement about which one can argue reasonably. Hence, some other factor than the linguistic meaning proper must come into play.

That factor cannot be the overall similarity between the actual and nonactual world. Female succession would lead to a different judgment on 50. But the judgment would be the same, if at that time, America had been inhabited by Latin-speaking leprechauns and thus be quite different from the actual world. So, there is some relation to the actual world; but it only concerns the way we judge: WE JUDGE ABOUT WHAT IS THE CASE IN THE NONACTUAL WORLD ACCORDING TO THE SAME CRITERIA WHICH WE USE FOR THE ACTUAL WORLD. For the indicative conditional *If Ito has eaten the fish, he is now dead*, we base our verdict on criteria such as "the fish was a fugu, it was badly prepared, enough time has elapsed, Ito is not a hedgehog", etc. The same criteria are used to judge counterfactual *If Ito had eaten the fish, he would now be dead*. I shall borrow the term "warrant" of Toulmin's *The uses of argument* (Toulmin 1958) for all of these justifying criteria. So, what is similar is not the world but the warrant that leads us to believe that the topic situation has the comment-features. This warrant may also be such that the result is only a more or less high probability.[17]

In order to judge 50, we must ask how under the circumstances of Prussia at that time, Friedrich's having a child prevents his nephew from becoming his successor. As with any evidence, this one may be gradual. According to Prussian law, the child had to be a boy; let us assume that at that time, as many boys as girls were born; that speaks for 50% likelihood. But that is not the only relevant factor. The child may have died before the king. Moreover, the Prussian law at that time provided for hermaphrodites, who could choose their sex at the age of 18 (really true!); that makes a well-warranted decision even more difficult. So, someone who knows all of this but not whether Friedrich had a child nor that his successor was his nephew may have a, say, 43% chance that *If Frederick the Great had a child, his nephew did not become his successor* is true, and a, say, 97% chance, that *If Frederick the Great had a son, his nephew did not become his successor* is true. Now, the issue is not whether these two assertions are true or not; the issue is to which extent the givens of the actual world warrant them. And exactly these warrants are also used for the corresponding counterfactual assertions.

The warrant only says whether some topic situation has certain comment-features; these are the same in both cases. The topic-features are *almost* the same:

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17 Incidentally, such an analogous warranting is also applied to indicative assertions about future topic situations, as in *If Ito will eat the fish, he will soon be dead*. We cannot check the future, but we can base our judgment on our experience up to now. And that also holds for the bare assertion *Sometime, I shall die.*

they only differ in to which world the topic situation belongs; so, the same warrant is applied to different topic situations. The meaning of the *if*-clause marks as undecided ("if") whether the relevant world indeed contains a situation as described by that clause. But other factors may guide our verdict. The properties of the actual world are fixed, and in principle, we can know them. It may be practically difficult, but in principle, we can check whether Frederick had a child or not (and if yes, whether it was a boy or not). That is not the case for *If Frederick the Great had had a child*; but there is always such a world, and about that world, the assertion of the main clause is made.[18] This asymmetry explains why the warrant can make us believe that something holds in some nonactual world and leave open whether that also holds in the actual world.

In Section 2.3.2, we noted that the minimal revision analysis (in David Lewis' version) correctly predicts that the counterfactual *If 221 were a prime number, it would not divide by 17* is true. But it also predicts that *If 221 were a prime number, it would divide by 17* is true, and that is not correct. Under the "same warrant analysis", we have to check the corresponding indicative assertions. Prime numbers only divide by 1 and themselves, and that fact warrants that *If 221 is a prime number, it does not divide by 17* as well as its counterfactual counterpart are true. Similarly, it warrants that *If 221 is a prime number, it divides by 17* and its counterfactual counterpart is false.

6.3 Summing up

The present analysis of counterfactuals has two components:

(a) Its linguistic meaning is strictly derived from the meaning of its components; this includes a partition into meaning elements that specify the situation talked about and meaning elements that specify the properties that this situation is said to have.

(b) A counterfactual speaks about a situation in some nonactual world; about that world, we have no knowledge except by what results from the topic-features, including the *if*-clause (and, of course, the context). So, the warrant of our judgment is taken over from reasoning about the actual world and applied analogously to the different topic situations. The likelihood that the counterfactual be true is as good as this common warrant allows us to say.

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18 The only dubious case is *if*-clauses like *if 221 were a prime number*, as it is commonly assumed that no world contains such a situation. But as was noted in footnote 8, even that is doubtful, because in the belief world of many, 221 may well be a prime number.

Under this analysis, it does not matter how similar the actual world and some nonactual world are. In the nonactual world in which Frederick has a child, the American continent may not exist, and Australia may be populated by surviving dinosaurs, even some laws of nature may be different – all of this is irrelevant as long as it does not influence the likelihood of his nephew becoming his successor. Only the warrant must be the same, only the way we argue must be the same.

7 Salvare apparentia

How does the present analysis fare with the observations from Sections 2 and 3? The form properties from 2.1 are well-covered. In 2.2, five traditional semantic intuitions were mentioned:

A. *Restrictedness*: In conditionals, the assertion (or question) is somehow restricted by the "condition" that must be met.

The present analysis predicts this: an *if*-clause with topic status restricts the assertion to situations about which something is said (in that sense, we may call it a "restrictor analysis"). *If*-clauses need not have topic status; if not, they contribute to the comment-features that are assigned to a topic situation that is defined otherwise.

B. *Consequence*: The apodosis "follows" from a true protasis, if the entire conditional is true. But what if the *if*-clause is false?

Under the present analysis, nothing is asserted about that possibility, because the assertion (and also a question) is restricted to those cases in which the situation described by the *if*-clause has the relevant properties. The *if*-clause functions like the time adverbial in *At five o'clock, it was too late*. If that is correct, and if *It was five o'clock*. is true, it is also true that it was too late (cf. what is said in Section 5.2 about topic consistency).

C. *Reality status*: With the choice of the verb form, the speaker indicates whether the situation talked about is real/factual/actual, or not real/nonfactual/ nonactual/counterfactual.

Exactly this is what the present analysis says: the verb form marks whether the topic situation belongs to the actual world or not. This does not exclude that some other world contains a situation with the same descriptive features – it is just not asserted, for whatever reason.

D.   *Probability*: Counterfactual conditionals are felt to be less probable than indicative conditionals.

Again, that intuition is captured: counterfactuals relate to a world to which we have very limited access; so, we must base our reasoning on an analogy to the actual world. But that is no direct evidence – it is just an assumption that allows us to argue.

E.   *Remoteness*: There is a difference in the degree of "remoteness" or "distance from present reality". A situation described by a subjunctive conditional is typically remote, a situation described by an indicative conditional is typically not or less remote.

If the actual world is defined as the speech act world, then "counterfactual remoteness/distance" is quite parallel to the remoteness/distance of "not at speech time" and "not at speech place", except that these lead to a remote/distant time (past or future) and a remote/distant space, respectively, whereas counterfactuality leads to a world that is "not the speech act world".

So, all semantic intuitions that are traditionally ascribed to counterfactuals seem to be captured. This also holds for the semantic intuition F from Section 2.2:

F.   *Counterfactual factuality*: While counterfactuals suggest that protasis and apodosis are "against the facts", there are clear examples that show that this is not mandatory.

Under the present analysis, the assertion is confined to some nonactual world. About other worlds, nothing is said. But as a rule, we talk about what is the case in the actual world, and when that is not done, there should be a reason for it; and the most obvious reason is that nothing can be said about the actual world. So, we make the weaker claim – but it may well be justified for the actual world, as well.

In Section 3, we discussed three further observations which an analysis has to account for:

A.   *No modus ponens rule for counterfactuals.* We cannot go from *If the light were red, it would be too late.* and *The light would be red.* to *It would be too late.*

I have no answer to this problem. It may have to do with the fact in the case of indicative conditionals, the world is automatically kept constant — it is the actual world. In the case of counterfactual conditionals, there are many nonactual worlds. *The light would be red* and *I would be too late* each introduces a nonactual world in its own right, which may but need not be the same as in protasis and apodosis, respectively. Note that the modus ponens works, if we replace the praemissa minor *The light would be red* by *The light is red*. Then, we may proceed to *It is too late.*

B.   *Counterfactuals do not require an* if-*clause.*
Under the present analysis, the *if*-clause is optional. This is just like the adverbial in *Yesterday, it was raining*. The tense form *was* already says that the topic situation is in the past; the adverbial *yesterday* renders this information more specific.

C.   *A diffuse feeling.* In many cases, we understand and do not understand a counterfactual. This can have several reasons. We know so little about the nonactual world, and often, it is not clear whether the descriptive content of an expression is used to describe something in the actual world or in the nonactual world. Is the following assertion true or false:

(51)   If Milton had been born in 1508, he would have been 100 years old on the day of his birth. (= 1c)

Here, the warrant is "Someone who is born in 1508 is 100 years old in 1608)", and depending on whether [the day of Milton's birth] is understood to relate to 1608 or to 1508, the counterfactual is true or false. Or consider the following two sentences, whose protasis is the same:

(52)   a.   If I were you, I would accept the offer.
       b.   If I were you, I would love me my whole life through. (cf. 20)

We understand that speaker and addressee are exchanged, and to that extent, we understand these sentences. But which properties are exchanged by this switch, and which ones remain constant? In 52a, all that changes is probably who takes the role of the decider in that decision situation; other than that, the protagonists remain the same. But it is not excluded, that a change of other properties is intended, as well, for example, the one that could be made explicit by *If I were as young as you*. In 52b, the shift is much more difficult to interpret. Does he/she have all properties as before, except being the speaker of that sentence? If the speaker is a woman and the addressee is a man, is there a switch in sex? We cannot say, and therefore, we do not know how to apply the warrant which we use when reasoning about the actual world. We are somehow in the dark.

8 Concluding remarks

> Reality is a hallucination caused by a low whiskey level in the blood.
> Irish saying

The question of what "counterfactuality" really is may be one of those Kantian questions that incessantly bother the human mind, which by its very nature is unable to answer them. We would have to know what exactly "reality" is, how it

differs from mere figments of our mind, and how we can find out what is real and what is not. The aim of the present paper is much more modest. It suggests a new analysis of counterfactual expressions. This analysis is strongly informed by the linguistic structure of these expressions, as described in common grammars, and it avoids, I believe, some of the pitfalls of other accounts. In particular, it abandons the idea that these constructions should be treated as two-place operators, it gives up the need for a "minimal revision", and it separates the semantic analysis of counterfactuals as assertions about some nonactual world from additional assumptions that must be made if we want to judge the truth of a counterfactual. Here, the additional assumption is that we argue according to the same criteria – the warrant must be the same.

Much of what has been said here is sketchy, in particular with respect to information structure and topic status, one of the most challenging, most innovative but also most erratic fields in modern linguistics. Similarly, we did not look at cases in which the situation talked about is described by a coordination or by a quantified expression such as *sometimes, if* … or *If ever*… These are nontrivial problems; but I do not think that they are specific to counterfactuality. There are also problems for which I see no immediate solution; the missing modus ponens is such a case, and there are certainly others. But I believe that this line opens new vistas to an understanding of how counterfactuals work.

References

Adams, Ernest & Ruth Manor. 1996. Conditionals. In Marcelo Dascal, Dietfried Gerhardus, Kuno Lorenz & Georg Meggle (eds.), *Sprachphilosophie*, vol. II, 1278–91. Berlin: De Gruyter.

Anderson, Alan Ross. 1951. A note on subjunctive and counterfactual conditionals. *Analysis* 12. 35–38.

Austin, John. 1961. *Philosophical papers*. Oxford: OUP.

Barker, Stephen. 2010. Counterfactuals. In Alan Barber & Robert Stainton (eds.), *Encyclopedia of the philosophy of language and linguistics*, 109–112. Amsterdam: Elsevier.

Bennett, Jonathan. 2003. *A philosophical guide to conditionals*. Oxford: OUP.

Bhatt, Rajesh & Roumyana Pancheva. 2007. Conditionals. *The Blackwell companion to syntax*, vol. 1, 638–687. Oxford: Blackwell.

Bohnemeyer, Jürgen. 2016. Subjunctive mood as non-realization viewpoint aspect in Mayan. In *Texas Linguistic Society Conference 2016*.

Byrne, Ruth M. J. 2005. *The rational imagination: How people create alternatives to reality*. Cambridge, MA: MIT Press.

Byrne, Ruth M. J. 2016. Counterfactual thought. *Annual Review of Psychology* 67. 135–157.

Collins, John, Ned Hall & Laurie Ann Paul. 2004. *Causation and counterfactuals*. Cambridge, MA: MIT Press.

Comrie, Bernard. 1979. *Aspect*. Cambridge: CUP.

Comrie, Bernard. 1986. Conditionals: A typology. In Elizabeth Closs Traugott, et al. (eds.), *On conditionals*, 77–99. Cambridge: CUP.

Östen Dahl (ed.). 1974. *Topic, comment, contextual boundedness and focus*. Hamburg: Buske.

Ebert, Christian, Cornelia Endriss & Stefan Hinterwimmer. 2016. A unified analysis of indicative and biscuit conditionals as topics. *SALT* 18, 267–283.

Edgington, Dorothy. 2007. On conditionals. In Dov M. Gabbay & Franz Guenthner (eds.), *Handbook of philosophical logic*, vol. 14, 127–221. Dordrecht: Springer.

Féry, Caroline & Shinichiro Ishihara (eds.). 2016. *The Oxford handbook of information structure*. Oxford: OUP.

Haiman, John. 1978. Conditionals as topics. *Language* 54. 564–589.

Huddleston, Rodney & Geoffrey Pullum. 2002. *The Cambridge grammar of the English language*. Cambridge: CUP.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry*. 231–270.

Ishihara, Noriko. 2003. I wish I would have known!: The usage of *would have* in past counterfactual *if*- and wish-clauses. *Issues in Applied Linguistics* 14. 19–48.

Jackson, Frank. 1987. *Conditionals*. Oxford: Basil Blackwell.

James, Deborah. 1982. Past tense and the hypothetical. A cross-linguistic study. *Studies in Language* 6. 375–403.

Klein, Wolfgang. 2007. On finiteness. In Veerle van Geenhoven (ed.), *Semantics meets acquisition*, 245–272. Dordrecht: Springer.

Klein, Wolfgang. 2018. On the scope of sentence negation. In *Looking at language*, 253–282. Berlin: De Gruyter.

Kocurek, Alexander W. 2018. Counteridenticals. *Philosophical Review* 127. 323–69.

Kratzer, Angelika. 1978. *Semantik der Rede*. Kronberg: Scriptor.

Kratzer, Angelika. 1986. Conditionals. *Chicago Linguistics Society*, vol. 22, 1–15 (Revised version in Kratzer, Angelika. 2010. Modals and Conditionals. Oxford: OUP).

Kratzer, Angelika. 2007/2017. Situations in natural language semantics. In Edward Zalta (ed.), *The Stanford encyclopedia of philosophy* (Summer 2019). Stanford: University of Stanford. Available at: https://plato.stanford.edu/archives/sum2019/entries/situations-semantics.

Manfred Krifka & Renate Musan (eds.). 2011. *The expression of information structure*. Berlin: de Gruyter.

Lauerbach, Gerda. 1979. *Form und Funktion englischer Konditionalsätze mit 'if'*. Tübingen: Niemeyer.

Lewis, David. 1973a. *Counterfactuals*. Oxford: Blackwell.

Lewis, David. 1973b. Counterfactuals and comparative possibility. *Journal of Philosophical Logic* 2. 418–446.

López-Couso, María José & Belén Méndez-Naya. 2012. On the use of *as if*, *as though*, and *like* in present-day English complementation structures. *Journal of English Linguistics* 40. 172–95.

Molencki, Rafal 2000. Parallelism vs. asymmetry: The case of English counterfactual conditionals. In Olga Fischer, Anette Rosenback & Dieter Stein (eds.), *Pathways of change: Grammaticalization in English*, 311–328. Amsterdam: John Benjamins.

Nolan, Daniel. 2013. Impossible worlds. *Philosophy Compass* 8. 360–72.

Podlesskaya, Vera. 2001. Conditional constructions. In: Martin Haspelmath, et al. (eds.), *Sprachtypologie und sprachliche Universalien*, 998–1010. Berlin: De Gruyter.

Stalnaker, Robert. 1968. A theory of conditionals. In Nicholas Rescher (ed.), *Studies in logical theory*, 98–112. Oxford: Blackwell.

Starr, William. 2019. Counterfactuals. In Zalta Edward (ed.), *Stanford encyclopedia of philosophy (Fall 2019)*. Available at: https://plato.stanford.edu/archives/fall2019/entries/counterfactuals.

Tarski, Alfred. 1935. *Der Wahrheitsbegriff in den formalisierten Sprachen*, vol. I, 262–405. Leopoli: Studia Philosophica. Studia Philosophica Commentarii Societatis Philosophicae Polonorum.

Textor, Mark. 2020. States of affairs. In Edward Zalta (ed.), *The Stanford encyclopedia of philosophy (Summer 2020)*. Stanford: University of Stanford. Available at: https://plato.stanford.edu/archives/sum2020/entries/states-of-affairs/.

Todd, William. 1964. Counterfactual conditionals and the presuppositions of induction. *Philosophy of Science* 31. 101–110.

Toulmin, Stephen. 1958. *The uses of argument*. Cambridge: CUP.

Vaihinger, Hans. 1923. *Die Philosophie des Als Ob*, 7th edn. Leipzig: Meiner.

Van linden, An & Jean-Christophe Verstraete. 2008. The nature and origins of counterfactuality in simple clauses. Cross-linguistic evidence. *Journal of Pragmatics* 40. 1865–1895.

von der Gabelentz, Georg. 1875. Weiteres zur vergleichenden Syntax. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 8. 129–165, 300–338.

von Fintel, Kai. 2011. Conditionals. In Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds.), *Semantics*, 1515–1538. Berlin: De Gruyter.