In case *falls* is relevant

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1 Introduction

The existing literature on conditional sentences tends to focus on just one or a few constructions (such as English `if-(then)` sentences). However, many languages have larger inventories of conditional expressions to convey the meaning intuitively characteristic of (hypothetical) conditionals, namely that all the (relevant) cases in which the antecedent is true are such that the consequent is true as well. Many of these constructions have separate uses (e.g., as temporal connectives) and display various idiosyncrasies. A more detailed study of those inventories within and across languages has only recently begun to take off. There is, however, much to be learned from a more detailed look at individual conditional expressions.

In this paper we are concerned with two German subordinating connectives, `wenn` and `falls`, both of which are routinely used in conditional sentences. Both take a tensed, verb-final clause as a complement and modify a matrix clause in which they can occur in a variety of positions, most typically initially or finally. For instance, the configurations in (1) are all grammatical. Although they are not freely interchangeable, they have similar truth conditions. The differences lie mainly in information structure, a dimension that we are not concerned with in this paper. We therefore do not distinguish between these different forms and will use sentence-initial examples like (1a) throughout.

(1) a. {Wenn / Falls} Klaus gewinnt, werden wir die Flasche öffnen.
         WENN FALLS Klaus wins   will   we the bottle   open

  b. Wir werden die Flasche öffnen {wenn / falls} Klaus gewinnt.
       we will   the bottle   open   WENN FALLS Klaus wins

  c. Wir werden die Flasche, {wenn / falls} Klaus gewinnt, öffnen.
       we will   the bottle   WENN FALLS Klaus wins   open

    'When/if Klaus wins, we will open the bottle.'

Although both forms in (1a) are well-formed, they are not synonymous. This paper is concerned with the semantic ramifications of the choice between `wenn` and `falls` in examples like this.

2 Some data

German `wenn` is an example of a conditional connective that also has a non-conditional use, on which its meaning is similar to that of its English cognate 'when'.[1] However, we are primarily interested here in the use of *when*-clauses as restrictors of

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[1]However, as a temporal connective, German `wenn` only occurs in a proper subset of the contexts in which English `when` is used. This is because `wenn` is in complementary distribution with another

modal or temporal quantifiers, since this is where it roughly corresponds to English `if`. For quantificational adverbs, this usage is illustrated in (2) through (4).

(2) <u>Wenn</u> Käthe zur Schule ging, nahm sie <u>oft</u> den Bus.
    when Käthe to school went took she often the bus
    'When Käthe went to school, she often took the bus.'

(3) <u>Wenn</u> Käthe zur Schule geht, nimmt sie <u>oft</u> den Bus.
    when Käthe to school goes takes she often the bus
    'When Käthe goes to school, she often takes the bus.'

(4) <u>Wenn</u> Käthe zur Schule geht, wird sie <u>oft</u> den Bus nehmen.
    when Käthe to school goes will she often the bus take
    'When Käthe goes to school, she will often take the bus.'

The other usage of `when`-clauses that we are interested in is as restrictors on (one-case) conditional antecedents. This is where `wenn` alternates with `falls`, as shown in (5) through (7).

(5) {<u>Wenn</u>/<u>Falls</u>} Gertrud gestern im Café war, hat sie dort gearbeitet.
    wenn/falls Gertrud yesterday at the café was has she there worked
    'If Gertrud was at the café yesterday, she worked there.'

(6) {<u>Wenn</u>/<u>Falls</u>} Gertrud jetzt im Café ist, arbeitet sie dort.
    wenn/falls Gertrud now at the café is works she there
    'If Gertrud is at the café now, she is working there.'

(7) {<u>Wenn</u>/<u>Falls</u>} Gertrud morgen im Café ist, wird sie dort arbeiten.
    wenn/falls Gertrud tomorrow at the café is will she there work
    'If Gertrud is at the café tomorrow, she will be working there.'

The picture so far seems fairly clear-cut: only `wenn` can be used to restrict temporal quantifiers, whereas both `wenn` and `falls` can be used in conditional antecedents. However, on closer inspection, things turn out to be more complicated: `falls`-clauses can sometimes restrict temporal quantifiers, and `wenn`-clauses cannot always restrict temporal quantifiers, either. In the next section, we are going to explore the respective restrictions, trying to identify the factors that govern the distribution of `falls`.

3 Peculiarities of `falls`

We want to highlight two aspects of the distribution of `falls` that disturb the simple picture suggested by the data in the last section.

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German temporal connective, `als`. The exact delineation of the boundary between `wenn` and `als` is an interesting topic in its own right, but beyond the scope of this paper, where our main concern is the conditional use of `wenn` and its alternation with `falls`.

We do want to mention, though, that due to the complementary distribution with `als` on the temporal use, `wenn` is sometimes unambiguously conditional (namely in those cases in which the temporal meaning is expressed by `als`) and sometimes ambiguous between a temporal and a conditional meaning (namely where `when` is used for the temporal sense). Thus for instance, the `wenn`-sentences in (5) and (6) can only be glossed with `if`, whereas that in (7) could also be glossed with `when`. Thus `falls` disambiguates in (7), but not in (6).

3.1 `Falls`-clauses restricting temporal quantifiers

As suggested earlier, `falls` is generally bad in restrictors of temporal quantifiers like `oft` 'often' (see above) and `immer` 'always': both (8a) and (8b) are infelicitous. The English translations are given in (9a) and (9b), respectively.

(8)   a.   {^{??}Falls/Wenn} Peter aufwacht, trinkt er <u>immer</u> einen Kaffee.
            falls/wenn   Peter wakes up drinks he always a   coffee

        b.   {^{??}Falls/Wenn} Peter zeitig aufwacht, trinkt er <u>immer</u> einen Kaffee.
            falls/wenn   Peter early wakes up drinks he always a   coffee

(9)   a.   '{^{??}If/When} Peter wakes up, he always drinks a coffee.'

        b.   '{✓If/When} Peter wakes up early, he always drinks a coffee.'

As seen in the glosses, the situation in English is slighty different. The `if`-version of (9a) is odd, like its German counterpart with `falls`. The addition of the adverb `early` in (9) significantly improves the English example. The literature has (what we take to be) a satisfactory account of this contrast. Von Fintel and Iatridou (2002) note that since it fair to assume that under normal circumstances Peter wakes up every day, the adverbial clause does not restrict the domain in a non-trivial way. This is at odds with what they call an "iffiness" requirement associated with `if` (similar to a "diversity condition" imposed by some modals – Condoravdi 2002): the prejacent must be true at some points in the domain, and false at some.

In contrast, `when` does not require iffiness (von Fintel & Iatridou 2002, Fn. 10), so it can be used in both (9a) and (9b).

But (8a,b) show that the same explanation does not apply to the German data: `falls` is odd in both cases. Our claim will ultimately be that something related to "iffiness" is at play in this case at well, but the German data require a more nuanced implementation of the notion.

Looking at the data more closely, `falls`-clauses are not altogether incapable of restricting temporal quantifiers. Hinterwimmer (2014) observes that there is nothing wrong with (10):

(10)   {✓Falls/Wenn} ein Buch nicht auf Lager ist, können wir es <u>meistens</u> in 24
         falls/wenn   a   book not   in stock   ist can   we it mostly   in 24
         Stunden besorgen.
         hours   get
         'If a book is out of stock, we can usually get it within 24 hours.'

To account for this observation, Hinterwimmer proposed to strengthen the iffiness requirement by adding a bias against the prejacent: he argued that `falls` is acceptable if "for each of the situations quantified over, the speaker considers it to be unlikely (but not impossible) that the respective situation satisfies the antecedent".

However, while this proposal may apply in the case of (10), further data points show that unlikelihood is neither sufficient nor necessary for the acceptability of `falls`. (11) shows that unlikelihood is not sufficient: for most speakers, returning from vacation with malaria is highly unlikely. Although this makes quantification with `meistens` 'mostly' a bit marked, it does not impair the acceptability of the `wenn`-clause. In contrast, the `falls`-clause is odd.

(11) {??Falls/Wenn} ich mit Malaria aus   dem Urlaub   komme, ist meistens
      falls/wenn   I   with malaria from the   vacation come   is mostly
niemand zu Hause.
no one   at home
'If I come back from vacation with malaria, there's usually no one at home.'

Nor is unlikelihood necessary for the felicity of `falls`. This is shown in (12). This sentence implies nothing about the speaker's likelihood of arriving on time, and can be used in a situation in which she is more likely to do so than not.

(12) {✓Falls/Wenn} ich rechtzeitig da   bin, hole ich mir   meistens noch
      falls/wenn   I   in time   there am get I   myself mostly   yet
einen Kaffee.
a   coffee
'If I'm there on time, I usually get myself a coffee.'

In sum, the tentative generalization from the last section that `falls` does not restrict temporal quantifiers was wrong. But the factors that govern its felicity on this use remain to be identified.

3.2 `Falls` cannot always form conditional antecedents

The other side of the tentative generalization above was that `falls` can generally form conditional antecedents. This, too, is true only with certain qualifications. In this subsection we look at its distribution in conditionals more closely.

3.2.1 Factual conditionals

First, as pointed out by Hinterwimmer (2014), `falls` is generally bad in *factual* conditionals. Factual conditionals are characterized as different from regular hypothetical conditionals in that the truth of their antecedents is contextually given (Funk (1985); Iatridou (1991)) or that their antecedents echo an earlier utterance another agent has committed to (Pesetsky (2018)). Examples are given in (13) and (14). In both cases, `wenn` is acceptable whereas `falls` is decidedly odd.

(13) A: Es ist nach 11.
      it is past 11
      'It's past 11.'
    B: {??Falls/Wenn} es schon   so spät ist, sollten wir sofort   gehen.
        falls/wenn   it already so late is   should we immediately leave
      'If it's that late already, we should leave immediately.'

(14) {??Falls/Wenn} du so schlau bist, warum bist du nicht reich?
      falls/wenn you so smart are why are you not rich
'If you're so smart, why aren't you rich?'

These facts may not seem altogether surprising, given the peculiar properties of factual conditionals. On Pesetsky's account, factual conditionals are used to echo

another agent's initiative (for instance, a proposal to commit to the conditional's antecedent proposition), and reason through the consequences. Temporarily adopting the antecedent in this way should thus be compatible with however we want to implement "iffiness" as associated with English `if` (von Fintel & Iatridou 2002, see also above), while it should be incompatible with the way "iffiness" pans out for German `falls`. While we refrain from integrating the account we are proposing for `falls` in the following with a full-fledged account of factual conditionals (e.g. building on the assumptions in Pesetsky (2018)), a move along these lines strikes us as intuitively plausible.

3.2.2 Subjunctives

Hinterwimmer (2014) also observed restrictions on the use of `falls` in subjunctives. To him this was another consequence of the analysis he proposed, according to which, recall, the prejacent had to be unlikely *but not impossible* by the lights of the speaker. Assuming that subjunctives are typically used when the antecedent is presumed false (with the caveat that there are exceptions, cf. Anderson 1951), the inacceptability of `falls` falls out because subjunctives violate iffiness.

(15)   *[The coin came up heads.]*

{[??]Falls/Wenn} er auf Zahl gesetzt hätte, hätte er verloren.
   falls/wenn   he on tails bet   had   had he lost

'If he had bet on tails, he would have lost.'

However, this cannot be quite the right generalization. There are exceptions to the presumed ban on `falls` as marking the antecedents of subjunctive conditionals, consider (16) from Sode & Sugawara (2019, Fn. 9).

(16)   Aber {[✓]falls/wenn} es zu einer Abstimmung gekommen wäre, hätte er
     but   falls/wenn   it to a   vote   had come   had he
     sich ohnehin nicht beteiligt.
     self anyway not   participated
     'But if there had been a vote, he wouldn't have participated anyway.'

Sode & Sugawara do not offer an explanation for this fact. What exactly determines the acceptability of `falls` in such sentences remains to be seen.

3.3 Interim summary

Let us briefly summarize the empirical situation we have surveyed in this section. German `falls` is more restricted in its occurrence than English `if`, but among the conctructions we have reviewed, it is only in factual conditionals that `falls` is downright banned. For each of the others we found some cases in which `falls` can be substituted for `wenn`.

That said, it does seem to us that `falls` occurs in a subset of the contexts in which `if` occurs. Thus suggests that the restrictions are similar for both, but more stringent for `falls`. We will make this assumption as we proceed.

Our basic idea is that different variants of iffiness are responsible for the restrictions on both `if` and `falls`. When von Fintel & Iatridou first introduced the notion, they stopped short of giving a precise definition. Their goal was to get the basic idea across, leaving the exploration of its precise contours for future work. We suggest that the contrast between `if` and `falls` provides evidence that there really is a whole family of iffiness constraints that come into play in different ways for different expressions. In the next section, we take some steps towards capturing the iffiness condition on `falls`.

4 Analysis

We start by laying down some crucial ingredients of the formal framework we assume. We will not spell out every detail, but enough to convey the gist of our analysis.

It is generally assumed that modifying clauses like `if` φ and `falls` φ restrict modal or temporal operators (Lewis 1975). We argue that in addition to this core role which they all share, they also trigger presuppositions. The exact nature of those presuppositions is subject to lexical variation. That is where we locate the source of their distributional differences.

As we mentioned earlier, our basic idea is related to the notion of "iffiness". In von Fintel & Iatridou (2002) this notion is sketched as a condition on the contextually given domain of the operator restricted by the conditional. To capture the distribution of `falls` and how it differs from `if`, we make explicit that "iffiness" of the antecedent has to hold with respect to a particular attitudinal state. We therefore need a representation of an attitude holder and its attitudinal state, for which we borrow some notions from Inquisitive Semantics (IS).[2] Specifically, we borrow the notion of an agent's *inquisitive state* as a representation of the issues that the agent has an interest in resolving. Ciardelli *et al.* (2019) are somewhat vague as to the precise notion of this latter notion, speaking of issues that the agent is "curious about" but cautioning that resolving those issues may not be among the agent's top priorities in case it conflicts with other desires. In the examples that are relavant to us, we can comfortably assume the working definition that the issues in x's inquisitive state are ones whose resolution x believes will (or would) enable them to more accurately evaluate the options in a decision problem x is facing.

We write '$\Sigma_x(w,t)$' for the *inquisitive state* of agent x at world w and time t. Formally, '$\Sigma_x(w,t)$' is an *issue*, that is, a downward closed set of sets of world-time pairs, or Montagovian indices. The agent's *epistemic state* is $\sigma_x(w,t) = \bigcup \Sigma_x(w,t)$. We make the (simplifying) assumption that all indices in $\sigma_x(w,t)$ share the same temporal coordinate t and differ from each other at most in the world coordinate.[3] We assume that (the accessibility relations underlying) inquisitive states are *serial* (that is, $\sigma_x(w,t)$ is non-empty). We also assume that they are *introspective* in the following, strong sense: if $v \in \sigma_x(w,t)$ then $\Sigma_x(v,t) = \Sigma_x(w,t)$. Thus the agent is certain not only with respect to her information state, but also with

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[2]See Ciardelli *et al.* 2019, especially Ch. 8, for background and further details.

[3]See also Kaufmann's (2005) treatment of modal accessibility relations in a modal-temporal framework.
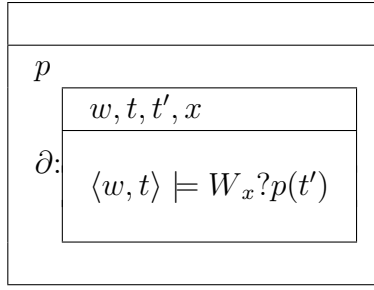
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Figure 1: Presupposition of `falls` φ

respect to her inquisitive state.

Against this backdrop, Ciardelli *et al.* 2019 propose a way of modeling the attitude of *wondering* about a given issue $?p$.[4]

(17) **wondering** (Ciardelli *et al.* 2019)
Agent x wonders about $?p$ at $\langle w, t \rangle$, written '$\langle w, t \rangle \models W_x ?p$', if and only if

   a. the issue is not resolved in the agent's epistemic state
$(\sigma_x(w, t)$ is not an element of $?p$); and

   b. the issue is resolved in each element of the agent's inquisitive state
$(\Sigma_x(w, t)$ is a subset of $?p$).

The condition in (17a) means that the agent does not (presume to) know whether p. Condition (17b) means, in Ciardelli *et al.*'s terms, that the agent *entertains* the issue whether p. Together, these conditions characterize what we propose as our formal definition of "iffiness": a combination of uncertainty and curiosity.

(18) **Presupposition of `falls`**
`Falls` φ presupposes that some agent wonders whether φ.

More formally, if φ translates to p, then `falls` φ presupposes that some agent wonders about the issue $?p$.

In the DRT-based formalism proposed by van der Sandt (1992), this presupposition can be represented as in Figure 1. This DRS would appear in a larger DRS on the restrictor side of an operator. The presupposed part (labeled with the ∂ operator) involves four parameters: a world w, two times t, t', and an agent x. These parameters can be tied to referents in the surrounding context in different ways, giving rise to different ways in which the presupposition of `falls` may be satisfied. Normally, $\langle w, t \rangle$ will be the utterance index; t' is a salient time possibly (but not necessarily) different from t. In the following, we discuss in turn some of the possible interpretations associated with `falls`-conditionals and how they relate to different resolutions of the parameters.

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[4]Technically, the object of the attitude does not have to be a proper issue for the agent (it is a proper issue if it is not resolved in the agent's state). But attributions of wonderment with such improper issues, while well-formed, cannot be true under Ciardelli *et al.*'s analysis. We are not going to go into more details and restrict attention below to proper issues.

4.1 Global issue

The first case is the most typical context for the use of `falls`, in which the speaker entertains the relevant issue at the world and time of utterance. An example is the `falls`-variant of (6) above, repeated here:

(6′) **Falls** Gertrud jetzt im   Café ist, arbeitet sie dort.
        if   Gertrud now at the café is   works   she there
        'If Gertrud is at the café now, she is working there.'

It is plausible to assume that the issue *whether Gertrud is at the café now* is an issue in the utterance context. Thus in terms of the paramters in Fig. 1, w is the actual world, t and t' are both set to the utterance time, and x is the speaker.

4.2 Local issue

Another way to resolve the parameters of the presupposed content is by *local* satisfaction at the points in a quantificational domain. This gives rise to those cases in which `falls` is felicitous with quantificational adverbs. As we mentioned earlier, those cases are exceptional. We can now state more precisely what is special about them, and how they relate to the other uses of `falls`.

There are multiple ways in which a local issue can figure in making `falls` felicitous. Consider first example (12), repeated here:

(12′) **Falls** ich rechtzeitig da   bin, hole ich mir   meist   einen Kaffee.
         falls I   in time   there am get I   myself usually a   coffee
         'If I'm there on time, I usually get myself a coffee.'

What sets this sentence apart from its counterpart with `wenn` (which is also felicitous) is an implication that on each of the relevant occasions (in this case, arrivals), the speaker actively entertains the question whether she is on time or not, presumably to aid her decision on whether to get a coffee. Thus in this case, w is the actual world and x is the speaker as before, but the relevant time is t', the temporal variable bound by the adverb `meist` 'usually'.

The relevant local inquisitive agent need not be identified with the speaker, however, nor does it have to be the same agent on all occasions in the domain. Thus the impersonalized variant of (12) is also fine:

(19) **Falls** ich rechtzeitig da   war, wurde mir meist   ein Kaffee angeboten.
        falls I   on time   there was was   me usually a   coffee offered
        'If I was there on time, I was usually offered a coffee.'

But even when the agent is quantified-over in this way, there is still an implication that *someone* is or was paying attention to the speaker's arrival time and basing their gastronomical decisions on it.

The use of `falls` becomes strained if the existence of such an agent cannot be easily supposed. Thus (20) suggests that someone makes sure that a seat is available in case the speaker shows up on time. Such a scenario is not impossible—just consider a permanent box seat at an opera house—but requires considerable extra context.

(20) ??**Falls** ich rechtzeitig da   bin, gibt es meist   einen Sitzplatz.
          falls I   in time   there am is there usually a   seat
          'If I'm there on time, there is usually a seat.'

Similarly, (21) suggests that someone timed the opening of the cafeteria depending on the speaker's whereabouts, *delaying* the opening when the agent arrived on time. There is nothing linguistically wrong with this, but it it hard to imagine a setting in which it makes sense.

(21) ??**Falls** ich rechtzeitig da   war, hatte die Kantine meist   noch zu.
          falls I   on time   there was had   the cafeteria usually still closed
          'If I was there on time, the cafeteria was usually still closed.'

4.3 Investigator

In the next case we consider, it is once again the speaker who wonders about the truth of the antecedent. In this case, however, the wondering happens at speech time, independent of (and temporally distant from) the situations in the quantificational domain that the wondering is about. A case in point is given in (22).[5]

(22) **Falls** mein Esel   von einer Biene gestochen wurde, trat   er jemanden.
          if   my   donkey by a   been stung   was   kicked it someone
          'Falls my donkey was stung by a bee, it kicked someone.'

In sentence (22), `falls` is felicitous, even though it is not plausible to assume that that is because the donkey (or some other agent) entertained the question whether it was stung by a bee on all the relevant occasions. Rather, in this case it is speaker, at utterance time, who surveys a set of relevant (past) occasions and confirms a pattern of kicks following bee stings. Thus here we have $\langle w, t\rangle \models W_{\text{speaker}}?\text{stung}(t')$ for all t' in the domain (i.e., intervals the agent is interested in, perhaps because these were occasions on which the donkey displayed aggressive behavior).

4.4 Counterfactual cases

In many cases, `falls` is infelicitous in counterfactuals, as we showed above with (15), repeated here:

(15′) ??**Falls** er auf Zahl gesetzt hätte, hätte er verloren.
          falls he on tails bet   had   had   he lost
          'If he had bet on tails, he would have lost.'

In contexts in which the falsehood of the antecedent is mutually accepted between the interlocutors, the state of wondering about the antecedent cannot be attributed to either the speaker or the listener. Thus in contexts in which those are

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[5]The sentence in (22) is adapted from an example in Yang on the Japanese marker `moshi`, which can optionally appear in conditional antecedents and whose distribution and function are similar, though not identical, to German `falls`. Most notably, *moshi* appears less restricted with subjunctive conditionals. A comparison between those two makers is beyond the scope of this paper.

the only available values for the agent parameter of the presupposition, `falls` is expected to be bad in counterfactuals.

However, if someone other than the interlocutors (or the interlocutors at a different time) can serve to fill the role of the wonderer, counterfactuals with `falls` are much improved, as illustrated by (23) from Sode & Sugawara (2019):

(23) Aber **falls** es zu einer Abstimmung gekommen wäre, hätte er sich
      but   falls it to a   vote   had come   had he self
      ohnehin nicht beteiligt.
      anyway not   participated
      'But if there had been a vote, he wouldn't have participated anyway.'

Here it is the subject `er` 'he' who is plausibly doing the wondering, and the question whether it would come to a vote is not settled for this agent at the relevant (past) time. Thus `falls` is felicitous.

5   Further issues

We have discussed a range of contexts in which `falls` is allowed in restrictors of temporal adverbs. Recall from above that English `if` occurs in such contexts much more freely; however, `if`, too, is subject to certain constraints. Consider again the example discussed by von Fintel & Iatridou (2002):

(24)   a.   #If/when Caesar woke up, he <u>usually</u> had tea.

       b.   If/when Caesar woke up early, he <u>usually</u> had tea.

von Fintel & Iatridou characterize their notion of "iffiness" as follows:

> Somehow, the *if*-variant suggests that there was a question for each day quantified over whether Caesar would wake up or not. Since people do wake up regularly, the iffiness contributed by `if` makes the sentence odd … As soon as it is easy to see that the event in the restrictive clause is iffy, the examples start allowing `if`   [as in our (24b)—KKH]

On the face of it, this condition does not seem to differ much from the version we proposed for German `falls`. However, what is missing in the English case is the requirement that the issue be consciously entertained by an agent. In English, it is sufficient for the question to not be settled relative to some modal base. In German, an agent associated with that information state must be wondering about it. We submit that this condition precisely delineates the cases where English `if` and German `falls` come apart.

Our implemenation of "iffiness" ties it to the presence of an issue on an attitudinal state that is normally associated with interrogative clauses. This is particularly interesting as across languages from a range of families, conditional markers have been observed to often do double duty as interrogative complementizers, just like English `if`. A formal implementation of this *conditional-interrogative link* is proposed by Starr (2014). In contrast to our treatment of `falls`, Starr allows for `if`

to actively raise an issue (the polar question corresponding to the antecedent), to then zoom in on the positive answer. This differs from `falls` in that the issue does not already have to be entertained, an effect we consider crucial to capture the more restricted nature of `falls`. As Starr focuses on non-quantificational conditionals, her specific implementation ensures that the issue is introduced globally, whereas we consider cases of local anchoring as well. A more detailed comparison between the two accounts has to await future research.

Finally, it is worth comparing `falls` to the morphologically related German construction `im Falle, dass` lit 'in the case that', and the seemingly equivalent English `in case`. Both these markers can also be used to restrict modal or temporal operators and, as far as we can tell at this point, behave similarly to `falls`:

(25) {Falls / Im   Falle, dass} Klaus gewinnt, werden wir eine Flasche öffnen.
     {falls / in.the case that} Klaus wins   will   we a   bottle   open

(26) In case Klaus wins, we'll open a bottle.

However, both `falls` and `in case`, serve not only to form restrictions of modal and temporal quantificational operators. Just like `if` and `wenn`, they can also be used in *relevance conditionals* (also "biscuit conditionals"; see DeRose & Grandy (1999); Franke (2007); Ebert *et al.* (2014); Goebel (2020)), as exemplified in (27). In the case of relevance conditionals, the antecedent clause does not specify the conditions under which the consequent proposition is true. Rather, the consequent proposition is asserted unconditionally, and the antecedent specifies the conditions under which the speaker assumes the information provided by the consequent to be relevant for the addressee. In order for relevance conditionals with `falls` and `in case` to be felicitous, the presuppositions associated with these items have to be satisfied, of course. In the case at hand, this is unproblematic since w can be identified with the actual world, t and t' can both be identified with the utterance time, and x with the utterance speaker.

(27) Ich habe Kekse   mitgebracht,   falls Du Hunger bekommst.
     I   have cookies brought.along if   you hunger get
     'I brought along cookies in case you get hungry.'
     (*roughly:* '...in order to use them if you get hungry')

Like other relevance conditionals in German, when the antecedent precedes the consequent, the latter can be realized with matrix clause verb order, that is, with the finite verb in second position:

(28) Falls Du Hunger bekommst, { habe ich / ich habe } Kekse   mitgebracht.
     falls you hunger get,   { have I   / I   have } cookies brought.along
     'I brought along cookies in case you get hungry.' (*roughly:* '...in order to
     use them if you get hungry')

Relevance conditional uses of `falls` or English `in case` where the matrix clause is most plausibly understood as describing an action with the goal specified

by the adverbial clause are semantically similar to *purposive clauses* as expressed by English `(in order) to` or German `um zu` (Sæbø (1991); Nissenbaum (2005)). Interestingly, in such cases, German `im Fall(e), dass` 'in.the case that' cannot be used. Instead, the preposition has to be changed to yield `für den Fall, dass` 'for the case that', as shown in (29).

(29) Ich habe Kekse   mitgebracht,   {a. für den / b. #im} Fall(e), dass Du
     I   have cookies brought.along   for the /   in.the case   that you
     Hunger bekommst.
     hunger get
     'I brought along cookies in case you get hungry.'
     (*roughly:* '. . . in order to use them if you get hungry')

In (29), `im Fall(e), dass` strongly suggests that whether or not cookies have been brought along depends on whether the addresss gets hungry, an interpretation as a genuinely hypothetical (and pragmatically odd) conditional.

Note, however, that `im Fall(e), dass` is not generally excluded from a use in relevance conditionals. In (30), the matrix clause does not describe an action carried out with the goal specified by the adverbial clause. Rather, it describes a state of affairs that can plausibly be understood as holding independently, and which might be of interest to the addressee. In this case, both `im Fall(e), dass` and `für den Fall, dass` are fine.

(30) Es   ist Bier im   Küehlschrank, {a. für den / b. im   } Fall, dass Du
     there is beer in the refrigerator   for the /   in the   case that you
     Durst bekommst.
     thirst get
     'There is beer in the refrigerator in case you get thirsty.'

We would like to suggest tentatively that the teleological modality that is coveyed in purpose clauses (Sæbø (1991); Nissenbaum (2005)) is encoded in the preposition `für`, which blocks the use of the morphosyntactically similar `im Falle, dass` for such cases. In contrast, the relevant layer of teleological modality can be conveyed pragmatically with `falls` and English `in case`. A more detailed analysis of the phenomenon remains to be worked out, but the ingredients built into our account for `falls` strike us as a natural starting point towards this.

6 Conclusion

In this paper, we have argued that the German conditional connective `falls` carries a restriction (implemented as a presupposition) that is a variant of "iffiness" as associated with English `if`. Specifcally, `falls` φ requires that φ be an open question for someone, globally or pointwise (locally). The condition is easy to satisfy globally for one-case indicative conditionals, and various constellations can satisfy it for adverbially quantified and subjunctive conditionals (depending on context and content). We concluded with a comparison with purposive clause-style uses of `falls`

and the behavior of closely related items in English and German (`in case`; `im Falle, dass`; `für den Fall, dass`).

For future research, it will be interesting to consider further items like `in the event that`, the conditional marker Lycan (2001) considers the transparent guide to the analysis of natural language conditionals. To expand the investigation crosslinguistically, it appears most relevant to understand the optional antecedent markers Japanese `moshi` (Yang (2023)) and Chinese `ruguo` (Yang (2021); Yuan (2024)), which pattern quite closely with `falls` on many of the contrasts observed, but appear to be more flexible especially in subjunctive conditionals.

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