Why premise questions?

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Abstract. This paper is concerned with the interpretation of conditional questions introduced by the *wh*-word *why* (*why*-conditional questions, WCQs for short). In particular, we observe that WCQs – unlike the other conditional questions – cannot be uttered out of the blue and hence have a hypothetical reading; instead, the felicitous utterance of a WCQ requires some interlocutor's commitment to the proposition in its antecedent (p). This makes WCQs necessarily *premise conditionals* in the sense of Iatridou (1991); Haegeman (2003). Along with Goebel (2017), we assume that premisehood is a specific use of a regular indicative conditional sentence. We explain the premise interpretation of conditionals as a combination of their thematic nature and the discourse constraints derived from the fact that p has its own discourse history. Additionally, we derive the necessary premise interpretation of WCQs from the impossibility of entertaining the question "What happens if $\neg p$?", which is necessary for the hypothetical interpretation of indicative conditionals.

Keywords: conditionals, conditional questions, premise conditionals, *why*-questions

1. Introduction

The goal of this paper is to analyze structures with the shape of an indicative conditional whose consequent is a *why*-question, henceforth *why*-conditional questions (WCQ), as illustrated in (1).

(1)   If it's cold outside, why are you wearing a tank top?

In particular, we will be concerned with the question of why WCQs can only receive a restrictive interpretation, the one corresponding to what we call 'premise conditionals'.

Premise conditionals (also called 'factual conditionals' in Iatridou 1991) are usually discussed opposing them to (indicative) hypothetical conditionals (also called 'event conditionals' in Haegeman 2003). According to Iatridou, a premise conditional "is presupposed to be at issue in the discourse" and carries the presupposition that somebody believes the content of the *if*-clause to be true. According to Haegeman, the antecedent of a premise conditional (p) is not under the scope of operators appearing in the consequent (q), such as tense, adverbial adjuncts or negation, which is explained due to the different syntactic structure of the two conditional types (hypothetical vs. premise). Example (2a) is a hypothetical conditional, while (2b) is a premise conditional.

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(2)   From Haegeman (2003), example (1)
        a.   If it rains a lot, we will all get terribly wet and miserable.
        b.   If [as you say] it is going to rain so much, we should stay at home.

Intuitively, the antecedent of (2b) conveys a premise expressed by some participant in the discourse, that is, the antecedent of the conditional echoes someone's assertion, while the one in (2a) does not. Later on, we will provide a more explicit definition of premise conditional. For now, we want to show there are a number of differences between hypothetical and premise conditionals, which along with Goebel (2017), we take to be two distinct *uses* of the same semantic object. Our ultimate goals will be to show that, while most conditionals can have either a hypothetical or a premise interpretation depending on the characteristics of the context in which they occur, WCQs always pattern with premise conditionals, and to explain why this is the case.

The paper is structured as follows: the following section lays out the main differences between premise and hypothetical conditionals, as observed by Iatridou (1991) and Haegeman (2003). Section 3 provides some theoretical background on conditional questions and on WCQs more specifically. Section 4 unfolds the first part of the analysis, by providing a more precise definition of premise conditional as a different *use* of an indicative conditional that emerges under certain contextual conditions, and emphasizes the relevance of the fact that *p* is thematic in all premise uses. In section 5, we provide an explanation of the necessary premise interpretation of WCQs by appealing to the discourse function of requesting explanations and to the epistemic state of the speaker who makes this request. Section 6 concludes.

2. Data

It is well-known that there are a number of differences between premise and hypothetical conditionals (Iatridou, 1991; Haegeman, 2003; Mayol and Castroviejo, 2017). Here we will focus on a subset of those properties and show that WCQs always pattern with premise conditionals. In particular, we will review three empirical differences between premise and hypothetical conditionals: echoicity, temporal interpretation and association with focus particles.

Let us start with echoicity. In premise conditionals, as opposed to hypothetical conditionals, the antecedent (*p*) resumes a propositional content that has been asserted in a previous speech turn (Iatridou, 1991; Haegeman, 2003). Typically, there are lexical cues that make this anaphoric relation explicit, as shown by the next two premise conditionals.

(3)   A: I have a lot to do today.
        B: If you have *so much* to do, you should not go out.

(4)   A: Tomorrow it's going to rain.
        B: If it *does*, I will change my plans.

In the two previous examples, the conditional cannot appear out of the blue, since, crucially, it is connected to a previous utterance by the addressee. In contrast, hypothetical conditionals are not constrained in this way and can appear out of the blue, as shown in (5).

(5)   [A mother talking to her teenager son; the son's being cold/tired is not being discussed]
        If you are tired, it's important that you go to sleep early.

The same is true for plain (i.e. non-*why*) conditional questions (conditionals whose consequent is a question): they are acceptable out of the blue.

(6)   [A mother talking to her teenager son; the son's being cold/tired is not being discussed]
        If you are tired, will you go to sleep early?

In contrast, WCQs behave like premise conditionals, even in absence of lexical cues. That is, they are not acceptable out of the blue, as shown in (7).

(7)   [A mother talking to her teenager son; the son's being cold/tired is not being discussed]
        #If you are tired, why don't you go to sleep early?

The conditional in (7) is only felicitous if the son has said that he is tired or can be otherwise clearly inferred from the context (i.e. the son is ostensibly yawning). We can thus conclude that WCQs behave like premise conditionals as far as echoicity is concerned.

Let us move to temporal interpretation. The temporal interpretation of the antecedent of hypothetical and premise conditionals differ. According to Haegeman (2003), the tense in the antecedent of a hypothetical conditional is subordinated to that of the consequent, while this is not the case in a premise conditional. A minimal pair illustrating this contrast is presented in (8). (8a) has an interpretation in which the run time of the event of Peter's being sick is in the future, like the run time of the event in the consequent. In contrast, (8b) lacks this interpretation; the only interpretation is one in which if Peter is so sick now, he will not be able to work tomorrow. That is, a present tense in the antecedent of a premise conditional cannot receive a future-oriented interpretation. In order to achieve the same interpretation as (8a) with a premise conditional, an explicit marker of future tense should be used, as in (9).

(8)   a.   If Peter is sick, he will not be able to go to work tomorrow.
        b.   If Peter is indeed so sick, he will not be able to go to work tomorrow.

(9)   If Peter is indeed going to be so sick, he will not be able to go to work tomorrow.

WCQs pattern like premise conditionals, while plain conditional questions do not, as shown by the contrast in (10). While the present tense in the antecedent of a plain conditional question may have a future orientation, (10a), this is not possible in a WCQ, as shown by the unacceptably of (10b). A present tense in a WCQ always gets a present interpretation, (10c).

(10)   a.   If Peter is sick (tomorrow), who will replace him?
        b.   #If Peter is sick (tomorrow), why will we meet?
        c.   If Peter is sick (now), why did we come to the office?

Finally, let us discuss the empirical facts regarding association with focus particles. Focus particles, such as *only*, that appear in the consequent of a conditional can associate with material in the antecedent if the conditional is hypothetical, but not if it is premise.

The contrast is shown in (11). In (11a), *only* associates with *pressure*, which receives the main pitch, and it conveys that the only circumstances in which John will finish the book are the ones in which there is a lot of pressure on him. This reading is impossible with a premise conditional, as illustrated in (11b). With a premise conditional, the focal particle must associate with some element in the consequent, as in (11c); the reading we obtain is one in which if there is a lot of pressure on John, the only thing he will finish is the book.

(11)   a.   John will only finish the book if there is a lot of PRESSURE on him.
        b.   #John will only finish the book if there is already such a lot of PRESSURE on him.

      c.   John will only finish the BOOK, if there is already such a lot of pressure on him.

Once again WCQs pattern with premise conditionals. The focal particle cannot associate with material in the antecedent, as shown in (12a), but only in the consequent, as in (12b). Regular conditional questions are not constrained in this way, as shown by the acceptability of (13).

(12)   a.   #Why did he only finish the book if there was so much PRESSURE?
          b.   Why did he only finish the BOOK, if there was so much pressure?

(13)   Will John only finish the book if there is a lot of PRESSURE on him?

To recap, we have provided empirical evidence that WCQs can only be interpreted as premise conditionals. To understand why this is the case, we need to delve into the semantics of conditional questions, *why*-questions, and premise conditionals.

3. Background

We take WCQs to be a type of conditional question, a construction in which the consequent of a conditional is a question, as in (14).

(14)   If Alonso comes to the party, will Joanna leave? (Isaacs and Rawlins, 2008: 269)

Isaacs and Rawlins (2008) and Bledin and Rawlins (2019) propose an analysis for such constructions which combines the semantics of conditionals with the semantics of questions. In particular, in their account, the conditional adjunct restricts the domain of the question operator and creates a temporary context in which the question creates a partition, along the scheme in (15) (where c stands for a discourse context).

(15) $c + if\ \phi,\ \psi?$ = Assume(ϕ) + Question(ψ?)
        (From Bledin and Rawlins (2019: 14))

In short, Assume(ϕ) creates a temporary context, and Question(ψ?) updates exclusively this derived context. Following Bledin and Rawlins (2019), who include a *topic stack* in their context model – a stack of sets or propositions, a representation of Roberts' (1996) QUD – the conditional question is placed on top of the stack. Their "Questioning update" ensures that the conditional question be relevant to the question that was previously on top of the stack, and that the result be inquisitive. Under this circumstance, the interlocutor will be prompted to resolve a question relative to the restricted domain determined by the assumption expressed by the *if*-clause.

As for the semantics of *why*-questions, most of the linguistic and philosophical literature has concentrated on the debate regarding whether they can be analyzed as other *wh*-questions or whether they are exceptional. Although *why*-questions are special in some respects,[2] we take a unitary account to be preferable. Cox (2020) has proposed such an account, in which *why*-questions are semantically equivalent to other *wh*-questions and, more specifically, other adjunct *wh*-questions, unlike other proposals which treat them as exceptional. According to Cox (2020), *why*-questions denote a set of propositions of the shape 'p for r', where 'r' is a reason. In this analysis, the semantic value of 'why is Philip wearing this?' is the following:

(16) $\lambda w[\lambda p[\exists r[p = \lambda r : \mathbf{reason}(w)(r)[\lambda w[\exists e[\mathbf{wear}(w)(\mathbf{this})(\mathbf{philip})(e) \wedge \mathbf{for}(w)(r)(e)]]]]]]$

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[2]Unlike other *wh*-questions, *why*-questions are contrast and domain sensitive. These aspects will not be relevant for our purposes, so they will not be discussed any further.

The semantics of WCQs can be captured by combining both the semantics of conditional questions and the semantics of *why*-questions. However, nothing in the resulting analysis would predict the obligatory premise reading.

Another aspect relevant for our purposes is the kind of implications that *wh*-questions and, more specifically, *why*-questions convey. In particular, there is a strong intuition that 'Why *p*?' presupposes *p*. Lawler (1971) proposed that *why* is factive and that this is how the presupposition comes about. Fitzpatrick (2005) casts doubts on this by comparing the behaviour of *why* and *how come* questions. He explains the presupposition-like behaviour of *why*-questions (as opposed to other *wh*-questions) by appealing to the following principle

(17)   A speaker assumes that their question has a non-null set of answers.

He assumes that the set of possible answers to a question includes one with a negative value, as shown in (18) for a *who*-question and in (19) for a *why*-question.

(18)   a.   Who admires Bill?
        b.   {John admires Bill, Mary admires Bill, nobody admires Bill}

(19)   a.   Why does John admire Kate?
        b.   {John admires Kate for reason a, John admires Kate for reason b, John admires Kate for no reason}

While not all answers in (18b) entail that someone admires John (crucially the answer with the negative value does not), all the answers in (19b) do entail that John admires Bill, and this causes the presupposition-like intuition that 'why p?' conveys that *p* is the case. In any event, what will matter for our purposes is that in *why*-questions there is a strong inference that their prejacent is true. Even if this inference is not a factive presupposition triggered by *why*, we will refer to it as a presupposition.[3]

4. Analysis of premise conditionals
4.1. What is a premise conditional?
The term "premise conditional" has been used in slightly different ways in Iatridou (1991) and Haegeman (2003), and Constant (2014) and Goebel (2017). The former propose they bear a presupposition that another interlocutor believes the antecedent is true. The latter define them as constructions whose antecedent is already Common Ground prior to the assertion of the premise conditional, on the basis of examples like (20), where the interlocutor seems to have accepted the previous assertion into the Common Ground.

(20)   [A mother and her son are waiting for the bus on a wintry day. The son is trembling in the cold wind.]
        a.   Son: Mommy, I'm so cold.
        b.   Mother: Poor thing! If you're so cold, put on my shawl.
              From Akatsuka (1986), as cited in Goebel (2017: 382).

Constant also argues that in "factual" conditionals such as (21), asking what would happen if $\neg p$ is the case yields infelicity. In the following example, "And if I'm not hungry?".

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[3]In fact, *how come*-conditional questions are obligatorily premise, too. So, in this respect, the differences between the two of them will not be relevant for our purposes.

(21)   From Constant (2014, 38)
        A: I'm hungry.
        B: Oh. If you're hungry, we should get you some food.

This is again interpreted as evidence that p is already in the Common Ground prior to the utterance of the conditional construction.

In short, the former assume premise conditionals echo a previous assertion without committing to their factuality, while the latter go a step beyond and assume the speaker treats the proposition in the antecedent as Common Ground. Moreover, in the former case, premise conditionals are a different syntactic/semantic object, while in Goebel (2017), premise and hypothetical conditionals are two *uses* of one syntactic/semantic object. Building on both ideas, here we claim that premise conditionals are semantically identical as hypothetical conditionals, but they differ in their pragmatic properties in two respects.

In the first place, hypothetical and premise conditionals differ in their information structure: while premise conditionals are constrained to one particular information structure, more possibilities are available to hypothetical conditionals. The next section will elaborate on this difference.

In the second place, the proposition placed in the antecedent has its own discourse history, either because it has been some interlocutor's discourse commitment (and thus it has been asserted in a previous turn) or because it was already in the Common Ground prior to the utterance of the conditional (in which case the proposition is *rescued* from the Common Ground). On the basis of examples like (22), in which the second speaker may not support the truth of p, we adopt the weaker definition of premisehood whereby p need not be already in the Common Ground, although it is an option insofar also in such a case, p has its own discourse history.

(22)   [A mother and her son are waiting for the bus on a summer's day. The son is wearing a tank top.]
        a.   Son: Mommy, I am so cold.
        b.   Mother: Well, if you're so cold, you should be wearing a jacket.

This said, we do not interpret the impossibility of evoking "What happens if $\neg p$?" as evidence that p is in the Common Ground. Rather, we argue, it flags that p has been some interlocutor's discourse commitment in the past. In contrast, following a hypothetical conditional, "What happens if $\neg p$?" can always be evoked. We will elaborate on this difference in section 5, when we spell out this link in more detail in relation to the premisehood of WCQs.

What matters for now is that, in premise conditionals, p has been proposed to enter the Common Ground in a previous speech turn (or it can be accommodated that it has been). Depending on the discourse function of the premise conditional (to be discussed in Section 4.4), treating a proposition that has been proposed to update the context set as an assumption can have different effects. We will formalize this idea in Section 4.5.

4.2. Premise conditionals are thematic

We assume that the dynamics of discourse progressing can be modeled by means of Questions under Discussion (QUDs), which are explicit or implicit questions that represent the current discourse topic and that are introduced into context by means of questions and assertions. In-

terlocutors keep track of the QUDs that are being discussed in a conversation, as well as their salience: in a particular context, QUDs are ordered in a stack and the most salient one is the one that is placed highest on the stack (it is maximal in a context) (Ginzburg, 2012).

Any utterance U uttered in a context C_1 elaborates on the maximal QUD in that context (max-QUD$_{C1}$). Simultaneously, it also introduces a new QUD. This new QUD will be the maximal QUD in the output context C_2. This is illustrated in example (23) by Vallduví (2016).

(23)   a.   A: What are we having for dinner?
          b.   B: MUTTONBIRD
          c.   C: No, that's not true.
          d.   Max-QUD$_{C1}$: ?λx.have-for-dinner(A+B,x)
          e.   Max-QUD$_{C2}$: ?have-for-dinner(A+B,muttonbird)

The question in (23a) introduces the maximal QUD in $C1$, represented in (23d). The fragment utterance in (23b) addresses this QUD, by providing an answer. At the same time, it introduces a new QUD (Max-QUD$_{C2}$), represented in (23e): it introduces the issue of whether we are having muttonbird for dinner. This maximal QUD can be subsequently addressed, as shown by the denial in (23c).

We are now in a position to introduce the theme-rheme partition of an utterance. Following Vallduví (2016), we define 'theme' as the (optional) fragment of an utterance which replicates content already present in the QUD, as opposed to the rheme, which is the (compulsory) fragment of an utterance which elaborates on the QUD. The explicit QUD in (24a) is answered in (24b) by a fragment utterance which addresses the QUD. Thus, the utterance in (24b) is all rhematic and themeless. Another possible answer is one which, apart from the rheme, also contains a theme, as 'he ate' in (24c), which does not address the QUD but merely copies material from the QUD.

(24)   a.   What did John eat for dinner?
          b.   MUTTONBIRD*rheme*.
          c.   [John ate]*theme* MUTTONBIRD*rheme* [for dinner]*theme*.

Themeless utterances are the default, non-marked case in question-answer pairs; theme-containing utterances are possible, but marked. Given that themeless utterances can by themselves answer the maximal QUD and update the context, this raises the question of what the role of themes is in theme-containing utterances. The answer in Vallduví (2016) is that theme-containing utterances signal that the QUD update (from Max-QUD$_{C1}$ to Max-QUD$_{C2}$) will have an intermediate step: the theme of a theme-containing utterance will change the maximal QUD from Max-QUD$_{C1}$ to Max-QUD$_{C1'}$ and the rheme of this utterance will address Max-QUD$_{C1'}$. Thus, theme-containing utterances indicate that what is being addressed is not the maximal QUD in the context, but a related one. The theme tells us which new QUD the speaker is addressing.

Theme-containing utterances are, for instance, required when Max-QUD$_{C1}$ is not addressed directly, bur rather is split into several subquestions which are not maximal at the time of utterance, as in example (25) adapted from Büring (2003)

(25)   a.   How was the concert?
          b.   The sound was awful.

c.   The audience was enthusiastic.
d.   The band was just fantastic.

The utterances in (25b)-(25d) do not address Max-QUD$_{C1}$ (25a), but rather related QUDs. For instance, in the case of (25b), the addressed QUD is 'How was the sound?'. The role of the theme is precisely to mark this transition and indicate which QUD is being addressed so that Max-QUD$_{C1'}$ can be updated with the rheme (*awful*).

How is the rheme-theme partition mapped into conditionals? This question has been explored, among others, by Biezma and Goebel (2017), von Fintel (2009) and Ippolito (2016). We argue that for premise conditionals there is only one option: the antecedent is thematic and the consequent is rhematic. From this it can be concluded that the QUD is "What happens if p?".

In contrast, the information structure of hypothetical conditionals is less restricted. The same theme-rheme partition that was available for premise conditionals is also available for hypothetical conditionals. In addition, there is at least one other option: the antecedent can be the rheme and the consequent can be the theme. In this case, the QUD being addressed would be 'Under which circumstances q?', which is answered by the antecedent. According to von Fintel (2009) this is the necessary information structure to obtain typical perfection in a conditional. That is, a conditional like 'If you mow the lawn, I'll give you 10 euros' is only interpreted as 'If you don't mow the lawn, I won't give you 10 euros' if the QUD is 'Under which circumstances would you give me 10 euros?'.[4]

Summarizing, in premise conditionals, the antecedent is always a theme; the shape of the QUD is invariably "What happens if p?". In contrast, in hypothetical conditionals, the antecedent may act as the theme or as the rheme of the sentence and the QUD will change in each situation.

This difference in information structure explains why focus particles in premise conditionals must associate with an element in the antecedent, while in hypothetical conditionals they can associate with elements either in the antecedent or the consequent (see the contrast in (11)).

The contrast gets a natural explanation from the fact that focus particles associate with expressions in the rheme, and not in the theme. According to Beaver and Clark (2008), focus sensitive particles comment on alternative answers to the QUD. In particular, *only* signals that the prejacent is the strongest true answer to the QUD and negates other alternatives. Thus, the effects of focus particles on meaning always concern the rhematic fragment of the utterance.

Since in hypothetical conditionals the rheme may be located either in the antecedent or in the consequent, the focus particle will be able to associate with elements in either depending on the QUD. (26) shows the QUD-answer pair when the antecedent is thematic and the consequent rhematic, while (27) shows the opposite configuration (rhematic antecedent and thematic consequent).

(26)   a.   QUD = 'What happens if there is a lot of pressure on John?'
        b.   John will only finish the BOOK, if there is a lot of pressure on him.

(27)   a.   QUD = 'Under which circumstances will John finish the book?'
        b.   John will only finish the book if there is a lot of PRESSURE on him.

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[4]These two options may not exhaust all the possibilities for hypothetical conditionals. For instance, a third plausible option would be 'If p, will q?', in which only the polarity of the consequent is rhematic.

In a premise conditional, the QUD in (27a) is not available; the only appropriate QUD is the one shown in (28a), which requires the focus particle to associate with the rhematic consequent.

(28)   a.   QUD = 'What happens if there is such a lot of pressure on John?'
           b.   John will only finish the BOOK, if there is already such a lot of pressure on him.

A sentence in which the focus particle attempts to associate with the antecedent will be infelicitous because the QUD and its answer will not be congruent.

(29)   a.   QUD = 'What happens if there is such a lot of pressure on John?'
           b.   #John will only finish the book if there is already such a lot of PRESSURE on him.

4.3. Thematicity and echoicity

We argued that premise conditionals are pragmatically different from hypothetical conditionals in two respects: their antecedent is hypothetical and have their own discourse history (i.e. is echoic in some sense).

Since both properties (thematicity and echoicity) are strongly related, it is tempting to try derive one from the other, and to propose, for instance, that an echoic antecedent is always thematic. We believe, however, that this is too strong and that, while thematicity and echoicity are related, they are also independent. In particular, they are related in the following way: if p is echoic, it will most likely also be thematic, since given information tends to be thematic (and echoic content is, by definition, given). However, they are independent because it is possible for p to be both echoic and rhematic (given information can be rhematic). For instance, the antecedent of example (30b) is echoic: it retakes content present in the previous turn. The antecedent is also rhematic: it associates with *only* and is the answer to the QUD in (30c).

(30)   A: John is here.
           B: Good, because we can only start the meeting if he's here.
           c.   QUD: Under which circumstances can we start the meeting?

The relationship between being echoic and thematic is not one of necessity, but rather a trend. This is reminiscent of what happens with pronominal expressions. Pronouns refer to salient antecedents (they are echoic, in some sense) and this makes them very likely candidates to be part of the theme. However, it is perfectly acceptable for pronouns to be part of the rheme, as shown in example (31), in which the pronoun receives a contrastive focus stress.

(31)   Adapted from Vallduví (1992)
           A: Good morning. I am here to see Mrs. Bush again.
           B: Sure, let's see... Her assistant will be with you in a second.
           A: Could I see HER today? I'm always talking to her assistants.

Let us now examine the discourse functions of premise conditionals.

4.4. Discourse functions of premise conditionals

We can tease apart two big discourse functions for premise conditionals. In one, speaker B thinks p is possibly true or even absolutely true, while in the other one, B uses premisehood as a means to challenge its truth. Function 1 (which we can call 'non-challenging') consists in

making explicit the rhetorical relation between *p* and *q*, since *p* has been uttered in a previous speech turn (and most of the times, by a different interlocutor). Function 2 (which we can call 'challenging') consists in expressing doubt concerning the truth of *p* by means of a quantity implicature. Let us develop these ideas in some detail.

Recall from the previous section that we have shown that premise conditionals have a thematic antecedent. From this, it follows that the speaker is manipulating the QUD in a specific way. For instance, in (32), after speaker A has uttered (32a), speaker B decides to elaborate on the consequences of *p* being true ("What happens if *p*?"). That is, the speaker is marking that the truth of *q* is tied to the truth of *p*. This connection can be marked with a conditional, or also with other connectives (see (32c)).

(32) a. A: It is raining really hard.
   b. B: If it's raining so hard, we should stay at home.
   c. B': In this case/then, we should stay at home.
   d. B": We should stay at home.

In (32), a reply without an antecedent, (32d), would be possible, but less coherent, especially because speaker B is not explicitly showing that *q* bears a rhetorical relation with *p*, which has been asserted by speaker A. Assuming all the VP is rhematic, the maximal QUD would be "What should we do?". In this case, speaker A has to infer the relationship between B's utterance and her previous utterance: Did B even hear what A said? Does B think that they should stay at home because of the rain or for some other unrelated reason? With a theme-containing antecedent, no inference is required and speaker B makes it clearer which QUD he is addressing, while acknowledging A's previous utterance.

A particular case of this non-challenging function would be one where speaker A expresses a problem or a concern (or some issue that requires making a decision), so that speaker B is compelled to voice a consequence or propose a solution (in a broad sense). For instance, in (33A), the pressure on John very easily prompts the potential question as to what the consequences of this pressure could be or how to solve this problematic situation. In (33B1) and (33B2), speaker B addresses this issue by explicitly putting *p* and *q* next to one another. As before, if B did not repeat A's asserted proposition in the antecedent of the conditional, the (blunt) sole utterance of *q* may seem unrelated to previous discourse.

(33) A: John is trying to finish his dissertation, but there's a lot of pressure on him already.
   B1: John won't finish in time, if there's (already) such a lot of pressure on him now. (From Haegeman (2003: ex. (10)))
   B2: If there's (already) such a lot of pressure on him now, he should tell everyone to back off.

Turning now to the challenging function, let us consider the following examples:

(34) A: My friend Joe, whom you haven't met, is very smart.
   B1: Oh, yeah, if he's so smart why isn't he rich? (From Iatridou (1991: ex. (22)))
   B2: If he's so smart, he certainly doesn't show it.

One of the potential questions raised by (34A) could be "Is Joe smart?", which becomes maximal in the output context. At that point, speaker B has several choices: he could object to *p*,

in which case the issue of $?p$ remains on the table. He could also explicitly accept p or say nothing, in which case p will enter the Common Ground. In (34B1) and (34B2), though, he does something else by placing p in the antecedent of a conditional.

As will become clear shortly, a speaker who utters an indicative conditional considers p to be at least possible. This is sometimes called 'nontriviality presupposition' (on this, see e.g. Isaacs and Rawlins, 2008) and it can explain the unacceptability of the discourse in (35), from Francez (2015: 16). (35) is unacceptable because, by means of the conditional, the speaker is signaling that she considers it possible that "David is still here", which contradicts the previous utterance.

(35)   #David left yesterday. If he is still here, we can go out for drinks.

From this presupposition, a scalar implicature may arise such that p is *only* possible; that is, by treating an *a priori* true proposition in the antecedent of a conditional, B may be implicating that p is not probable or necessary. Given that p was A's proposal to update the Common Ground and, hence, was treated as A's commitment, the fact that B considers it a possibility can suggest that B is not fully committed to it. In other words, even if B is not openly rejecting p, he may be indirectly not accepting p into the Common Ground (yet).

4.5. Formal representation

Inspired by Farkas and Bruce (2010),[5] we would like to represent the differences between premise and hypothetical conditionals by enriching Farkas and Bruce's table model with some additional insights, so we can represent the information and discourse structure of conditional sentences and their contexts of utterance.

As in Farkas and Bruce (2010), we assume a dynamic model that represents progress in discourse by posing and addressing issues on the table. For each discourse participant DC_x, there is a commitment set corresponding to the propositions to which they are (publicly) committed. They also include the Common Ground as well as a projected Common Ground, to represent the potential subsequent Common Grounds in view of the current moment's state of affairs. To put this model to the service of explaining the discourse behavior of indicative conditionals, we keep the QUD terminology instead of the table; moreover, we will differentiate between Max-QUD$_{inputcontext}$ and Max-QUD$_{outputcontext}$: the former is the QUD the speaker's utterance addresses; the later is the QUD generated by it. In assertions, these QUDs may differ; in questions, they will be the same. For the sake of clarity, we dispense with the rest of parameters.

In (36) we see an example of hypothetical conditional sentence. Table 1 shows how the discourse context is affected by the utterance of (36). First, speaker B is committed to the content of the utterance, so this is included in DC_B. Second, as it the case with any assertion, a conditional addresses a particular Max-QUD$_{inputcontext}$. As discussed in Section 4.2 several options are available for hypothetical conditionals: at the very least the possibilities include a QUD of the shape "What happens if p?" or a QUD of the shape "under which circumstances q?". For the sake of this representation, let us assume that we are in a context such as the QUD is "What happens if p?". Max-QUD$_{outputcontext}$ includes the question generated by B' assertion. Finally,

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[5]We are familiar with the model set up by Bledin and Rawlins (2019), but, as will become clear shortly, to be able to include the *if*-clause as part of the QUD, we cannot have a separate *assumption slot*. On the other hand, it is convenient for us to keep track of separate Discourse Commitments relative to each interlocutor instead of merging them into the *assertion stack*.

we also represent in the Common Ground the possibility of p, as is common practice in the semantic analyses of indicative conditionals (in one way or another, the inference/implication or presupposition that the antecedent is possible. See Leahy (2011), or Stalnaker (1975); Karttunen and Peters (1979); Fintel (1997) as predecessors of this idea).

(36)   If you are cold, we will stay at home. (cf. Table 1)

DC_A	{}
DC_B	{If A is cold, A & B will stay at home}
Max-QUD$_{input context}$	What happens if A is cold?
Max-QUD$_{output context}$	If A is cold, will A & B stay at home?
CG	{$\Diamond$ A is cold }

Table 1: A hypothetical conditional

Let us now move to a representation of a conditional question. The only difference between (36) and (37) is that, in a conditional question, nothing is added to the speaker's commitment.

(37)   If you are cold, will we stay at home? (cf. Table 2)

DC_A	{}
DC_B	{}
Max-QUD$_{input context}$	What happens if A is cold?
Max-QUD$_{output context}$	If A is cold, will A & B stay at home?
CG	{$\Diamond$ A is cold}

Table 2: A conditional question

Let us now turn to a premise conditional, exemplified in (38) and represented in Table 3.

(38)   (cf. Table 3)
         A: I'm very cold.
         B: If you're so cold, we will stay at home.

	A's assertion	**B's premise conditional**
DC_A	{A is very cold}	{A is very cold }
DC_B	{}	{If A is very cold, A & B will stay at home}
Max-QUD$_{input context}$	How is A?	What happens if A is very cold?
Max-QUD$_{output context}$	Is A very cold?	If A is very cold, will A & B stay at home?
CG	{}	{$\Diamond$ A is cold}

Table 3: A premise conditional

As previously stated, we do not want to claim that there are any differences between how a hypothetical and a premise conditional are semantically interpreted. Rather, the contexts in which they occur are different. In particular, we represent in Table 3 that p has its own discourse history, by virtue of the fact that it is A's DC in a previous turn. Instead of accepting p in the Common Ground, by placing p in the antecedent of the conditional, speaker B considers it an assumption. In doing this, p is not part of the shared set of commitments, but it is merely

considered possible by B. Apart from the fact that p has been uttered and, thus, is someone's DC, all the other elements of the contextual tuple are identical to Table 1 (as mentioned, Max-QUD$_{inputcontext}$ need not necessarily be the same in hypothetical and premise conditionals).

The idea that p has its own discourse history is meant to encompass cases such as the ones illustrated above in (20), where p is already in the Common Ground (with or without a record of how it was accepted there) or where it is a discourse participant's commitment that has not been accepted, yet. Hence, this definition is broader than the previous ones, to be able to cover for the attested examples. With Goebel, we assume that premisehood is a *use* rather than a specific syntactic/semantic object, as put forth by Hageman. Also, unlike Iatridou, we do not consider that premise conditionals carry the presupposition that someone believes that p. More precisely, the premise reading arises when p has been previously asserted or is already in the Common Ground (i.e., it has its own discourse history). If the context does not fulfill this condition, a hypothetical reading will emerge. Hence, it is predicted that hypothetical and premise uses are in complementary distribution. We could even go so far as to claim that all indicative conditionals can have both uses. However, this would be empirically incorrect, as the existence of WCQs reveal.

5. Analysis of WCQs

The question we address in this section is why WCQs are premise; in other words, why do we not find WCQs in which p does not have its own history prior to the utterance of the conditional question. That is, whenever someone utters a WCQ, we accommodate that p is either in some participant's DC or it is already in the Common Ground. As a consequence of this fact, we also accommodate that the Max-QUD in the output context was $?p$.

Here we want to return to Constant's (2014) observation that in "factual" conditionals, asking what would happen if $\neg p$ is the case yields infelicity (remember example (21) in section 4.1). Although both Constant and Goebel interpret this fact as evidence that p is already in the Common Ground before the utterance of the conditional, we have shown above that speaker B may not be committed to p and, in fact, premise conditionals – and especially WCQs – are employed in the challenging function (on this see 4.4). This said, we find this observation critical for understanding the obligatory premisehood of WCQs. Let us briefly stop and consider the infelicitous continuation in example (39). The same goes for the dialogue in (40).

(39)   Mary is very cold. # If she is not, she can wear a tank top.

(40)   A: Mary is very cold.
         B: #If she is not, she can wear a tank top.

Example (39) is reminiscent of example (35) above. This ill-formedness can be explained by attending to the aforementioned presupposition that the antecedent in an indicative conditional is possible. When an interlocutor asserts that p, she commits to p. Therefore, in a consistent Common Ground, we cannot find $\Diamond \neg p$. In the previous example, for "If she is not" to be felicitous, the possibility that Mary is not so cold should be established at the moment the speaker has committed to Mary being very cold. Similarly, in (40), even if there are two interlocutors (A and B) and they need not agree on whether p is true, it cannot be Common Ground prior to the utterance of (40B) that it is possible that Mary is not cold, simply because A is committed to the opposite.

Therefore, we are in a position to posit that the impossibility of evoking "What happens if $\neg p$?" has to do with the restrictions that asserting p imposes on future legit discourse moves. Hence, it is not necessarily the case that p is already in the Common Ground in all premise uses. What premise interpretations have in common is that the proposition expressed in the antecedent of the conditional has been previously asserted; and the impossibility of raising "What happens if $\neg p$?" is a by-product of the previous assertion of p.

Let us now turn to WCQs. Our analysis builds on the interaction of the meaning components they convey.

First, as we explained in Section 3, a *why*-question 'Why p?' presupposes that the prejacent q is true. In particular, in example (41a), it is presupposed (and hence the proposition is taken to be in the Common Ground) that the addressee is wearing a tank top, (41b).

(41)   a.   [B:] If you are cold, why are you wearing a tank top?
       b. q: A is wearing a tank top.

Second, WCQs convey that the speaker believes p and q are *a priori* incompatible. That is, she asks for an explanation / reason because she needs further evidence that p and q can be true at the same time; otherwise, in principle she thinks there is a clash in accepting both of them simultaneously. Building on the previous example, the speaker believes that p-worlds – i.e., $\{w : \text{A is cold in } w\}$ – and q-worlds – i.e., $\{w : \text{A is wearing a tank top in } w\}$ – have an empty intersection. Plainly put, when uttering a WCQ the speaker suggests that normally if p, $\neg q$. Example (42a) is pragmatically odd because the inference in (42b) is absurd according to our world knowledge.

(42)   a.   #If you passed the exam, why are you happy?
       b.   Normally, if you passed the exam, you are not happy.

If we take these two meaning components together, we can reason as follows: by applying *Defeasible Modus Tollens* (inspired by Asher and Lascarides' (2003) Defeasible Modus Ponens), the result is that, by default, $\neg p$ normally holds (where the squiggle stands for the nonmonotonic consequence relation and $>$ is the glue logic conditional connective expressing that the consequent normally happens when the conditional holds).

(43) $q, p > \neg q \mathrel{|\!\sim} \neg p$

(44)   a.   A is wearing a tank top
       b.   normally, if A is cold, A does not wear a tank top
       c.   A is not cold

Differently put, $\neg p$ describes the expected state of affairs given the presupposed truth of q. Therefore, $\neg p$ & q do not give rise to any clash and, thus, the use of a WCQ is not motivated. This would explain the infelicity of the following sentences (example (42a) can be taken as an illustration of this, too):

(45)   a.   If you are cold, why are you wearing a tank top? # And if you are not cold?
       b.   #If you are not cold, why are you wearing a tank top?

As a consequence, in WCQs, the question "What would happen if $\neg p$?" is not evoked, unlike what may happen in the rest of conditional questions, for instance, (46), which are less

demanding in this respect than *why*-questions.

(46) a. If Joanna comes to the party, will Alonso come, too? And if she doesn't come?
      b. If Joanna comes to the party, how many attendees will drink soda? And if she doesn't come?

This is precisely why the rest of conditional questions can have both hypothetical and premise interpretations – i.e., depending on the properties of the discourse in which they are uttered –, but WCQs will always be premise.

As is predicted from the premisehood of WCQs, they can have a challenging or a non-challenging function. In fact, these conditional questions turn out to be very efficient when the speaker is committed to ¬p. Recall from 4.5 that indicative conditionals presuppose the possibility of p (Leahy, 2011). In the case here described, though, this possibility does not seem to be epistemic. That is, it does not seem to hold that in some stereotypical world compatible with what is known by the speaker, p is true. However, we maintain that the possibility of p is presupposed ($\Diamond p$ is in the Common Ground), as shown in the representation of (47) on Table 4.

(47) If you are so cold, why are you wearing a tank top?

	A's assertion	B's WCQ
DC$_A$	{A is very cold}	{A is very cold}
DC$_B$	{}	{}
Max-QUD$_{input context}$	How is A?	If A is so cold, why is A wearing a tank top?
Max-QUD$_{output context}$	Is A very cold?	Is A is so cold, why is A wearing a tank top?
CG	{}	{$\Diamond$ A is very cold, A is wearing a tank top}

Table 4: A conditional *why*-question

If p is not epistemically possible, we argue that p must be possible by virtue of something else. We propose that, in the event of a previous proposal to update the context with p, p can be retrieved as someone's DC (another interlocutor, the same interlocutor in a previous turn, folk wisdom) or the accommodation thereof. Hence, the presupposition of the possibility of p can be satisfied as a result of A's commitment with p or the evidence that p – i.e., instead of the speaker B's knowledge/belief that p. This is represented in Table 4 with the presence of p in DC$_A$, flagging that p has its own discourse history.

Summing up, the request for an explanation, which emerges from the speaker's belief that there is an empty intersection between p-worlds and q-worlds, does not license the question "What happens if ¬p?", whence the obligatory premisehood of WCQs. Since q is presupposed, the only proposition that can be challenged given the clash between the two is p. Hence, it seems reasonable to think that the antecedent in premise conditionals is not necessarily in the Common Ground before the utterance of the conditional.

Returning now to the non-challenging function, WCQs can be felicitous even in cases when p was in the Common Ground prior to B's learning of q – i.e., common knowledge, folk knowledge, something that may have been asserted by someone, even if record of the utterance is not salient –, which has prompted the *why*-question. Consider the following examples:

(48)   a.   If Spain has the best health system in Europe, why does it have the worst COVID figures?
        b.   If the Earth is not flat, why don't we fall off?

We understand both (48a) and (48b) can be uttered by someone who is actually committed to p, but who is ready to revise this commitment and pull p out of the Common Ground if necessary. There are two plausible follow-up scenarios: either A will reject p, indicating a presupposition failure (on this, see Isaacs and Rawlins, 2008), or she will try to show B how, on a closer inspection, the intersection of p-worlds and q-worlds is not empty. For instance:

(49)   a.   Because there has been little inversion on homes for the elderly.
        b.   Because the Law of Gravitation brings us towards the Earth.

It is even possible for the same speaker to use a WCQ after she herself has uttered p. As argued before for premise conditionals (see the discussion before (32)), the role of the WCQ is to tie the relevance of the *why*-question to the truth of p.

(50)   It is well-known that some animals are extraordinarily intelligent. If they are so intelligent, why do we experiment with them and not the other way round?

To wrap up, while WCQs can have two differentiated uses, they are constrained by the fact that, in uttering them, the speaker is signaling an apparent empty intersection between p-worlds and q-worlds. We have argued that, as a consequence, $\neg p$ would not prompt a *why*-question, and this precisely is what prevents the hypothetical interpretation of WCQs.

6. Conclusion

In this paper we have addressed the question of what makes a conditional premise – that is, under what discourse conditions we interpret an indicative conditional as premise – and why conditional questions introduced by the *wh*-expression *why* only has a premise interpretation. Concerning the first question, we have defined premise conditionals as those indicative conditionals whose antecedent has been previously asserted. Moreover, we have shown that premise conditionals are thematic, which explains some observed differences between the two uses – hypothetical vs. premise –, for instance regarding their interaction with focus particles.

Concerning the second question, nothing in the semantics of conditional questions or *why*-questions explains their premisehood. We have argued that asking for an explanation or a reason – i.e., by means of a *why*- or a *how come*-interrogative – implies that the speaker has observed an apparent clash between the truth of the proposition contained in the *if*-clause and the presupposition of q, introduced by the *why*-interrogative, because she believes that normally, if $p, \neg q$. It follows that the clash would not arise were $\neg p$ the case and, thus, a *why*-question would not be felicitous if we evoked what would happen if $\neg p$. The impossibility of this option forces premisehood on WCQs.

We hope to have contributed a new argument in favor of treating premisehood as a use rather than a different type of conditional, and to have extended our knowledge concerning the pragmatics of *why*-questions as well as conditional questions. There are nonetheless various open issues. We will conclude by mentioning a couple. We leave for future work a more thorough explanation of the differences between hypothetical and premise conditionals, including the facts regarding tense discussed at the beginning of the paper. In addition, while thinking about this phenomenon, it has become clear to us that we need a better understanding of the infor-

mation structure in complex sentences and a good way to model the role played by adverbial clauses in expressing discourse strategies.

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