Evidentials and Questions

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Abstract The paper investigates inferential evidentials in questions, specifically German evidential *wohl* and the Italian evidential future (EF). German questions with *wohl* show the interrogative flip. In verb-end syntax, they are interpreted as conjectural question. We propose an analysis of evidentials in questions based on von Fintel & Gillies (2011) anchoring of epistemic *might*. The account predicts the interrogative flip as well as the fact that verb-end questions do not request an answer. Questions with Italian EF convey conjectural questions. In the final part, we hypothesize how this interpretation of evidentials in questions — evidenced in a wide range of languages — may emerge in a further step beyond the flip reading.

Keywords evidentials · conjectural questions · interrogative flip · future as evidential

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1 Introduction

Evidential markers have been extensively studied in recent literature (Faller 2002, Aikhenvald 2004a, Davis, Potts, & Speas 2007, Speas 2008 a.o.). They convey the speaker's type of evidence in support of assertion p. The speaker could claim *'Annie sang'* based on direct perceptual evidence (they heard it), on reportative evidence (others have told him), on inferential evidence (matters look as if Annie sang), and other flavours as described in the literature.

This article focuses on the use of evidentials in questions, a context of use that affords an intriguing perspective to better understand evidentiality at the interface of semantics, pragmatics and syntax. We are especially concerned with two possible effects of the use evidentials in interrogative clauses, each of which has been claimed to be

independent from the other: *interrogative flip*, which takes place when the anchor of evidential comment is shifted from the speaker to the addressee; and *conjectural questions*, which takes place when a question expresses the speakers' curiosity about a certain issue, rather than prompting the addressee to provide an answer.

We focus on two case studies: the German particle *wohl*, which indicates inferential or conjectural evidence (1a-b); and the use of future tense and temporal markers in Italian to tag a question as conjectural (2)).

(1) a. Der Schlüssel ist wohl in der Küche.
         the key   is wohl in the kitchen
         'The key is in the kitchen I guess.'
     b. Wo   ist wohl der Schlüssel?
         where is wohl the key
         'Where, do you guess, is the key?'

(2) a. La chiave sarà   in cucina.
         the key   be.Fut in the.kitchen
         a. 'The key will be in the kitchen.'
         b. 'The key is in the kitchen I guess.'
     b. Dove sará (mai) la chiave?
         where be.Fut (ever) the key?
         'Where (on earth) is the key? (I have no clue)'

The paper is organized as follows. Section 2 provides a survey of several examples of evidential in questions from different languages, reviewing the accounts that have been put forward to capture their effects. Section 3 discusses the German data. Section 4 proposes a two-step analysis for German that covers the flip reading as well as the further pragmatic factor leading to conjectural questions. Section 5 discusses Italian *evidential future* in questions and surveys different ways for the speaker to express pragmatic hindthoughts when asking questions. These hindthoughts can be conventionalized as flip questions, conjectural questions and conjectural questions with further flavoring. Aligning these options can help us to understand how

different languages make use of similar means in different ways. Section 6 summarizes.

2 Background: two interpretations of evidentials in questions

It has been suggested that, when using interrogatives, evidentials give rise to two possible interpretations. One interpretation is the *interrogative flip* (Speas & Tenny 2003, Garrett 2001, Faller 2002), in which the anchor of the evidential comment shifts from the speaker to the addressee. The Cheyenne evidential marker *sėstse* 'I heard that' can serve to illustrate the reading (Murray 2009, 2016). An assertion *p* is hedged by *sėstse* to convey "*p*, as I heard". If *sėstse* occurs in a question *Q* it can be paraphrased as "what, given what you heard, is the answer to Q?". Example (3) shows this for a polar question and (4) for a *wh*-question (Murray 2016).

(3)   Mó='-é-némene-**sėstse** Annie?
       Q=EP-3-sing-RPT.3SG   Annie
       'Given what you heard, did Annie sing?'

(4)   Tóne'še   é-ho'eohtse-**sėstse?**
       when 3-arrive-RPT.3SG
       'Given what you heard, when did he arrive?'

Another example is the direct evidence marker *te* in Korean as described in Lim (2011). The assertion in (5), marked by *te*, conveys an eye witness report by the speaker.

(5)   John-i   na-lul po-**te**-la.
       John-NOM I-ACC see-te-DECL
       'John saw me.'
       Implication: The speaker has direct evidence that John saw the speaker (Lim 2011)

If evidential *te* is used in a question, the speaker requests the addressee to convey eye witness information in response to the answer.

(6)   John-i   na-lul po-**te**-nya?
       John-NOM I-ACC see-te-Q
       'Did John see me?'
       Implication: The addressee is expected to answer based on
       his/her direct evidence relative to whether John saw the speaker
       or not.

A case closer to home is offered by epistemic *might*. Assertions of
the form *might S* convey that *S* is possible according to what the
speaker knows. When used in a question, *might* instead refers to the
epistemic background of the addressee.

(7)   *Where might the key be?*
       'What are possible locations of the key, according to what **you**
       know?'

In any given case, it is a lexical property of the evidential marker
whether it supports the interrogtive flip or not. In their survey of
evidentials in questions, San Roque et al. (2017) report flip read-
ings for Quiang (Tibeto-Burman), Tsafiki (Barbacoan, South Amer-
ica), Nganasan (Uralic) and Macedonian (Slavic). The present paper
extends this range by German evidential *wohl* and the Italian eviden-
tial future.

    The second way to interpret questions with an evidential marker
is a reading that we dub *conjectural questions*.[1] We use this label to
refer to questions Q that show the following pragmatic profile:

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[1]Notably, this term has already been used in the previous literature. For exam-
ple, some authors also observe that conjectural questions can be felicitously ut-
tered in the absence of an addresse, or "as if talking to oneself" (Jang & Kim 1998,
Jang 1999). Yet to our intuition many questions can be uttered to oneself, includ-
ing standard questions, and we thus find this criterion problematic. Conjectural
questions have also been called deliberative questions, self-addressed questions
or questions where no addressee is present. Some labels are used in a program-
matic sense but we hope that *conjectural question* is sufficiently neutral to include a
reasonable range of cases.

(8) **Conjectural Question**:

- they express the speakers' curiosity about a certain issue
- the addressee is not requested to answer
- remaining silent is an unmarked reaction for the addressee
- a rough translation into English can be given by *'Q, I wonder'*

The term was proposed by Littell, Matthewson, & Peterson (2010) who investigate evidential markers in questions in the Salish languages St̓at̓imcets (Lillooet Salish), Nłeʔkepmxcín (Thompson Salish) and Gitksan (Tsimshianic). They observe that evidentials in questions lead to an interpretation as a conjectural question. The following examples from Gitksan, taken from their paper, illustrate the case.

(9)   Gitksan

  a. sdin=**ima**=hl   xbiist
      be.heavy=**infer**=CND box
      'The box might be heavy.'

  b. nee=hl   sdin=hl   xbiist=a
      YNQ=CND be.heavy=CND box=INTERROG
      'Is the box heavy?'

  c. nee=**ima**=hl   sdin=hl   xbiist=a
      YNQ=**infer**=CND be.heavy=CND box=INTERROG
      'I wonder if the box is heavy.'

(10)   naa 'an-t   gi'nam-(t)=hl xhlaẃsxw 'as   John
       who S.REL-3 give-3=CND   shirt   PREP John
       'Who gave this shirt to John?'

(11)   naa=**ima** 'an-t   gi'nam-(t)=hl xhlaẃsxw 'as   John
       who=**infer** S.REL-3 give-3=CND   shirt   PREP John
       'I wonder who gave this shirt to John.'

The same reading is also observed in Murray (2016) for Cheyenne evidential *sėstse* in *wh*-questions. The example in (4) has a second read-

ing as conjectural question as in (12), in addition to the flip reading reported above.

(12)   Tóne'še é-ho'eohtse-**sėstse**
        when   3-arrive-RPT.3SG
        'He arrived sometime, I wonder when.' (Murray 2016, ex. 53.i, ii)

More examples of evidentials giving rise to conjectural questions are listed in San Roque et al. (2017) and the present paper discusses two more cases, German and Italian.

Both the flip reading and the conjectural question reading have received formal semantic analyses. Interestingly, both readings have been claimed to follow systematically from the semantics of evidentials, combined in semantic composition with the semantics of questions.

Discussing the flip reading Lim (2011) suggests that evidential markers are combined with the Hamblin denotation of a question, i.e. a set of propositions. The evidential combines pointwise with these propositions to yield (proto-) speech acts. All possible answers to the question are thus predicted to mark the respective proposition as direct-witness information of the addressee.

Littell et al. (2010) address the reading as conjectural questions. They assume that evidentials give rise to presuppositions of the form 'the speaker has X evidence that p'. In questions, they argue, the presuppositions of all possible answers are conjoined and lead to a common ground so strong that the addressee cannot possibly maintain the presupposition. Due to its strong presupposition, Littell et al. propose, the question turns into an un-answerable question and is thus understood as conjectural.

The two positions contradict each other in interesting ways. While either analysis may do justice to the language under investigation, both proposals seem to suggest that the pattern that they unveil applies across every instantiation of evidentials in questions – that is, *all* evidentials in *all* questions in *all* languages should behave in this

way. This prediction is too strong. Yet while the interpretation of evidentials in questions is language specific and must be rooted in the lexicon it seems more than just a coincidence that the interpretation of evidentials in questions exhibits exactly these two possibilities. The present paper aims to gain a better understanding of the semantic and pragmatic architecture of questions, evidentials and further factors X. Our main case of study is German evidential *wohl* in questions. German exhibits an interesting two-step system of evidentials in questions. *Wohl* in questions gives rise to the flip reading (Zimmermann 2004, 2011). *Wohl*-questions can additionally occur in verb-end syntax where they are interpreted as conjectural questions. Our point of comparison is Italian where the future can be used in an evidential sense. Future in questions is interpreted as conjectural question. We attempt to find common traits behind the two systems of conjectural questions.

3 German evidential *wohl*: data

This section surveys the use of evidential *wohl* in German assertions and questions. The particle *wohl* in assertion p indicates that the speaker has inferential evidence for p. We also offer evidence against the common claim that German triggers conjectural questions by verb-end syntax alone.

(13)   Der Schlüssel ist wohl in der Küche
         the key   is wohl in the kitchen
         'the key is in the kitchen I guess'

The speaker in (13) does not know for certain where the key is, yet they have plausible evidence that (13) could be true. For instance, they may remember that after returning home, they went in the kitchen to get rid of all the bags and things and therefore assume that they left the key there, too. Section 4.1. extends on this brief description and reports more detailed intuitions.

In questions *wohl* shows the interrogative flip (Zimmermann 2004, 2011). The question in (14) asks for an answer but at the same time

grants permission to the addressee to rely on inferences and conjectures. This allows for answers less reliable than answers that rest on firsthand observed information.

(14)   Wo   ist wohl der Schlüssel?
         where is wohl the key
         'Where, do you guess, is the key?'

Finally, *wohl* can occur in questions with verb-end syntax like in (15). V-end questions in German with *wohl* do not request an answer (Lohnstein 2000, 2007, Truckenbrodt 2006, 2013, Altmann 1987). They are conjectural questions in the sense characterized above, and thus like those discussed in Littell et al. (2004).

(15)   Wo   wohl der Schlüssel ist?
         where wohl the   key is?
         'where is the key I wonder'

Earlier authors assume that verb-end syntax alone is the triggering factor for the conjectural question interpretation (Lohnstein 2000, 2007, Truckenbrodt 2006, Zimmermann 2013) but this does not seem to apply to *wh*-questions, at the very least. The examples in (16) show that *wh*-questions in Verb-end syntax without evidential *wohl* are ungrammatical in the conjectural sense.

(16)   a. *Wo   der Schlüssel ist?
             where the key   is
         b. *Wann der Zug kommt?
             when the train arrives
         c. *Wen   der gesehen hat?
             who.ACC he   seen   has

Interestingly, evidential *wohl* in verb-end questions can be replaced with evidential *mag* ('might'). The examples in (16) become grammatical as soon as the verb is embedded under *mag* 'might', hence *. . . sein mag, . . . kommen mag, . . . gesehen haben mag* are acceptable con-

jectural questions. An example is spelled out in (17).

(17)   Wo   der Schlüssel sein mag?
        where the key   be   may
        'where the key may be I wonder'

This supports the assumption that evidentials are relevant building
blocks for conjectural questions. Evidential *mag* in German is slightly
archaic and not part of the active vocabulary of most speakers. There-
fore, our discussion will focus on *wohl*.

　　Next consider possible reactions to verb-end *wohl*-questions. It has
been repeatedly observed that they, like other conjectural questions,
do not request an answer; rather, they express an interest of the
speaker and are often in practice used as a starter of joint specu-
lations over a given topic. Here is an observed example.

(18)   (In a café: A and B observe a lonely stranded mattress lean-
        ing at the house. A to B:)
        Wer die wohl da hingestellt hat?
        Who that-one wohl there put has
        'Who may have left that one there I wonder'

What A means to do is engage B in a conversation on the nature of
deserted mattresses. Clearly B won't be able to provide a straighfor-
ward answer to (18) but could have opinions on their own as to what
kind of events lead to situations such as the one observed.

　　Earlier authors propose that verb-end syntax in German is the
triggering factor for conjectural questions (Truckenbrodt 2006, 2013,
Lohnstein 2000, 2007, Zimmermann 2013). Given that verb-end syn-
tax is typical for subordinate clauses, they argue that verb-end ques-
tions can not convey proper questioning acts and thus convey con-
jectural questions instead.

　　We argue against this view on basis of two observations. First,
verb-end syntax is necessary but not sufficient to build conjectural
questions. Constituent questions with verb-end syntax but without

wohl/mag or further particles are ungrammatical, as illustrated in (16). The impact of these further necessary elements has been neglected in earlier literature. Second, contrary to the standard view verb-end questions do convey proper question acts when they are used to repeat a question that has been ignored or remained unanswered. This is illustrated in (19).

(19)   A: Where is the key? -B: mmbl (does not answer)
         A: Hey, wo der Schlüssel ist?
         Hey where the key is
         'Hey, do tell me where the key is!?'

Verb-end repeat questions can also be used by the hearer to make sure that they got the question correctly.

(20)   A: Where is the key?
         B: Wo der Schlüssel ist? (In the kitchen, of course. . . / I have
         no idea . . . / Let me think . . .)

Back-asking questions can also be used as a rhetoric device, for instance in newspaper texts to suggest that the author is taking up a question of the reader. Verb-end syntax in questions can thus evoke discourse contexts where an answer is requested (19) or where the speaker plans on answering the question (20). Disselkamp (2017) argues on basis of prosodic evidence that neither conjectural nor back-asking verb-end questions are elliptical. We thus conclude that verb-end syntax is a necessary but not sufficient ingredient for conjectural questions.

   We propose a more differentiated picture that aligns German with other languages. German conjectural *wohl*-questions rest on two factors: the evidential flip plus a second pragmatic factor X — coded in German by verb-end syntax — which triggers the conjectural reading. In view of the fact that evidential markers figure prominently in conjectural questions of many languages whereas non-standard syntax does not, we think that there is much to gain from extending our

focus beyond German to capture the pragmatic factors behind the phenomenon. Section 4 proposes a two-step analysis for conjectural questions in German.

Let us add two more data points before turning to the analysis. Conjectural questions in German can also be coded by verb-end syntax and bloß/nur ('only') which lead to a *wh-in-heaven* type of question.

(21)   Wo   bloß(nur) der Schlüssel ist?
        where only   the key   is
        where in heaven is the key I wonder

Adding bloß/nur is a second way to "license" verb-end syntax and explicating the speaker's intentions. Finally, polar verb-end questions are acceptable conjectural questions without further particles.

(22)   Ob der Schlüssel in der Küche   ist?
        if   the key   in the kitchen is
        I wonder whether the key is in the kitchen

Earlier authors (Truckenbrodt, Lohnstein) focused on the subtype in (22) and consequently ignored the impact of evidentials in questions.[2] We believe that polar verb-end questions like (22) constitute a case in their own right and disregard them in the following.

4 German *wohl* in assertions and questions

The first section revisits *wohl* in assertions and proposes a refinement of Zimmermann's earlier analysis. Section 4.2 takes up the challenge to predict the flip of *wohl* in standard questions and proposes that it rests on general mechanisms of epistemic anchoring in natural language utterances. Finally, we investigate the extra factors that lead to conjectural questions in sections 4.3 and 4.4.

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[2]Zimmermann (2013) briefly speculates on a concord analysis for *wohl* and verb-end syntax.

4.1 *Wohl* in assertions

Zimmermann (2004, 2011) proposes that *wohl* marks an assertion *p* as *assumed belief* of the speaker, which is less reliable than *certain knowledge*. He uses the predicate ASSUME(A, *p*) to code that A thinks that *p* is true but has no certain knowledge.

(23)   A: Der Schlüssel ist wohl im Auto.
        'the key is wohl in the car'
        asserted content: p = 'the key is in the car'
        non-at-issue: ASSUME(A, *p*) where ASSUME(A, *p*) is less certain than KNOW(A, *p*)

Due to the maxim of quantity, *wohl* is restricted to assertions where the speaker lacks certain knowledge. Likewise the use of *wohl* in questions is limited to contexts where the speaker believes that the addressee cannot provide a certain answer.

    We propose that this analysis should be refined to capture the intuition that by asserting "*wohl p*", the speaker indicates *p* is a defeasible inference from her knowledge. A asserts *p* but is prepared to withdraw the inference when she learns more. Consider the following scenario: Speaker A knows the following facts.

    i. Hein is nowhere to be seen.
   ii. It is Friday afternoon and Hein usually goes shopping on Fridays.
  iii. His slippers are in the hall.
   iv. The shopping bag is missing.

    A can now say:

(24)   Hein ist   wohl   einkaufen gegangen.
        Hein is   wohl shopping gone
        'Hein has gone shopping I guess'

Further evidence may cause A to retract the inference. For instance, if A finds out that Hein's hiking boots are missing as well, A may

decide that Hein rather went hunting for mushrooms.

Further observations support this evidence. Native speakers of German report the intuition that "*wohl p*" invites questions in return like "why do you think so?", "what makes you believe this?".[3] Such questions would be considered offensive in reaction to a plain assertion but are a natural reaction to an assertion "*wohl p*", as illustrated by the following pair.

(25)   A: Hein ist wohl einkaufen gegangen.
        'Hein is wohl gone shopping.'
        B: Warum glaubst Du das?
        'What makes you think that?'
        reaction suggests interest in A's reasons

(26)   A: Hein ist einkaufen gegangen.
        B: Warum glaubst Du das?
        reaction challenges A's credibility

While the question in (25) seems to take up on *wohl*, the question in (26) is offensive in that it questions the speaker's authority to the claim.

A final observation lends support to the claim that *wohl* indicates defeasible inference. *Wohl* cannot be used to label an assertion *p* as highly likely on mere statistical grounds. Imagine a situation in which there is a box with 9 white balls and 1 black ball. A knows the distribution. She draws a ball but cannot see the colour. At this point A can assert (27) but (28) would be marked in this situation.

(27)   Ich habe wahrscheinlich eine weiße Kugel gezogen.
        I   have probably   a   white ball   drawn

(28)   #Ich habe wohl eine weiße Kugel gezogen.
        I   have wohl a   white ball   drawn

The particle *wohl* is thus not acceptable to mark a proposition as

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[3]I thank Ramona Wallner for bringing up the observation.

statistically likely but not certain. What is missing in the scenario are specific episodic facts that suggest that A drew a white. A knows that it is *likely* that a white ball was drawn but nothing beyond. (28) improves, for instance, when **A** observes that **B** — who can already see the ball's colour — makes an unsurprised face, which suggests an unsurprising outcome of the experiment.[4]

Let us spell out defeasible entailment on a speaker's beliefs. (29) is based on defeasible entailment as a logic relation between sets of propositions and propositions.

(29)   Definition: $Bel_{A,w}$ defeasibly entails p
         For individual A, let $Bel_{A,w}$ be the set of propositions be-
         lieved by A in index w. $Bel_{A,w}$ defeasibly entails p iff

         • there is a finite set of propositions $q, q' \ldots$
           in $Bel_{A,w}$ such that $q \wedge q' \ldots$ defeasibly entail $\neg p$

         • and there is no additional belief r of A such that $q \wedge$
           $q' \ldots \wedge r$ defeasibly entail $\neg p$.

         We use entails* as shorthand for 'defeasibly entails'

Defeasible entailment has been extensively studied in AI and intu-itionistic logic. Formalisms are intended to capture inference patterns that distinguish normal and non-normal cases. For instance, the proposition *Tweety is a bird* normall allows to infer that *Tweety can fly*. Yet further information can defeat the inference, for instance when the information that *Tweety is a penguin* has been added. An in-depth discussion of defeasible logic can be found in Gabbay et al. (1998), Strasser & Antonelli (2016). An implementation in terms of possible worlds was proposed in Reiter (1980) that opens a way to

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[4]I thank Sven Lauer for suggesting this variant of example (28). It is somewhat tricky to delineate "episodic facts" and "general knowledge" here. What counts as "episodic fact" may vary between speakers, even though the intuitions for cases like (27)/(28) have been confirmed surprisingly robustly over several groups of native speakers.

integrate defeasible entailment and possible world semantics. While the exact formalization will not make a difference for our purpose, the notion of defeasible entailment allows us to capture the semantic contribution of *wohl* in assertion p, anchored to the beliefs of speaker A.

(30)   For individual A, let $Bel_{A,w}$ be the beliefs of A in index w.
         A utters: *wohl p* $\Leftrightarrow$
         A asserts p
         A conveys non-at-issue content $Bel_{A,w}$ defeasibly entails p
         "I have evidence suggesting that p holds true. But further evidence may force me to retract the inference."

This will serve as the core semantics of *wohl*. We notate the meaning as $< p \cdot Bel_{A,w}$ entails* $p >$, sometimes suppressing the index w.

4.2 *Wohl* in questions

In order to account for the flip of *wohl* in questions in (15), our starting point is the analysis by von Fintel & Gillies (2011) for English epistemic *might*. von Fintel & Gillies (FG for short) observe that *might* like German *wohl* and other evidentials rests on the beliefs of an individual. We will also say that *might* or *wohl* are "anchored" to an individual. FG propose that sentences with *might* give rise not just to one denotation—as semantic composition would have it—but to a cloud of possible denotations. These arise by anchoring *might* to all possible individuals or groups that could play a role in the given utterance context. To give an example, the sentence in (31), uttered in a context where A talks to B, is assigned the cloud of denotations in (32).

(31)   The key might be in the kitchen.

(32)   ⟦ might (the key is in the kitchen)⟧^{C}
         = { might(Bel_A) ('the key is in the kitchen'),
         might(Bel_B) ('the key is in the kitchen'),
         might(Bel_{A+B}) ('the key is in the kitchen') }

might(Bel_A) ('the key is in the kitchen') is the standard modal proposition "there are worlds coherent with A's beliefs where the key is in the kitchen", and likewise for B's beliefs and the beliefs shared by A and B.

FG propose that speakers choose the actual proposition under debate from this cloud by making use of general pragmatic principles. Any speaker who makes a claim must be authorized to make this claim. In particular no speaker can make claims about what follows from other speakers' beliefs *unless* the discourse has informed her about the relevant beliefs of the other speaker. At the beginning of a discourse each speaker is normally only authorized to make claims about her own beliefs. FG offer rich evidence in favour of this principle by illustrating it in various types of dialogue such as questions, exam situations, mastermind games, representative assertion and more. If (31) is uttered under normal circumstances the chosen denotation is *might(Bel_A)* (*'the key is in the kitchen'*).

FG restrict attention to the anchoring of English *might* but the account generalizes to other evidentials. In particular we can adopt the analysis to German *wohl*. (33) recapitulates our so far denotation for (24).

(33)   A: *Hein ist wohl einkaufen gegangen.*
         asserted: 'Hein has gone shopping'
         non-at-issue: Bel_A entails* 'Hein has gone shopping'
         abbreviated as
         $< p = $ 'Hein has gone shopping' $\cdot Bel_A$ entails* $p >$

In terms of FG's analysis the content in (33) comes about indirectly. In a first step, the utterance "Hein ist wohl einkaufen gegangen" gives rise to the cloud of possible denotations in (34).

(34)   { $< p = $ 'Hein has gone shopping' $\cdot Bel_A$ entails* $p >$,
         $< p = $ 'Hein has gone shopping' $\cdot Bel_B$ entails* $p >$,
         $< p = $ 'Hein has gone shopping' $\cdot Bel_{A+B}$ entails* $p > $ }

A is only authorized to claim that p follows defeasibly from A's be-
liefs. The actual denotation chosen is thus the one in (31). The cloud-
of-denotations analysis and a conservative analysis predict the same
denotation, which is empirically adequate. The indirect account can
however predict the interrogative flip.

We adopt a Hamblin semantics for questions. Words like *might*
or *wohl* in questions are interpreted as being part of the possible
answers. In English, we thus get answers with an evidential modal
and in German we predict answers with a non-at-issue element that
labels p as defeasible entailment.[5] The question in (35) gives rise to
the cloud of question meanings in (36).

(35)   Wo   ist wohl der Schlüssel?
         where is wohl the key

(36)   { { < p = 'key is in place z' · Bel_A entails* p > ; z location },
         { < p = 'key is in place z' · Bel_B entails* p > ; z location },
         { < p = 'key is in place z' · Bel_{A+B} entails* p > ; z location } }

(36) comprises three sets of answers: "I have evidence that the key
is at z", "You have evidence that the key is at z", and "we together
have evidence that the key is at z". These represent three question
meanings that are abbreviated as Q_A, Q_B, Q_{A+B} in what follows. At
the beginning of a discourse the addressee B is not authorised to give
answers to Q_A because B cannot know what A can infer about the
key's location. B is authorised to answer Q_B. B is not authorised to
answer Q_{A+B} because facts known to A might delete B's defeasible
inferences. We thus predict that the actual question at issue is Q_B,

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[5]Some authors assume that evidentials and modals are categorically distinct
types of expressions and will object to the idea to capture *wohl* and epistemic
might by a common analysis. Korotkova (2015, 2017) develops a more differentiated
picture. She argues that the pragmatic profiles of epistemic modals and evidentials
are more similar than the categorical distinction will have it, and that an analysis
that uses modal propositions on the way is not to be mixed up with *modal adverbials*
that only occur in assertions, that can be embedded under negation and other
operators etc. I adopt Korotkova's perspective in the following.

i.e. the interrogative flip for *wohl* in (37).

(37)   Wo ist wohl der Schlüssel?
        'What do you guess where the key might be?'

What about situations where B happens to know the answer to Q? Defeasible entailment includes classical entailment. The analysis therefore predicts that B can assert certain knowledge *p* in response to Q. Due to scalar implicature, answers that B knows for certain should not be labelled with *wohl*. Likewise, A cannot ask B a *wohl*-question if A believes that B knows the answer for certain. The question in (38) is marked.

(38)   #Wie ist wohl Ihr   Name?
        what is wohl your name
        'What's your name, you guess?'

Zimmermann (2004) argues that Grice's maxim of manner can explain the effect. It is forseeable for A that B knows the answer to this question for certain. The question in (38) adds extra complexity to grant B weaker answers than she will actually provide. Thus the question is dispreferred in comparison to the question without *wohl*.

    We have now analysed *wohl* as marking propositions as defeasible entailments of the beliefs of individual x. It is a lexical property of *wohl* that it can trigger clouds of denotations. The final choice of denotation in context determines to which individual x *wohl* is anchored. We now turn to step 2.

4.3 German V-end questions: *wohl* and deliberation

We propose that German conjectural questions with *wohl* make further use of the cloud of denotations in the FG analysis. We will assume that verb-end syntax has the effect to force the denotation Q_{A+B}, that is the quest for propositions *p* in answer to Q which defeasibly follow from A and B's pooled knowledge. In order to see the consequences, we have to spell out in more detail what Q_{A+B} amounts to.

Defeasible inferences for A rest on A's beliefs and likewise for B. If A and B pool beliefs that pertain to the issue, then they will be able to draw more reliable inferences, inferences that are less in danger of being defeated. Given the nature of defeasible inference, A may have to retract *entailed** beliefs when updated with B's knowledge and vice versa. Defeasible entailments differ from monotonic entailments which remain stable when new information is added. Therefore, it requires some extra care to extend defeasible entailments to the joint beliefs of two individuals.

(39) $Bel_{A+B,w}$ *defeasibly entails p*
         Let $Bel_{A,w}$ be the set of propositions believed by A in index w, analogously $Bel_{B,w}$. $Bel_{A+B,w}$ defeasibly entails p iff

   • there is a finite set of propositions $q, q' \ldots$
     in $Bel_{A,w} \cup Bel_{B,w}$ such that $q \wedge q' \ldots$ defeasibly entail p
   • A and B could agree to share $q, q' \ldots$ (i.e. $q, q' \ldots \in$ CG)
   • there is no additional belief r in either $Bel_{A,w}$ or $Bel_{B,w}$
     such that $q \wedge q' \ldots \wedge r \ldots$ defeasibly entail $\neg p$.

It follows from (39) that defeasible entailment from pooled knowledge is not the same as defeasible entailment from the common ground CG. The common ground, i.e. the knowledge publicly known to be shared by A and B, is comparatively limited and moreover shared between A and B. Given that A and B both know CG, it would be useless for A to ask B "which answers to Q follow from CG?" because A can answer this question for himself. It can likewise not be expected that what is entailed* by CG will remain when more knowledge enters CG. The definition in (39) requires that A and B first share all uncontroversial beliefs that might pertain to an inference and then draw (defeasible) conclusions. Q_{A+B} therefore yields "better" answers than what the beliefs of A or B entail* alone: The other person could know the crucial fact that defeases one's own inference.[6]

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[6]Note that inferences about possibility statements are equally "defeasible" in

Another consequence of (39) is that the question Q_{A+B} is unanswerable for B.[7] B can infer p in answer to Q on basis of her own knowledge but she cannot normally anticipate whether A knows facts that challenge the inference. Thus, A cannot rationally request B to answer Q_{A+B}. If B undertakes to find an answer to Q_{A+B} she should start by finding out what A knows about the issue and only then guess an answer that their shared knowledge would support. But it is likewise acceptable for B to remain silent in reaction to the answer because there is no proposition in Q_{A+B} that B is authorized to assert in response to Q. In summary, the possible reactions of B to Q_{A+B} are exactly those that we profiled for conjectural questions in section 1.

We propose that the conjectural reading of German verb-end questions comes about by a forced interpretation as Q_{A+B}. This will be achieved by a silent operator DELIB that has to serve the following functions: DELIB makes sure that the sentence shows verb-end syntax, DELIB is restricted to questions with an evidential and DELIB forces the reading that is anchored to a maximum set of speakers. This is captured by the following definition.

(40)   DELIB

> i. **Syntax:** The DELIB operator is a tacit operator in C^0 of questions. It blocks V-to-C movement and thus ensures V-end syntax.
>
> ii. **Logical and sortal restrictions:** DELIB is semantically licensed iff the sister node **Q** has meaning of type < < <s,t>, t>, t>. More specifically, the sister node must be a cloud of questions that arise from different possible

---

this way. What A maintains as a possiblity could be defeated by facts known to B. This lends further support to our proposal that the pragmatics of *wohl* is in fact a generalization of FG's theory of *might*. It would be interesting to review the specific definitions by FG in light of this generalization.

[7] Unless B happens to know the answer for certain. We will take this case into account below.

anchorings.
iii.**Semantics:** DELIB(**Q**) maps **Q** to $Q_G \in Q$ that is anchored to the maximal set G among the questions in **Q**. (If there are only two salient speakers A and B, DELIB(**Q**) = Q_{A+B})
iv.**Pragmatics:** DELIB is restricted to contexts where A believes that B can not answer DELIB(**Q**).[8]

Let us illustrate the effect of DELIB with an example.

(41)   Wo der Schlüssel wohl ist?
       where the key wohl   is
       'Where is the key I wonder'

In syntax, V-end questions carry the operator DELIB in C^o. This prevents the finite verb from moving to C^o. The *wh*-constituent is moved to SpecC as is common for embedded questions in general.

(42)   [*Wo$_i$* DELIB [der Schlüssel wohl t_i ist]$_{IP}$]$_{CP}$

We assume that operators take their logical scope before interpretation. The structure to be interpreted is the one in (43). DELIB has to take highest scope or else the sister denotation will not be of the correct logical type and content.

(43)   [DELIB (wohl (wo der Schlüssel t_i ist?))]

The combination of *wohl* and the question denotation yields a cloud of denotations as in the previous example.

(44)   { { < p = 'key is in place z' · Bel_A entails* p > ; z location },
       { < p = 'key is in place z' · Bel_B entails* p > ; z location },
       { < p = 'key is in place z' · Bel_{A+B} entails* p > ; z location } }

DELIB forces the interpretation that is anchored to A+B.

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[8]Section 4.4. argues that iv. follows from i. - iii. and can thus be dismissed.

(45)   DELIB ($[\![$ *wo der Schlüssel wohl ist* $]\!]$)
$= \{ < p = $ 'The key is in place z' $\cdot Bel_{A+B}$ entails* $p > $; z location $\}$

The question at issue must be answered by a proposition p of the form 'The key is in place z' such that

- there is a finite set of propositions $q, q' \ldots$
  in $Bel_{A,w} \cup Bel_{B,w}$ such that $q \wedge q' \ldots$ defeasibly entail p
- A and B could agree to share $q, q' \ldots$ (i.e. $q, q' \ldots \in CG$)
- there is no additional belief r in either $Bel_{A,w}$ or $Bel_{B,w}$ such that $q \wedge q' \ldots \wedge r \ldots$ defeasibly entail $\neg p$.

The question can be paraphrased as follows:

'what is a proposition p = 'the key is at place z' such that

- there are propositions $q, q' \ldots$ that **we both can agree to believe** and $q \wedge q' \wedge \ldots$ entails* p
- there is no further proposition r that **either of us believes** such that $q \wedge q' \wedge \ldots \wedge r$ entails* $\neg p$

The addressee B has limited ways to react to (45). Normally B is not authorized to answer because the question requires A and B to pool knowledge. B could engage with A in joint speculations about answers to Q — or else B can remain silent and thus confirm A's expectation that s/he can not answer the question. The only kind of situation where B can answer questions like (45) is one where B does not have to resort to defeasible entailments because B knows the answer for certain. If this is the case, B can and will indeed provide an answer. The use of *wohl*-questions in general and verb-end wohl questions in particular is pragmatically restricted to contexts where A believes that B does not know the answer for certain (Zimmermann 2004, 2013).

4.4 Finishing touches

The analysis in 4.3 predicts that verb-end questions with evidentials get the demanding interpretation as Q_{A+B}. Under normal circumstances A can expect that B will not be able to answer. Yet, question (45) could theoretically be posed in situations where B knows all relevant beliefs of A and is thus authorised to answer. In actual fact we do not see such uses of verb-end questions with *wohl*. Our definition of DELIB in (40) therefore included clause (40.iv) which requires "that A believes that B cannot answer DELIB(Q)". This is a really strong requirement that alone would suffice to predict that Q does not request an answer. It would therefore improve the analysis substantially if we can predict this restriction on independent grounds.

Let us take a closer look at a situation where A can pose Q_{A+B} and B is authorized to answer. In such a situation B should know everything that A knows about the Q-issue. Such situations could be called "Sherlock and Watson" situations because these novels are always built around a plot where A (Sherlock) and B (Watson) have extensively shared facts that pertain to Q. They have investigated the case together. Can A now pose the verb-end question (41) and expect B to answer?

He can not, and this is why: In fact there are two ways in which the strong Q_{A+B} question meaning of (41) can be posed. One way is for A to ask a standard question Q *"Wo ist wohl der Schlüssel?"* with evidential *wohl*. In a situation where A and B share all relevant knowledge and are therefore both authorised to answer, this question conveys the strongest sense Q_{A+B} by normal semantic and pragmatic composition. It is thus the unmarked way to request an answer to Q_{A+B}. The second, marked way is the verb-end question (41) where Q_{A+B} is forced by DELIB. We thus have two competing forms for Q_{A+B} where one is marked and the other is not, and can refer to Grice's maxim of manner and specifically to the neo-Gricean version proposed by Levinson (2000): "Express ordinary content in the stereotypical, unmarked way." Following this principle, the speaker must

use main clause syntax to express Q_{A+B} in circumstances that allow B to answer. Verb-end questions are reserved for situations where A believes that B cannot answer the question. As a consequence, the definition of DELIB can be reduced to the clauses (40.i) - (40.iii) and yield the same results. We will assume this simplified version in the remainder of the paper.

In summary, we have provided a two-step analysis of German questions with evidential *wohl*. In step one, Questions Q in main clause syntax give rise to a cloud of question senses of which the strongest one is chosen that the B is authorised to answer. The analysis predicts the interrogative flip: If the question is posed at the beginning of discourse where B does not know what A believes, B cannot speak on behalf of A.[9] The interlocutors thus understand that Q_B is at stake. In step two, verb-end syntax indicates the presence of a DELIB operator that forces a reading where Q is anchored to A+B and therefore unanswerable for B — again in normal discourse situations. The question moreover invites B to engage in joint speculations on Q together with A. This leads to the pragmatic profile that has been labelled "conjectural question". The link between conjectural questions and joint speculation is also reported by Valenzuela (2003) for Shipibo-Konibo. Valenzuela describes that evidential *mein* in assertions indicates that the speaker is guessing. To illustrate the use of *mein* in questions, she offers examples that are "self-addressed questions" but also "engaging in joint discussion" (Valenzuela 2003: ex. (34), 48). It would be interesting to explore whether Shipibo-Konibo can use the same strong anchoring as German to express conjectural/engaging questions.

Before moving on to explore our second case study, some aspects of the analysis deserve to be highlighted. For one, evidentials in conjectural questions underline that evidential anchoring is essentially a pragmatic process and is not exclusively determined by

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[9]It should be noted that *wohl*-questions are rarely uttered in the sense „tell me what I can guess about Q" that was observed for *might* questions in mastermind game situations.

syntactic constraints (Speas & Tenny 2003). Secondly, the categorical link between verb-end syntax and non-standard questions as proposed in Truckenbrodt (2006, 2013) can be loosened to capture data in better detail. Finally, the case highlights the connection between truth-conditional semantic / pragmatic analysis and the table model. Farkas (2017), in particular, offers an account of conjectural questions in terms of (Farkas & Bruce 2010)'s framework. Specifically, she captures conjectural questions as questions on the table that do not update the projected set and that get cleared of the table without an answer. Eventually we should aim for an integrated account that allows to derive the table properties of utterances from their truth conditional denotation.

5 Hard questions: a look at Italian

What we discussed above is *one* way to derive conjectural (or deliberative, self-addressed, non-answer-requesting) questions. Yet, it is by no means the only one attested across languages, raising two important, related questions. First, what is the empirical inventory of the possible effects of inserting evidentials in questions? Second, what do such effects share at a semantic / pragmatic level? To move a first step towards addressing these issues, we now proceed to discuss another case study of the phenomenon, focusing on the use of future tense and temporal markers in conjectural questions in Italian. After presenting the data, we formulate the hypothesis that different shades of conjectural questions result from different conventionalized ways to react to a question that is marked as "difficult to answer".

5.1 The larger picture

The analysis in 4.3 assumes that when speaker A poses a marked question Q that B cannot possibly answer, then A does not request an answer. Alternatively A could use an unmarked version Q^o of the question that would be easier to answer. The pragmatic interpretation that Q is conjectural hence arises in the competition between

"hard" and "normal" version of Q.[10]

We think that the link between hard question and conjectural question is worth being explored more deeply. In particular we'd like to understand why evidentials recurrently figure in conjectural questions without showing the flip reading. An analysis that simply attributes the evidential a feature "conjectural" in questions does not seem to capture the logic behind the system. We take conjectural questions marked with Italian evidential future as our case in question. This also allows us to add a further data point to the range of conjectural questions.

5.2 Italian future as evidential marker

Italian possesses a regular way to mark verbs for the future tense. The example in (46) contains the verb 'be' in the future. In its literal meaning the sentence conveys the statement about the future in (46a). However, the sentence can also be interpreted in a second sense as in (46b) where the speaker's assertion is marked as uncertain or inferred information.

(46)   La chiave sarà   in cucina
         the key   be.Fut in the.kitchen
         a. 'The key will be in the kitchen'
         b. 'The key is in the kitchen I guess'

Note that the inferential flavour conveyed for the future is linked to a similar degree of uncertainty than the one conveyed by epistemic possibility modals, and a higher one than the one conveyed

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[10]The analysis by Littell et al. (2010) of conjectural questions in Salish languages uses the same pattern of reasoning. They suggest that the denotation of a question with evidentials in Salish is too semantically rich for speaker A to expect that B can offer an answer. By being un-answerable, the question is interpreted as a conjectural question, which is very close to our line of argument. However, they have to assume that speaker A, who utters the question in the first place, has less difficulties to commit to the presuppositions that they attribute to a question with evidential marker. The last consequence of their analysis seems to be that a question with evidential is not only un-answerable but even un-utterable.

by epistemic necessity modals. This is shown by the fact that both possibility modals and the future can be prefaced with *I have no idea*; this preface, instead, is not available with necessity modals.

(47)   Non ho   idea di dove sia la chiave. Sara   in
         Not I.have idea of where is   the key.   It.will.be in
         cucina.
         the.kitchen
         'I have no idea about where the key is. I guess it could be in
         the kitchen.'

(48)   Non ho   idea di dove sia la chiave. Potrebbe essere in
         Not I.have idea of where is   the key.   It.might be   in
         cucina.
         the.kitchen
         'I have no idea about where the key is. I guess it could be in
         the kitchen.'

(49)   *Non ho   idea di dove sia la chiave. Deve   essere in
         Not I.have idea of where is   the key.   It.must be   in
         cucina.
         the.kitchen
         'I have no idea about where the key is. I guess it could be in
         the kitchen.'

Italian assertions in the future tense systematically give rise to this ambiguity. This shows that the Italian future has developed a second sense that patterns with evidential markers for uncertain or inferred knowledge. Notably, like other evidential markers the Italian future evidential always takes wide scope with respect to negation.

(50)   La chiave non   sarà in   cucina
            the key not   be.FUT in   the.kitchen
            'I guess that the key isn't in the kitchen'
            # 'I do not guess that the key is in the kitchen' (unavailable)

We will refer to this form as the Italian evidential future (IEF).

The IEF can also be used in questions and forces them to be interpreted as conjectural "I wonder" questions that do not request an answer. Speakers from Northern Italy report the reading for both constituent questions and polar questions.[11]

(51) Dove sarà la chiave?
      'where is the key I wonder'

(52) Gianni sarà di Amburgo?
      'Is Gianni from Hamburg I wonder'

The Italian evidential future in questions thus patterns with the Salish languages in section 2 in that the examples in (51)/(52) do not show the interrogative flip reading.

There is more to the landscape of future-driven conjectural questions in Italian. In particular, the Italian particles *mai* and *poi* can be used in ordinary questions to achieve an "I can't find the value" interpretation. While a formal analysis has so far not been undertaken the pragmatics of the particles seems similar to *wh-in-heaven* questions in English (Rawlins 2009/2013, den Dikken & Giannakidou 2002), as illustrated in (53).[12]

(53) Dove sarà mai la chiave?
      'where on earth is the key?'

Wh-on-earth questions are not normally discussed as conjectural questions. The question in (53) as well as its English counterpart can be posed with the sincere intention to request an answer. All the speaker indicates is that she herself has tested the most plausible possible answers to Q and found them false.

Italian speakers report on questions with evidential future that such questions strongly invite the use of *mai* or *poi*. The particles

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[11]Other varieties might differ slightly; speakers of Veneto report that polar questions are inacceptable for them while they agree with the judgment for (50).

[12]See also Coniglio (2009) and Poletto & Munaro (2009) who discuss the meaning of particles in assertions and questions in descriptive terms.

are reported to explicate the speaker's true intentions in asking the question and some speakers report the intuition that (54) and (55) are the ideal conjectural questions in Italian evidential future. They no longer invite answers but convey that the speaker has given up hope to find an answer.

(54)   Dove sarà mai la chiave?
        'where is the key I wonder'

(55)   Gianni sarà poi di Amburgo?
        'Is Gianni from Hamburg I wonder'

A similar reinforcement strategy occurs in German. Constituent verb-end questions require further marking in order to be acceptable conjectural questions (see section 2) but, aside from evidential *wohl* and *mag* we can use *bloß/nur*('only'). Our earlier example is repeated below.

(56)   Wo   bloß(nur) der Schlüssel ist?
        where only   the key   is
        'where in heaven is the key I wonder'

The particle *bloß/nur* can likewise be used in standard questions and lead to a *wh-in-heaven* interpretation.

(57)   Wo   ist bloß der Schlüssel?
        where is only the key
        'where the heck is the key?'

While (57) can still be used as a sincere request for an answer, the speaker in (56) has lost all hope to get an answer, be it from B or otherwise.

    The following picture emerges: in both Italian and German particles of desperation can be recruited to confirm that the speaker does not utter Q as a request for an answer. In Italian, the future evidential indicates that "Q is too hard to answer" and *mai/poi* confirms that speaker A has tried and failed. In German, *bloss*, added to the

verb-end pattern, can turn a sincere desperate question into a conjectural question. In both languages the gap between "hard" questions and conjectural questions is thus small.

5.3 From hard questions to conjectural questions

Languages like Italian raise two issues. First, why don't speakers make use of the flip interpretation of questions like (51)/(52) which seems a very logical and little-demanding way to make sense of evidentials in questions? And second, is it an accident that questions with inferential evidentials are interpreted as conjectural instead? We suggest that the cases discussed above provide a window onto the pragmatics behind different instantiations of evidentials used in questions. Our tentative hypothesis is as follows.

We propose that the grammar of an inferential evidential X in language L passes three stages. In stage 1, the use of X in questions is prohibited. [13] In stage 2, speakers become aware of the possible use of X in questions $Q(X)$ in the flip interpretation. The use is not yet part of the grammar of the evidential. In stage 3 speakers put this option to use for specific communicative purposes. They could recruit the form $Q(X)$ in order to facilitate answering for the addressee ((McCready & Ogata 2007)). This intention establishes the flip interpretation for $Q(X)$. Alternatively, they could use the facilitated question with the implicatures "Q is (too) difficult to answer" on to "you are not expected to answer". If this intention gets conventionalized, $Q(X)$ come to be interpreted as conjectural question. With languages like Cheyenne and German verb-second questions we see the first option implemented. Other languages like Italian, Salish, Shipibo-Konibo or German verb-end questions evidence the second option.

As a second important result we want to highlight that conjectural questions come with very different non-at-issue flavours. "Sometimes conjectural questions serve to invite pooling knowledge and

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[13]We follow San Roque et al. (2017) who observe that the use of evidentials in questions is secondary.

joined speculation (German, Shipibo-Konibo (Valenzuela 2003), Sal-ish (Peterson, p.c.)). These could also be called *engaging questions*. Conjectural questions with *wh-the-hell* flavour indicate that the speaker has lost hope to find an answer. Farkas (2017) reports on politeness uses of conjectural *oare* questions in Romanian. And there might be more. What all conjectural questions have in common is that they do not request an answer. We are well aware of the preliminary nature of this survey and feel that further research is needed to explore the full spectrum and the interplay of factors that determine the non-at-issue content of conjectural questions.

6 Summary

The paper discussed the connection between evidential markers and questions by considering two frequent interpretations of evidentials in questions: the flip reading, and conjectural questions.

We took the evidential *wohl* in German question as our main case of study. It can occur in standard questions and lead to the flip in-terpretation, but it can also occur in syntactically marked verb-end questions which are conjectural. Further data show that verb-end syntax alone is not sufficient to create conjectural questions in Ger-man. It thus makes sense both typologically and language-internally to derive the conjectural profile from a conspiracy of factors. We pro-posed an analysis of *wohl* that predicts the flip reading in standard questions. By an additional pragmatic component in verb-end ques-tions, these are turned into un-answerable questions. We demon-strated that this predicts the pragmatic profile of conjectural ques-tions.

The final part of the paper discusses the evidential future in Italian questions. These are interpreted as conjectural questions and favour a use where the speaker "seems to have lost hope" to find an answer. We tentatively propose a grammaticalization path for evidentials in questions that attempts to explain why the flip interpretation and the conjectural question interpretation are the only readings that have so far been reported in the literature.

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