A condition on the distribution of discourse particles across types of questions*

Eva Csipak & Sarah Zobel

University of Göttingen & University of Tübingen

1. Introduction

In the recent formal semantic and pragmatic literature, discourse particles are discussed as linguistic elements which convey additional comments on the utterance in which they occur (e.g. Zimmermann 2011 and references therein). The main focus of these investigations has been, for the most part, the contributions of a limited set of particles in declarative sentences used as assertions; in these works, occurrences of particles in other sentence/ speech act types are seen as secondary.[1] There are, however, particles which occur exclusively in interrogative sentences used as questions. In this paper, we investigate the contribution of four German discourse particles that nearly exclusively occur in questions: *denn* and *etwa* in their Federal German variants and Austrian German *leicht* and *eh*.[2]

The core puzzle we address is the distribution of the four particles across different types of questions (cf. Krifka 2011), which seems to be perculiar at first glance; consider the contrast between (1) and (2).

(1) *Hast du* ***denn / etwa / leicht / eh*** *die Seife gefunden?* (polarity question)
'Did you find the soap?' + particle contribution

(2) *Was hast du* ***denn / #etwa / leicht/ #eh*** *gefunden?* (constituent question)
'What did you find?' + particle contribution

While all four particles may occur in polarity questions, only *denn* and *leicht* may occur in constituent questions. Our aim is to show that there are good reasons to assume that the contrast in (1) and (2) is a consequence of the particles' semantic/pragmatic contribution.

Before starting out on this quest, a few words need to be said with respect to our assumptions regarding the make-up and meaning of questions: We refrain from adopting any

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[1] Notable exceptions are Lindner (1991), Kaufmann & Kaufmann (2012) and Egg (2010).

[2] Only the Austrian German particle *eh* may occur in declaratives, and hence in declarative questions, i.e. rising declaratives (cf. Gunlogson 2002), which – for reasons of space – cannot be addressed.

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specific account of the syntax and semantics of questions. Our hope is to propose a condition on the distribution of the particles that is compatible with most proposals for the semantics of questions on the market (e.g. von Stechow 1991, Hamblin 1973, Groenendijk & Stokhof 1984, Krifka 2001). The minimal assumptions that we adopt are that interrogatives are made up from a sentence radical and a question operator (cf. Krifka 2011 who cites Stenius 1967). The sentence radical may be analyzed as contributing either a proposition (in the case of polarity questions) or a property (in the case of simple constituent questions and alternative questions).[3] See (3) for the logical forms of polarity and simple constituent questions ('?' symbolizes the question operator).[4]

(3) a. *Polarity question:* $?(\lambda w.\text{proposition-content}(w))$
b. *Simple constituent question:* $?(\lambda w.\lambda x.\text{property-content}(w)(x))$

As Krifka (2011, p.1771) shows, all major, currently available analyses for question meanings can be derived from the representations in (3) (depending on the contribution of choice for '?'). Hence, any results based on these representations will be translatable into any specific theory of the semantics of questions.

The paper is organized as follows. First, we present our own proposals for the contribution of *denn*, *etwa*, *leicht*, and *eh* based in part on previous literature in Section 2. In Section 3, we show that the contrast in (1) and (2) cannot be accounted for in terms of the structure of the partitions induced by the questions. We then formulate our analysis of the contrast as an interaction of the particle contributions with the general structure of the different types of questions in (3), and extend our account to alternative questions and embedded questions. In Section 4, we summarize our results.

2. The contribution of *denn*, *etwa*, *leicht*, and *eh*

As is commonly assumed for discourse particles, we propose that none of the particles make a contribution to the *at-issue content* of the question in which they occur, but that they contribute *not at-issue content* which *comments* on the at-issue content of the question (cf. Simons et al. 2010; Zimmermann 2011). Furthermore, we commit to the existence of the following (possibly non-exhaustive) list of felicity conditions for the question act, as commonly assumed following the works of Austin and Searle.[5]

(4) A question act performed by a speaker c_S is felicitous iff (at least)
a. c_S does not know the answer to $?\phi$
b. c_S wants to know the answer to $?\phi$
c. c_S believes that c_A may be able to give an answer to $?\phi$

[3] For reasons of space, we leave aside multiple constituent questions in this paper.

[4] Stenius (1967) proposes the question operator as a pure illocutionary operator. However, given newer insights, it is plausible to assume that the question operator has also a truth-conditional contribution: it builds up the meaning of the question from the contribution of the sentence radical (cf. Krifka 2011).

[5] Throughout the paper, ϕ symbolizes a question's sentence radical, and '?' the question operator; c_S is the speaker, and c_A the addressee in the Kaplanian context c.

We propose that particle contributions may interact with or supplement these independently existing felicity conditions, but particles do not contribute them. For the contributions proposed here, we also took care to separate which effects can be attributed to the contribution of the particles proper, and which are induced by it, or follow from it. Also note that the analyses presented below are based on subtle judgements, and that particle contributions may vary in different varieties of German, cf. Section 2.4 and footnote 6.

2.1 German *denn*

The particle *denn* is homophonous with the connective *denn*, which we will not discuss here. Among those particles that are restricted to questions, it has received the most attention in the descriptive and also formal literature; cf. König (1977), Thurmair (1989), Grosz (2005), Kwon (2005), and Bayer (2012). While differing in the details, these authors agree that the contribution of *denn* is to signal that learning the true answer is relevant to the speaker. Thurmair (1991), on the other hand, argues that *denn* simply indicates that the speaker's question is 'unmarked', suggesting that *denn* does not make a contribution of its own.[6] We argue that *denn* does have a special contribution (*pace* Thurmair); it signals heightened speaker interest[7] in the answer.[8]

(5) $[\![\text{denn}]\!]^c(?, \phi)$: c_S communicates heightened interest in the answer to $?\phi$

Scenario: A knows that B went downtown in order to buy shoes. Now they are on the phone discussing B's shopping experience.

(6) A: *Hast du **denn** Schuhe gekauft?* A: 'Did you DENN buy shoes?'

By using *denn* in (6), A is committed to having a heightened interest in B's answer; it is infelicitous to follow up by saying "*Na, eigentlich ist es mir egal.*" ('Actually, I don't care.'). This discourse is less incoherent if A asks the question without *denn*.

Previous authors have formulated different pragmatic restrictions on the kinds of contexts that *denn* can occur in: König (1977) and Bayer (2012) suggest that *denn* needs some sort of antecedent common ground[9], and Kwon (2005) claims that by using *denn* the speaker signals that there is an 'external reason' for the question, such as new evidence that conflicts with previous evidence that the speaker had. Both of those pragmatic restrictions are too strong – let us first turn to Knig's and Bayer's restriction.

(7) "An administration officer whose sole job it is to write down some individual's address can hardly felicitously ask *Wo wohnen Sie denn?* ('Where do you live, I am wondering?')." (Bayer 2012,14)

[6] The use of *denn* seems to vary in different dialects of German. Grosz (2005) and Bayer (2012) look at the shortened version of *denn*, i.e. *dn*, in Bavarian dialects, which behaves differently from the full form.

[7] For reasons of space, we leave this notion unanalyzed.

[8] For reasons of space, we gloss over most of the details needed for a compositional account of the particle meanings proposed in this paper. For instance, ϕ may stand for both a proposition, or a property depending on question type. That the particles take '?' and ϕ as separate arguments is, however, crucial for our story.

[9] For the concept of *common ground* and the related *context set*, cf. e.g. Stalnaker 2002.

We agree that (7) is odd, but we argue that this is a secondary effect of the particle's contribution rather than an additional independent restriction on its contexts of use.[10] Consider (8), a variant of Bayer's example, where discourse-initial *denn* is perfectly acceptable.

Scenario: An administration worker A who is working as 'receptionist' at a government office sees a person walk in.

(8) A: *Zu wem wollen Sie **denn**?* A: 'Who do you DENN want to see?'

We take the context in (8) to be similarly discourse-initial as in (7) – nonetheless the use of *denn* is perfectly acceptable. Given the proposal in (5), the function of *denn* on our view is to signal heightened speaker interest in the answer. Therefore, a context in which we cannot easily assume heightened speaker interest in the answer to a given question is bound to be inappropriate for the use of *denn*: The government agent in (7) has no reason to have a heightened interest in the interlocutor's answer. The agent in (8), on the other hand, needs to point people to the right offices, and also has to make sure that nobody gets into the building who should not be there, which makes it easily reconstructable why he might have a heightened interest in the answer.

Let us now consider Kwon's proposal, i.e. there must be an 'external reason' for the question, and the speaker has conflicting pieces of evidence about the true answer; cf. (9).

Scenario: A meets B for coffee who he has not seen for a long time.

(9) A: *Wie gehts dir **denn**?* A: 'How are you DENN?'

Nothing in the context suggests that A has any kind of evidence about how B is doing, and that B's appearance somehow contradicts this previous evidence – Kwon's claim is too strong. It also seems too strong to claim that A is somehow using B's appearance as an 'external reason' to ask (9). Rather, the use of *denn* seems simply to signal A's heightened interest in B's answer after not having met for a long time.

2.2 German *etwa*

Previous discussion of the particle *etwa* has centered around the speaker's expectation and desires regarding the sentence radical ϕ: both Thurmair (1993) and Kwon (2005) suggest that the speaker signals she prefers $\neg\phi$ to hold while believing it is more likely that ϕ holds. We argue instead that using *etwa* only signals that the speaker previously believed that $\neg\phi$ was more likely than ϕ, without expressing a preference.[11] Consider (10)-(12).

Scenario: A comes home, wanting to make pasta for dinner and believing that there is a jar of sauce in the pantry. A sees the empty jar of sauce sitting on the kitchen counter.

(10) A: *Hast du **etwa** die Sauce aufgegessen?* A: 'Did you ETWA finish the sauce?

[10] For a similar observation that the contribution of the particles *doch*, *ja*, and *wohl* restricts which contexts are appropriate contexts of use see Zimmermann (2011). In some sense, there *is* a "relevance"-requirement in place, which, however, derives from the particle's contribution.

[11] Thurmair 1993 suggests that the speaker's expectations need not be rooted in probability, but can also be based on the speaker's desires. For reasons of space we cannot go into detail on how this interacts with our proposal.

We concur with Thurmair and Kwon that in this scenario, A believed it to be more likely that $\neg\phi$ holds than ϕ. We furthermore concur that in this scenario, A most likely prefers $\neg\phi$ over ϕ. However we argue that this preference is not encoded in the meaning of *etwa*, as the following example shows.

Scenario: A comes home and sees a jar of sauce sitting on the kitchen counter after worrying that there might not be pasta sauce for dinner.

(11) A: *Hast du **etwa** Sauce gekauft?* A: 'Did you ETWA buy sauce?'

Here the speaker clearly does not disprefer that ϕ holds. Her use of *etwa* merely signals that she held $\neg\phi$ to be more likely.

The second point we want to make regards the amount of evidence that is needed for ϕ or $\neg\phi$ for felicitous use of *etwa*. Kwon claims that *etwa* signals that the speaker 'did not expect ϕ to hold', suggesting further that ϕ holds whenever the speaker utters $?\phi$. We argue that the speaker does not need direct evidence that ϕ holds. *Etwa* merely signals that the speaker no longer holds it impossible that ϕ holds. Consider the following scenario.

Scenario: A comes home and the back door is open.

(12) A: *Ist die Katze **etwa** weggelaufen?* A: 'Did the cat ETWA run away?'

In (12), the speaker has no direct evidence that the cat ran away. She merely expresses that she experienced a change in belief from 'It is impossible that the cat ran away' to 'It is possible that the cat ran away and it is possible that the cat did not run away'.

In fact, the formulation above is still too strong. We suggest that for *etwa* to be felicitous, the speaker is not required to have previously believed that $\neg\phi$. She merely needs to have believed it *to be more likely*. Thus, our final analysis of *etwa* is as follows.

(13) $[\![\text{etwa}]\!]^c(?,\phi)$: c_S realized that he mistakenly believed the negative answer to $?\phi$ to be more likely than the positive answer.

2.3 Austrian German *leicht*

While the particle *leicht* is homophonous with the adjective *leicht* (Engl. 'light, simple'), it is believed to go back to *vielleicht* which has a particle use (cf. Coniglio 2005).[12] According to Thurmair (1989, 192-195), the particle *vielleicht* occurs only in polarity questions (and in exclamatives), for which, as Thurmair claims, its contribution is comparable to the contribution of *etwa*: the speaker expresses an expectation for $\neg\phi$. See (14), which may also be interpreted as a rhetorical question. *Vielleicht* may not occur in constituent questions.

(14) A father to his son who listens to loud rock music (Thurmair 1989, 194):
*Findest du dieses Geheule **vielleicht** schön?*
'Do you find this whining beautiful?' + strong expectation of negative answer

[12] In its adverbial use, *vielleicht* can be translated as *maybe*.

A look at naturally occurring data reveals that *leicht*[13] is not just a contracted version of the particle use of *vielleicht*: *leicht* can occur in polarity questions *and* constituent questions, cf. (1), (2), (15), and (16). Moreover, questions containing *leicht* are always true information seeking questions.

Scenario: B asks A whether he has to study certain contents for an exam in chemistry with a certain professor.

(15) A: *Das solltest schon lernen.* B: *Hat er **leicht** schon mal danach gefragt?*
A: 'You should study that.' B: 'Has he LEICHT asked about that before?'[14]

Scenario: A tells B that a common acquaintance had an accident during a bike race, and won't be able to participate in any more races in the near future.

(16) B: *Auweh, was hat er **leicht**?* B: 'Oh no, what happened LEICHT to him?'[15]

Hence, it seems highly unlikely that the contributions of *leicht* and *vielleicht* are directly connected. We propose instead that a question containing *leicht* asks for information that might provide an explanation for a previously established piece of information (i.e. proposition) in the context. In (15), a positive answer to speaker B's question would explain why speaker A advises him to study that particular content. Similarly in (16), knowing the extent of the injuries would explain speaker A's statement that A's and B's common acquaintance will not participate in any more races. Hence for *leicht*, we propose (17).

(17) $[\![\text{leicht}]\!]^c(?,\phi)$: c_S believes that settling the question $?\phi$ may provide an explanation for another piece of information in the utterance context

Our proposal is supported by the following observation. Given the proposed content in (17), *leicht* should be infelicitous in a question for which no answer potentially explains any established piece of information in the context; consider (18).[16]

Scenario: A and B meet. A starts talking about his party, saying that Peter was there, and that he was, like always, immediately drunk.

(18) B: *Ist er (**#leicht**) gut nach Hause gekommen?*
B: 'Did he (#LEICHT) get home okay?'

Note that B's question whether Peter got home okay is perfectly fine in light of A's statement that Peter was immediately drunk. That is, leaving out *leicht* or substituting it with *denn* results in a perfectly natural question.

[13]To our knowledge, the syntactic behavior of *leicht* has been investigated only in Grosz (2005). He compares *leicht* to Austrian/Viennese German *dn* (cf. footnote 6), and argues against *dn* and *leicht* being synonymous since they may co-occur in the same question without redundancy.

[14]`http://forum.pharmapoint.at/forums/thread/90092.aspx`

[15]`http://bikeboard.at/Board/Spezialized-Enduro-Series-Kirchberg-in-Tirol-Bericht-th170926`

[16]Note that A's statement does provide enough context for a question containing *leicht* to be felicitous. E.g. B could ask for an explanation for Peter's immediately being drunk: "*Hat er sich **leicht** wieder am Vodka vergriffen?*" ('Did he LEICHT drink a lot of vodka, again?').

2.4 Austrian German *eh*

In the descriptive literature, notably Thurmair (1989), the particle *eh* is analyzed as synonymous with the particle *sowieso*, which both mainly occur in declarative sentences used as assertions.[17] Additionally, Thurmair observes, *eh*/*sowieso* may occur in some, rare cases in negated polarity interrogatives following sentence negation *nicht*, see (19).

(19) *Gehst du nicht **sowieso/eh** jede Woche zum Friseur?*
'Don't you go to the hair dresser's every week, anyway?' (Thurmair 1989, 136)

With respect to Austrian German *eh*, we do not agree with Thurmair's analysis, and propose that *sowieso* and *eh* need to be distinguished. Austrian German *eh* not only occurs in declarative sentences, see (20), but it also occurs freely in polarity questions (even preceding sentence negation), see (21). It cannot occur in constituent questions, see (2).[18]

Scenario: A tells other users about an unfortunate situation with her infant son when she lost her temper, and felt guilty immediately afterwards.

(20) A: *Er ist **eh** so ein Vaserl [. . .].* A: 'He is EH such a sensitive person [. . .].'[19]

Scenario: Speaker A's son develops as he should even though he eats less infant formula than specified for a child his age. A asks whether she should nevertheless be worried.

(21) A: *Hat er **eh** nicht zu wenig?* A: 'Does he EH get enough?'[20]

Furthermore, *eh* may co-occur with *sowieso* without redundancy, see (22). If *eh* and *sowieso* would contribute exactly the same content, (22) should be pragmatically odd.

Scenario: Speaker A wonders about the prescribed fishing exam that is needed to get one's fishing license.

(22) A: *Ich finde der was angeln will der beschäftigt sich **eh sowieso** damit [. . .].*
A: 'I believe someone who wants to fish EH SOWIESO engages in it [. . .].'[21]

In polarity questions[22], we suggest, *eh* conveys that the speaker is not completely sure about the validity of the positive answer of the question in which it occurs, see (23).

(23) $[\![\text{eh}]\!]^c(?,\phi)$: c_S's belief state strongly supports the positive answer to $?\phi$, but it is still compatible with the negative answer to $?\phi$

Since the speaker cannot completely discard the negative answer, a polarity question containing *eh* is a regular information seeking question.

[17] The status of *eh* and *sowieso* as particles is sometimes disputed since they do not have homophonous counterparts in other word classes (cf. Thurmair 1989, 134) – a criterion for particlehood proposed in Weydt & Hentschel (1983). Thurmair argues against this criterion, and we follow Thurmair in counting *eh* (and *sowieso*) as discourse particles.

[18] Note that *eh* can occur in echo questions that echo a previous utterance containing *eh*.

[19] `http://www.parents.at/forum/archive/index.php/t-19361.html`

[20] `http://www.parents.at/forum/showthread.php?t=106314#.UWKUvH3I9yA`

[21] `http://anglerforum.at/anglerforum/thread.php?threadid=12559&sid=83deedb8876b59fa8009dca6815dca89`

[22] We believe that *eh*'s contribution to assertions and to polarity questions may be given a unified analysis. For reasons of space, however, we can only discuss *eh* in polarity questions.

This proposal is supported by the following observation. If *eh* conveys that the speaker's beliefs do not enable him to discard the negative answer, then it should be infelicitous in a situation where the speaker has conclusive evidence for the positive answer.

Scenario: A is at B's place, and sees B's kitten wander around the room.

(24) A: *Ist dein Kätzchen (**#eh**) im Haus?* A: 'Is your kitten EH inside?'

While A's question without *eh* cannot be understood as an information seeking question, it can be understood as an indirect question about B's grounds for letting the kitten inside the house. Crucially, this interpretation is not accessible with *eh*.

3. Capturing the distribution

Having presented our proposals for the contributed not at-issue content of *denn*, *etwa*, *leicht*, and *eh*, we now turn to the discussion of the contrast in (1) and (2), i.e. why *denn* and *leicht* are felicitous in polarity and constituent questions, but *etwa* and *eh* are excluded from constituent questions. We present our analysis in Section 3.2. First, however, it is instructive to see that the contrast cannot be accounted for in terms of the partition structure created by a given question (cf. Groenendijk & Stokhof 1984 among others).

3.1 A dead end: structure of the partition

Groenendijk & Stokhof (1984) argue that questions create partitions on the context set, i.e. the set of worlds compatible with the set of propositions in the common ground of the discourse participants: Each set of worlds in the partition, i.e. each cell, contains those worlds in the context set for which the same proposition is the true answer to a given question. No two cells of the partition overlap, i.e. each cell represents an exhaustive answer.

Polarity questions partition the context set into two cells, i.e. the positive and the negative answer, see (25).

(25) a. *Did Peter come to Mary's party?*
b. $\{\lambda w.$ P came to M's party in $w,$ $\lambda w.$ P didn't come to M's Party in $w\}$

Constituent questions, in contrast, partition the context set into a number of cells correlated to the number of possible answers. For instance, the question in (26-a) partitions the context set with respect to the answers given in (26-b).[23]

(26) a. *Who came to Mary's party?*
b. $\{\lambda w.$ nobody came in $w,$ $\lambda w.$ only T came in $w,$ $\lambda w.$ only S came in $w\ldots,$ $\lambda w.$ only T and S came in $w,$ $\lambda w.$ only T and P came in $w,\ldots\}$

Given the different structure of the partitions created by polarity and constituent questions, one could assume that partition structure is the decisive factor to account for (1) vs. (2). That is, *etwa* and *eh* – being excluded from constituent questions – are sensitive to the struc-

[23]Given Groenendijk and Stokhof's partition theory, the proposition '*nobody came*' corresponds to a cell in the partition, even though it does not correspond to an element of the set of answers in a Hamblin style semantics of questions (cf. Krifka 2011, 1762).

ture of the partition, but *denn* and *leicht* are not. To see that this is not the case, assume that there are two teams, red and blue, who compete against each other. After the competition, a speaker can use both (27-a) and (27-b) to ask about the winner, which partition the common ground into the same two cells, see (28).[24]

(27) a. *Hat die blaue Mannschaft gewonnen?* ('Did the blue team win?') (polarity)
b. *Welche Mannschaft hat gewonnen?* ('Which team won?') (constituent)

(28) $\{\lambda w.$ the blue team won in w, $\lambda w.$ the red team won in $w\}$

Given the identical partitions for (27-a) and (27-b), an account based on partition structure predicts that all particles that may occur in the polarity question should also be fine in the constituent question. However, only the German translation of (27-a) allows all four particles to occur, whereas (27-b) can only host *denn* and *leicht* replicating the contrast in (1) and (2). Hence, partition structure is not a decisive factor in the distribution of *denn*, *etwa*, *leicht*, and *eh*.

3.2 Two classes of particles and explicit identification of an answer

We propose that the distribution of *denn*, *etwa*, *leicht*, and *eh* across types of questions is a result of the not at-issue content contributed by each respective particle – specifically, which parts of the question are commented on in their conveyed content.

On closer inspection, *etwa* and *eh* can be grouped together. Both convey speaker's attitudes regarding the positive and negative answers of their containing polarity questions: (i) *etwa* conveys that the speaker mistakenly believed the negative answer to be more likely than the positive answer, and (ii) *eh* conveys that the speaker's belief state strongly supports the positive answer. Conversely, *denn* and *leicht* pattern together since they comment on the question as a whole; i.e. although *leicht* conveys something about the explanatory power of the eventual answer, it does not pick out a specific answer. The same holds for *denn*.

This division of the four particles into the two classes is the decisive factor for the contrast in (1) and (2): Particles whose not at-issue meaning singles out *one particular answer* can only comment on that answer if the form of the question *explicitly identifies one answer*. In (29), the contributions of *etwa* and *eh* are rephrased in terms of what we propose to call *explicitly identified answers* (EIAs).

(29) a. $[\![\text{etwa}]\!]^c(?,\phi)$: c_S realized that he mistakenly believed the complement of the EIA to $?\phi$ to be less likely than the EIA[25]
b. $[\![\text{eh}]\!]^c(?,\phi)$: c_S's belief state strongly supports the EIA to $?\phi$, but it is still compatible with its complement

Polarity questions explicitly identify one answer: the EIA is the sentence radical, which denotes a proposition, i.e. the positive answer. In contrast, the sentence radical of a constituent

[24]The answers, *nobody won* and *red and blue won*, which are predicted to have corresponding cells wrt. (27-b), are discarded since a question phrased with a singular *which*-DP signals that it is presupposed that only one team won (cf. Krifka 2011:1763).

[25]The complement of an answer is the complement set of the cell corresponding to the answer with respect to the context set.

question can be either conceived of as a partly unspecified proposition or as a property (cf. Section 1), but crucially, it is not a *complete* proposition. Therefore, constituent questions do not, and indeed cannot explicitly identify one particular answer. Compare (30-a) to the simplified (30-b).

(30) a. $?(\lambda w.$ the blue team won in $w)$ = (27-a)
b. $?(\lambda w.\lambda x.\ x$ won in $w)$ = (27-b)

So in sum, polarity questions provide the EIA required by the contribution of *etwa* and *eh*, and indeed, *etwa* and *eh* are felicitous in polarity questions. Constituent questions, in contrast, cannot provide an EIA; hence, *etwa* and *eh* are infelicitous. And lastly, since *denn* and *leicht* do not require an EIA, they are felicitous in *both* types of questions.

Note that the notion of EIAs is comparable to *highlighted answers* in inquisitive semantics (cf. Farkas & Roelofsen to appear). Farkas and Roelofsen introduce *highlighting* to account for the distribution and use of polarity particles (i.e. *yes* and *no*) in answers. They observe that (similarly to *etwa* and *eh*), polarity particles are sensitive to which answers are "explicitly mentioned" by a given question (Farkas & Roelofsen to appear, 15). In short, the highlighted answer for polarity questions is what we call the EIA, i.e. the question's sentence radical (cf. Stenius 1967). Constituent questions do not highlight any of their answers. Even though EIAs and *highlighted answers* share a core idea, we refrain from explicitly adopting *highlighting* as such to remain neutral for the moment regarding specific frameworks.

3.3 Testing predictions: Alternative questions and embedded questions

If the proposed analysis is to be taken seriously, it has to extend to other types of questions. In this section, we test the predictions of our account for alternative questions and embedded interrogative sentences.

In alternative questions, the speaker presents the addressee with two (or more) alternatives from which he may choose. Regarding the partition structure, each alternative corresponds to a cell in the partition of the context set. In other words, the sentence radical makes *all cells of the partition* explicit, i.e. no single answer is explicitly identified.

Since intuitively no single cell of the partition is explicitly identified, the analysis proposed in Section 3.2 predicts that alternative questions pattern with consituent questions (cf. also Krifka 2011), i.e. *eh* and *etwa* are predicted to be infelicitous in alternative questions, while *denn* and *leicht* are expected to be okay. This is borne out, see (31).

Scenario: B tells A that Paul behaved rudely when he met Peter and Mary the day before.

(31) A: *Mag er* ***denn/leicht/#etwa/#eh*** *Peter oder Maria nicht?*
A: 'Doesn't he like Peter or Mary?'

Note that *eh* and *etwa* may, of course, occur in (31) if it is understood as a disjunctive polarity question. In this reading, the speaker inquires about whether Paul does not like Peter or Mary or both.[26]

[26]The alternative and the polarity question readings are distinguished by prosody (cf. Krifka 2011, 1749).

Embedded interrogatives may either be interpreted with a proposition-like or a regular question denotation depending on their embedding verb. Consider the embedded wh-interrogative in (32) (cf. Krifka 2011, 1750ff).

(32) *Peter wei wer bestanden hat.* vs. *Peter fragt sich, wer bestanden hat.*
'Peter knows who passed.' vs. 'Peter wonders who passed.'

Under *wissen* ('to know'), the embedded interrogative intuitively behaves like an embedded declarative; the question of who passed has to be settled for Peter to know "it". In contrast, the embedded interrogative under *sich fragen* ('to wonder') has to denote a question for Peter to wonder about the identity of the people who passed.

Given the discussions in Sections 2 and 3.2, it is predicted that particles restricted to questions may not occur in the complement of *know*, i.e. only *eh* should be felicitous. Furthermore, it is predicted that only *denn* and *leicht* are felicitous in (32) under *wonder*, since *etwa* and *eh* cannot occur in constituent questions. Consider (33).[27]

(33) a. *Peter wei wer* ***#denn / #etwa / #leicht / eh*** *bestanden hat.*
'Peter knows who passed.'
b. *Peter fragt sich, wer* ***denn / #etwa / leicht / #eh*** *bestanden hat.*
'Peter wonders who passed.'

Embedded polarity interrogatives also behave as expected: only *eh* is felicitous under *know*, and all four particles are fine under *wonder*, see (34).

(34) a. *Peter wei ob er* ***#denn/#etwa/#leicht/eh*** *bestanden hat.*
'Peter knows whether he passed.'
b. *Peter fragt sich, ob er* ***denn/etwa/leicht/eh*** *bestanden hat.*
'Peter wonders whether he passed.'

4. Conclusion

We have shown that the German discourse particles *denn*, *etwa*, *leicht*, and *eh* form two classes depending on the content they contribute to their containing question. Like all discourse particles, they contribute only not at-issue content: in the case of *denn* and *leicht*, the content expresses the speaker's attitude regarding the question as a whole, while in the case of *etwa* and *eh*, it expresses the speaker's attitude regarding specific answers. We proposed that this difference accounts for the contrast in (1) and (2) in terms of *explicitly identified answers* (EIAs): only polarity questions "explicitly identify" an answer and hence fulfill the requirement by *etwa* and *eh*.

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[27] For reasons of space, we leave aside the question whether in an embedded clause, the particles convey an attitude of the speaker who utters these sentences or the embedded speaker.

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Eva Csipak & Sarah Zobel
ecsipak@gwdg.de, sarah.zobel@ds.uni-tuebingen.de