

Yvonne Viesel* and Constantin Freitag*

Wer kann denn schon ja sagen?

Natural and experimental data on German discourse particles in rhetorical questions

<https://doi.org/10.1515/zfs-2019-2003>

Abstract: The article explores German discourse particles (DiPs) in rhetorical wh-questions (wh-RQs). While *schon* (roughly ‘unexpectedly’) only marks rhetorical wh-questions, *denn* (roughly ‘I wonder’) marks contextually arising information-seeking or rhetorical Questions under Discussion (QuDs), with or without *schon*. Since *ja* (roughly ‘unquestionably’) marks shared information, it is incompatible with questions by itself, but occasionally occurs in wh-RQs left of DiPs like *schon* instead of *denn*. The results of two acceptability judgment experiments confirm that *ja* is strongly dispreferred in RQs, the presence of *schon* improves RQs with and without *ja*, and *denn* has no effect on acceptability. A follow-up study further indicated the rhetorical reading of our target questions to prevail independently from DiPs. We conclude that *ja* in RQs operates on the information contributed by elements like *schon*, denoting roughly that the issue in question arises ‘unquestionably against expectations’. Our contexts were neutral regarding the discourse functions of *ja* and *denn* (side remarks vs. QuDs), unlike the contexts of the findings, from which we deduce that the marked *ja schon*-RQs, while grammatical, require specific felicity conditions. A first attempt to confirm this experimentally was globally unsuccessful and could only reveal potential hints in an exploratory analysis.



Keywords: German discourse particles, acceptability judgments, rhetorical questions, interacting expressives, discourse function, felicity conditions

1 Introduction

This paper explores a case of interaction between the German discourse particles (DiPs) *ja* (literally ‘yes’, roughly ‘uncontroversially/unquestionably’), *denn* (roughly ‘I wonder’), and *schon* (literally ‘already’, roughly ‘against expectations’)

***Corresponding author: Yvonne Viesel**, Fachbereich Sprachwissenschaft, Universität Konstanz, Konstanz, Germany, e-mail: Yvonne.Viesel@uni-konstanz.de

***Corresponding author: Constantin Freitag**, Institut für deutsche Sprache und Literatur I, Universität zu Köln, Köln, Germany, e-mail: constantin.Freitag@uni-koeln.de

 Open Access. © 2019 Viesel and Freitag, published by De Gruyter.  This work is licensed under the Creative Commons Attribution 4.0 Public License.

in rhetorical questions (RQs). While the meaning of *schon* is only compatible with RQs, *denn* is common in both RQs and information-seeking questions (ISQs). *ja* is generally not acceptable in questions but occasionally occurs inside RQs, under specific contextual conditions and never without other DiPs, sometimes adverbs, in its scope.¹

Native speakers agree that *ja*-RQs are significantly degraded without these extra elements, although spontaneous judgments on the natural findings differ. We suggest that *ja* operates on the meaning of *schon*, forming a complex roughly meaning *it is uncontroversial that the answer to Q follows from the Common Ground* (CG).² This is a non-standard interpretation of the particle combination *ja schon*, but applying its meaning to information independent from the at-issue meaning of an interrogative is generally the only way in which *ja* can occur in questions.

Since *ja* does not occur in RQs or other questions on its own, we chose RQs for testing if DiPs can modify each other, a suspicion raised before with regard to other combinations of DiPs in different environments. If so, a DiP like *schon* in the scope of *ja* should lead to a measurable increase in the acceptability of a *ja*-RQ as compared to the *ja*-RQ without *schon*. We thus designed two acceptability experiments to determine the relative acceptability of RQs with single, combined and no DiPs, one for *ja* and *schon*, one for *denn* and *schon*. The first experiment, although the effect is subtle, confirmed that the presence of *schon* improves the acceptability of *ja*-RQs. The second replicated the effect for *schon* but did not detect one for *denn*. A third experiment showed the rhetorical reading to prevail in the materials independently from DiPs.

In light of the natural findings, we conclude that a particle like *schon* is necessary to license *ja* in *ja schon*-RQs but not sufficient to make it unconditionally acceptable. A comparison of *ja schon*- and *denn schon*-RQs in context reveals that the two types of RQs have different discourse functions. Since (in)appropriate contexts have independently been known to influence the acceptability of *ja* substantially, we attribute the fact that the improvement of *ja*-RQs by the presence of *schon* is comparatively small to the fact that the experimental *ja schon*-RQs were not accompanied by contexts fulfilling the very specific felicity conditions of such questions: as our contexts were neutral to the different discourse functions of *schon*-RQs with *ja* vs. *denn*, *denn* was insignificant and *ja* or the particle combination *ja*

¹ Abbreviations used: AP – adjective phrase, CEC relation – *causal explanatory claim*-relation, CG – common ground, DiP – discourse particle, DP – determiner phrase, IMP – imperative, INF – infinitive, ISQ – information-seeking question, NPI – negative polarity item, PP – prepositional phrase, QuD – Question under Discussion, RQ – rhetorical question.

² Following Stalnaker (2002: 716), the CG is the set of assumptions that interlocutors accept as shared beliefs for the purposes of the conversation.

schon were uncalled for. These suspicions are supported by the results of a fourth experiment, in which the same experimental items as in the first two experiments were presented in different contexts, suggesting that this might improve the acceptability of *ja schon*-RQs.

Our experiments are a first attempt at detecting an interaction between DiPs by exploring the relative acceptability of different combinations in a 2×2 design. That the effect was measurable yet smaller than initially expected is an indication that the fulfillment of a DiP's felicity conditions is a baseline requirement for its use in both standard and non-standard environments. This is an important insight for future research.

Section 2 is an introduction to DiPs, DiPs in RQs, and the special case of *ja* in RQs. After an introduction to DiPs in general in Section 2.1, and *ja*, *denn*, and *schon* in particular in Sections 2.2–2.4, we turn to the interaction problem in Section 2.5. Section 2.6 reviews some facts about RQs and DiPs in RQs before *ja* in RQs is introduced in Section 2.7. We justify our decision to focus on *ja schon*-RQs in Section 2.7.1 and sketch an analysis in Section 2.7.2. Section 3 reports on the first experiment (on *ja* and *schon*) and Section 4 deals with the use conditions of *ja schon*-RQs by contrasting the findings with *denn schon*-RQs. Section 5 reports on the experiment on *denn* and *schon*, Section 6 on the first follow-up experiment conducted to verify that the target questions were rhetorical, and Section 7 on the second follow-up experiment, exploring the influence of context on *ja schon*-RQs. Section 8 concludes the article.

2 Discourse particles and rhetorical questions

Many issues about German DiPs are still unsettled, e.g. their meaning type, if they are clause-type sensitive, if they interact, to what extent they behave uniformly, what individual particles mean and if they should not rather be labeled modal particles. We focus in Sections 2.1–2.5 on aspects relevant for the discussion of our data. While RQs are a controversial matter, too, we are primarily interested in them as hosts for German DiPs, see Section 2.6, although the distribution of German DiPs in RQs is instructive for the debate on RQs as well (Sections 3.4 and 4). Section 2.7 is devoted to *ja schon*-RQs from an interactional point of view.

2.1 General remarks on discourse particles

German has a class of about 20 non-inflecting lexical items that generally contribute specific non-at-issue meanings when occurring in clause-medial position (see for instance Zimmermann 2011 for an overview). In this function, these items

are known as *modal* or *discourse particles*. We adopt the latter term, to prevent undue assumptions on the role of these particles for sentence modality, see the discussion in Grosz (2016b), and to emphasize on their function in discourse management. This terminological choice is widespread, e.g. Bayer and Struckmeier (2017), Grosz (2016a), Egg (2013), Rojas-Esponda (2013), Zimmermann (2011), and appropriately close but not identical to the segment-initial *discourse markers* (like *aber* ‘but’) in the sense of Fraser (2006: 189). We assume that both mark relations between propositions, see Viesel (2015) on *ja*, Egg (2013) on *doch* (roughly ‘as you should know’) and Egg (2012) on *schon*, only DiPs do not require their antecedent argument to be left-adjacent to their host sentence, see Egg (2012: 315).

Negligence to felicity has led to problematic claims about DiPs being ungrammatical in specific environments, e.g. Viesel (2017) vs. Coniglio (2008) on adnominal modifiers and adverbial clauses; Jacobs (2018) vs. Jacobs (1991) on licensing by illocutionary operators. The effect of missing or inappropriate contexts is especially clear with DiPs in unusual positions as speakers will not reconstruct marked prosodic patterns indicative of marked information structure unless contextually required (see Féry 2006). Hence, certain structures are only accepted in context (e.g. Viesel 2015) while even canonical cases are rejected in ill-fitting contexts, see Section 2.2.

The precise semantic nature of DiPs is unclear, see Section 2.5. It is under debate if DiPs are expressive types or presupposition triggers, see Grosz (2016b). DiPs are not well-behaved expressives, e.g. they defy predictions about structural restrictions on their occurrence, see for instance Kaufmann (2010) vs. Kratzer (1999) on the absence of *intervention effects* for DiPs scoping over quantifier-bound pronouns. Kaufmann concludes that either the contribution of DiPs like *ja* is a presupposition, or the notion of expressive meaning needs to be refined.³

Another issue is if there is a structural relation between DiPs in clause-medial position and the C system, the *left periphery*, of the root clause, where force features are localized. Following Grosz (2016b), Frühauf (2018), Viesel (2017, 2015) and Jacobs (2018), we do not assume that DiPs are structurally connected to the left periphery, but that they operate on the material in their syntactic scope, i.e. VP, relating this information to the discourse context. Accordingly, the option of employing a DiP in a particular clause depends on the compatibility of its meaning with the discourse status of the information modified and the type of its VP-complement. Consequently, *ja* is ruled out in questions even assuming that it is not clause-type dependent.

³ Kaufmann’s (2010) data has been deemed controversial, but so are the categorical restrictions on DiPs that he questions.

2.2 A note on *ja*

The DiP *ja*, quite distinctly geared to assertions and difficult to embed, is standardly described as a marker of shared information (e.g. Kratzer 2004). According to Gutzmann (2009), the felicity of *ja* hinges on the speaker's belief that *p* is common knowledge. However, Zeevat (2004: 102) acknowledges that “repeating old information is not useful by itself” but “allows further causal or other connections based on that.” That information modified by *ja* should be known to the hearer or at least unproblematic, and that therefore *ja*-utterances are used to substantiate explicit or *reconstructable* conclusions is already observed in Franck (1980: 232–233). Viesel (2015) stresses this function, arguing that the felicity of *ja* is dependent on discourse-contextual conditions rather than epistemic ones. Thus *ja* establishes a *causal explanatory claim*-relation⁴ (CEC relation) between its first, semantic and syntactic, argument *p*, and its second semantic argument *q*, which is present or at least accommodatable in the preceding or following linguistic or extralinguistic⁵ context. Viesel demonstrates that *q* is usually the information that a speech act is made – a sharedly recognized, *manifest*, event, see Stalnaker (2002: 708):

- (1) *Das Bett ist ja recht groß.*
 ‘The bed is [JA] quite large.’⁶
- a. *You (therefore) sleep very well in it.*
 - b. *#(Nevertheless) you do not sleep very well in it.*
 - c. *Do you sleep well in it?*
 - d. *# ∅*

According to this approach, concessive relations as in (1-b) are not special, unlike Franck (1980: 233) suggests, and neither are non-assertive speech acts (1-c).

⁴ See Biezma (2014) on the English discourse marker *then* establishing a CEC relation, based on Davidson's (1967) distinction between causation and causal explanation.

⁵ Information in the extralinguistic context that a *ja*-assertion might justify could be, for instance, someone in a tracksuit drinking a very large glass of water all at once and uttering (i) to a bystander:

(i) *Ich war ja gerade joggen.*
 ‘I've [JA] just been running.’

⁶ Saving space, glosses are omitted for most target utterances and their contexts. To capture the semantic scope of DiPs regardless of scrambling, DiPs in the translations are displayed above preferably all VP elements, but lower than complementizers, relative pronouns, possible stage setters, the sentence-initial position where *ja* may feature as a discourse marker, see Mroczynski (2012), and the position between a constituent in the prefield and the V2 position to avoid confusion with small particle phrases, e.g. Bayer (2018), see Section 2.7.1.

(2) paraphrases the CEC relations that *ja* hints at in the non-at-issue dimensions of (1-a)–(1-c) in a unified manner:⁷

- (2) a. **Since** (uncontroversially) [_p the bed is quite large], [_q the speaker asserts that (therefore) you sleep very well in it]
- b. **Since** (uncontroversially) [_p the bed is quite large], [_q the speaker asserts that nevertheless you do not sleep very well in it]
- c. **Since** (uncontroversially) [_p the bed is quite large], [_q the speaker asks if you sleep well in it]

According to Viesel (2015), for the *ja*-utterance in (1) to be felicitous, it is of minor concern if *p* is believed to be common knowledge prior to the utterance. Important is that a statement of the *ja*-utterance in (1) makes the hearer expect that something else is said that has to do with the bed being large. Not providing a suitable antecedent or continuation results in infelicity (1-d). For more pertinent examples, see Viesel (2015).⁸

While Viesel (2015) integrates the context-dependence of *ja* in its lexical entry, it might instead be derived by a *Need a Reason-implicature* (NaR implicature) as proposed by Lauer (2014) with phenomena other than DiPs in mind. This mandatory conventional implicature plausibly springs into action if speakers, expressly consciously, assert information known by and salient to the hearers. In short, speakers must have a reason to assert *p* other than informing the hearer about *p*, as when *p* supports another, informative utterance.⁹ Thus a very basic meaning can be retained for *ja* itself, see (3), and it will still result in the requirement that a relation between *p* and *q* hold, as paraphrased in (2). Recall that the ordinary meaning of *ja*(*p*) is *p*.

⁷ As the subordinate clause is a factive environment, adding *uncontroversially* does not enhance the presuppositional character of *p* in the paraphrase of the discourse relation marked by *ja*. It is included in parentheses because it corresponds to the literal abstract meaning of the DiP, from which it follows that a relation as in (2) must hold.

⁸ For *ja* in embedded/integrated subordinate clauses operating on information that supports the matrix utterance, see Hinterhölzl and Krifka (2013). For so-called *surprise exclamatives*, which contain *ja* in matrix declaratives and do not require further linguistic context, see Kratzer and Matthewson (2009), who propose that the *ja*-marked information motivates the expression of surprise.

⁹ That *ja*(*p*) cannot be used to inform the hearer about *p* captures the observation that a *ja*-assertion cannot serve as the complete answer to a corresponding question:

(i) A: 'Who did Udo marry?'

B: # *Udo hat ja Gerda geheiratet.*

'Udo married [JA] Gerda.'

(see Jacobs 1991: 147).

- (3) $\llbracket \text{JA} \rrbracket (p_{\langle \text{st} \rangle})$: p is uncontroversial. (non-at-issue meaning)

Altogether, the role of context for the acceptability of *ja* can hardly be overestimated. This even holds for main clauses with *ja*, which are always judged acceptable, i.e. (4-a) is a prototypical utterance with *ja*, see (1), but only as long as it is not paired with the context in (4-b):

- (4) a. *Es ist ja ein Mädchen.*
 ‘It’s [JA] a girl.’
 b. [A happy father rushes out of the delivery room:]
 # *Es ist ja ein Mädchen!*
 (Gutzmann 2015: 34)

The felicity conditions of *ja* are crucial for *ja schon*-RQs, too, see Sections 3.4 and 4.

2.3 A note on *schon*

The DiP *schon* (roughly ‘against expectations’) can occur in declaratives, imperatives and interrogatives, takes the lowest position in most combinations with other DiPs and requires two semantic arguments according to Egg (2013, 2012). The first one, p , is associated with the *schon*-utterance, the second one, q , contextually retrieved. In assertions, the relation between the propositions has been described as a defeasible inference:

- (5) $\llbracket \text{schon} \rrbracket (p)(q)$ [is felicitous] iff both p and q hold, [...], and according to the common ground C , q defeasibly entails $\neg p$ ($q > \neg p$) (Egg 2013: 141, 2012: 312)
- (6) [q *Das Wasser schmeckt salzig*], aber [p *man kann es schon trinken*].
 ‘The water tastes salty, but you [SCHON] can drink it [roughly: against what might reasonably be expected from its being salty].’

In line with Egg (2013, 2012), Féry (2010) and Ormelius-Sandblom (1997), we assume *schon*(p) to contrast with $\neg p$, which expresses very strong to rather tentative agreement with p and must be relevant in the context. As Zimmermann (2014: 15) points out, *schon* is not necessarily discourse-anaphoric, but there must be “circumstantial fact supporting $\neg p$ ”.

Whenever the DiP *schon* occurs in wh-questions, only a rhetorical reading is possible with either a negative or positive answer expected (see Egg 2012). Like Egg (2013, 2012), we are convinced that *schon* in assertions and questions should receive a unified treatment. Unfortunately, a comprehensive unified account of

this particular DiP is still missing. Egg (2013, 2012) proposes to associate *p*, in *wh*-questions, with the rhetorical interpretation of the question:

- (7) a. A: ‘Who will Günther invite to his party?’
 B: *Wen wird er schon einladen? (Seine langweiligen Kollegen natürlich.)*
 ‘Well who will [SCHON] he invite? (His boring colleagues, of course.)’
- b. Paraphrase of *p*:
 “It is known information that Günther will invite specific persons to his party (viz., his boring colleagues)”
 (see Egg 2013: 143)
- (8) a. A: ‘You should have helped Hans.’
 B: *Was hätte ich schon tun können?*
 ‘What could I have done?’
- b. Paraphrase of *p*:
 “B could not have done anything (and this is old information)”
 (see Egg 2013: 143)

RQs as in (7) and (8) show that CG information need not be activated in the minds of all interlocutors (Egg 2012: 319). Very roughly, the use of *schon* by speaker B in (7) and (8), according to Egg (2012), indicates that A’s utterances suggest (more precisely: preparatory conditions of A’s utterances defeasibly entail) $\neg p$, viz. that it is not known information that Günther will invite specific people, or that B could not have done anything.

Although *schon* is only compatible with *wh*-questions that are rhetorical, we are reluctant to adopt the assumption that it operates on the rhetorical interpretation itself (much less on the answer to the RQ). We know of no other case in which a DiP has been suggested to operate on meaning that is conveyed non-lexically. Besides, if the paraphrases of *p* in (7-b) and (8-b) were available for *schon*, we might expect them to be available to *ja* as well. Especially (8-b) looks like the perfect candidate. We would expect to find at least some occurrences, perhaps where the hearers’ previous utterances suggest that the answer to the RQ is activated in their mind.

We would prefer a modification of (5) such that *schon* operates on a proposition or a set of propositions, as in *wh*-questions. Thus *schon* and *denn* would modify the same semantic object in *denn schon*-RQs, unlike in Egg’s approach. Roughly, the use of *schon* in a *wh*-question should indicate that a fact *q* defeasibly entails that the issue raised in the RQ should not come up in conversation according to the CG (yet it does – entailment defeated!). This issue is brought up in form of a VP denoting a set of propositions, which we identify as the complement of *schon* of type $P_{\langle st, t \rangle}$. Preferably, the implicit answer to an RQ, which Egg

includes in his paraphrases of p , would be identified as the q -argument of *schon* or as entailed by the q -argument.

This way, hearers are triggered to search for q in their minds and realize for instance that their bringing up the issue, either literally as in (7) or implicitly as in (8), was incongruous. If *schon* in assertions marks an *unexpected fact*, as Egg describes p , we might say that *schon* in *wh*-questions marks an *unexpected issue*.¹⁰ For instance, the issue arising by enquiring about speaker B's options to help Hans in (8) is unexpected if the CG contains that *B was sick at the relevant time* (q) and could not have done anything (the answer to the RQ). In (9), the answer is not just deducible from some CG information but can itself be identified as q for being CG information. Bringing up the issue of who is perfect would therefore not be expected, judging from what we already know, but it is still brought up for contextual reasons:

- (9) *Wer ist schon perfekt?*
 'Who is [SCHON] perfect?'

Nevertheless, we will basically just treat *schon* as an RQ marker for the current purpose:

- (10) \llbracket SCHON $\rrbracket(Q_{\langle st, t \rangle})$: The answer to Q follows from the CG.
 (non-at-issue meaning)

(10) is quite close to Egg's (2013, 2012) account without referring to a specific answer. The paraphrase is designed to capture the common observation that "[i]n *wh*-questions, *schon* yields a rhetorical question" (Bayer et al. 2016: 594), but keep in mind that (10) is a stopgap solution in that it follows from rather than defines the meaning contribution of *schon*. The data in Section 2.6.2 shows that *schon*, unlike the paraphrase in (10), is not compatible with all kinds of rhetorical *wh*- or polar questions, which we would expect if a special "rhetorical *schon*" were available (see Meibauer 1986). Hence, to summarize, *schon* seems able to select complements of type $p_{\langle s, t \rangle}$, but also $Q_{\langle st, t \rangle}$, in which we are interested. Crucially, our working paraphrase of *schon* does not refer to the rhetorical interpretation of the question or its implicit answer.

¹⁰ Intuitively, the state of the CG can make the raising of an issue P unexpected in the same way as it can defeasibly entail that a proposition p does not hold, but a set of propositions cannot be negated like a proposition: $q \supset \neg p$, see (5), but $??q \supset \neg P$. Hence to formalize (5) as described would require a generalized notion of *entailment** reminiscent of Groenendijk and Stokhof's (1984) treatment of entailment between interrogatives. Algebraic semantics might also offer a solution by ways of "generalized complementation", with $\neg p = W - p$ and $\neg P = \wp(W) - P$. We thank Hans-Martin Gärtner for this suggestion.

2.4 A note on *denn*

The DiP *denn* is perceived as the interrogative DiP par excellence. Bayer (2018) glosses the meaning of *denn* in questions – the standard case – as ‘I’m wondering’. Its clitic form *n* has been described as semantically no more than an obligatory marker of interrogativity in Bavarian, e.g. Bayer (2012). As observed by König (1977), *denn*-questions cannot be asked completely out of the blue but require contextual justification, in a very general sense. Both *ja* and *denn* standardly occupy the highest position in combination with other DiPs and relate their complements to the discourse context, but arguably fulfill opposing discourse functions, with *ja*(p) justifying information in the context and *denn*(Q) justified by information in the context. Assuming, as for *ja* in (3), that the requirement for contextual justification can be inferred from a basic meaning, we suggest the paraphrase in (11). Nothing hinges on the exact wording:

- (11) $\llbracket \text{DENN} \rrbracket (Q_{\langle \text{st}, \text{t} \rangle})$: The answer to Q is required. (non-at-issue meaning)

This working definition, designed to capture the somewhat intangible context reference of *denn*, is applicable to *denn* in RQs as well, see Section 2.6.1.

2.5 Interaction between discourse particles

The question if combined DiPs interact is as controversial as the related problem of their semantic type. As expressives, several DiPs should apply *simultaneously* (see Zimmermann 2011): in *same-scope*, or *additive* analyses of combined DiPs, each DiP targets only the descriptive meaning in its scope (12-a). However, as Gutzmann (2015) shows, there are good reasons to assume that expressive, or in his terms *use-conditional*, items can themselves be the arguments of *use-conditional modifiers*. Hence, detecting an interaction between DiPs will not necessarily settle the dispute about the meaning type of DiPs.

- (12) a. Same scope:
 ja doch VP: ja(p), doch(p)
 (see Müller 2017; Gast 2008; Thurmair 1989; Doherty 1985)
- b. Different scope:
 ja doch VP: ja(doch(p))
 (see Rinas 2007; Ormelius-Sandblom 1997; Lindner 1991)

The most important argument for *different-scope approaches* (12-b) is the relatively strict order of most combined DiPs. Rinas (2007) observes that combined

DiPs need not be restricted to the intersection of the sets of sentence types that each DiP can occur in, as same-scope analyses predict. Hence in Rinas' presuppositional analysis, DiPs can take scope over each other.

Zimmermann (2011: 2030–2031) points out that a different-scope analysis yields the right results for certain combinations, whereas other combined DiPs seem to apply simultaneously. For the combination *ja doch*, which sometimes occurs in the reverse order, see Müller (2017), Lindner (1991: 196) already suggested that both DiPs are interpreted independently of one another. Müller (2017) proposes that the prevailing, in some cases obligatory, order *ja schon* is a grammatical reflex of iconicity with different discourse functions of utterances. Considering the high number of combinations of DiPs, however, she also casts doubt upon the idea that one analysis captures all cases. In effect, both interpretational mechanisms might exist side by side.

Most suggestive of an interaction between DiPs are cases in which a combination occurs in an environment incompatible with one of the DiPs on its own. Rinas (2007) points out that *doch nicht etwa* (*nicht etwa*: roughly 'not unexpectedly') needs to receive a different-scope analysis because its occurrence is less restricted than that of *nicht etwa*. This relates to observations by Thurmair (1989: 223, 83), who deems *doch* and *etwa* essentially non-combinable from a distributive perspective. She notices that *etwa* can only appear in imperatives and declaratives following *nicht* 'not'. Similarly, *doch* cannot appear in bare root infinitivals with a deontic interpretation by itself even though it is licit in imperatives:

- (13) a. *Leg die Bücher **doch** auf den Tisch!*
 put.IMP the books DOCH on the table
 'Put the books on the table!'
- b. *Die Bücher (***doch**/ ✓ **doch bitte**/ ✓ **doch nicht**) auf den Tisch*
 the books DOCH DOCH please DOCH not on the table
legen!
 put.INF
 '(Do not) put the books on the table (please)!' (see Gärtner 2017: 119)

Gärtner (2017: 119) mentions that this might be explained by assuming "that *doch* directly attaches to and operates on the particles following it." To our knowledge, there have been no attempts to gather experimental evidence for such an interaction, so we will make a start by looking at a configuration similar to (13). In Section 2.7, we will elaborate on our test case, *ja schon*-RQs, make a suggestion for the semantic treatment of the particle combination and explain why we are indecisive about its syntax.

2.6 Rhetorical questions and discourse particles

RQs are interesting for us inasmuch as they are able to host certain DiPs. Some general background knowledge on RQs is presented in Section 2.6.1. Section 2.6.2 turns to DiPs as markers of rhetoricity.

2.6.1 Rhetorical questions generally

RQs are famous for their assertive flavor: they do not require an answer (14-a), can be answered by speakers or hearers (14-b), and can be replied to by just expressing agreement (14-c):

- (14) a. *Don't tell him he forgot the documents – who's perfect? Just take them, will you?*
 b. *Who's perfect? Hearer or speaker: No one.*
 c. *Who's perfect? Hearer: You're right!*

Sadock (1974) observes that RQs, like assertions and unlike ISQs, are eligible arguments for discourse connectors such as *after all*. Han (2002) even treats RQs as assertions (of negative polarity) semantically. However, the clause type of RQs,¹¹ the verbs able to select rhetorical subordinate clauses (15), and the German DiPs that can be encountered in RQs (see Section 2.6.2) indicate that RQs are syntactically and semantically questions (see Meibauer 1986).

- (15) a. *Er fragte, wer das **schon** wisse.*
 'He asked who [SCHON] knew that.'
 (Meibauer 1986: 115)
 b. * *Er behauptete, wer das **schon** wisse.*
 'He asserted, who [SCHON] knew that.'

As Han's (2002) analysis falls short of wh-RQs with positive answers, Caponigro and Sprouse (2007) take the literal meaning of RQs and ISQs to be identical, the difference being that hearer and speaker are aware that both know the answer to an RQ. According to Meibauer (1986), RQs are primarily *indirect assertions*, i.e. the

¹¹ Meibauer (1986) shows that there is no special interrogative clause type, as all kinds of questions, indeed also declaratives and imperatives, can be used as rhetorical utterances:

- (i) a. *Show me a perfect person.*
 b. *I want to see a perfect person.*

primary illocution of any rhetorical utterance is assertive.¹² Importantly, RQs cannot be identified with the assertion of their answer. Meibauer (1986: 183) clarifies that “what is meant by a rhetorical question is not the answer [...] but an illocution.” [Translation Y.V.]¹³ Despite knowing the answer, speakers use RQs instead of assertions in order to make hearers think about the question (Meibauer 1986: 169). The *secondary illocution* of an RQ, a question, is thus preserved and speakers aim at convincing hearers of what is indirectly asserted by exploiting the felicity conditions of questions in a specific way (Meibauer 1986: 173). Biezma and Rawlins (2016) point out that RQs *signal* that the answer is in the CG and are felicitous where an assertion of the answer would be felicitous. Both Biezma and Rawlins (2016) and Caponigro and Sprouse (2007) observe that RQs do not have the same discourse impact as assertions: Caponigro and Sprouse demonstrate that RQs, unlike assertions, allow for the same answers as questions, and Biezma and Rawlins (2016) show that RQs disallow replies that would work for assertions.

These descriptions chime in well with the discussion in Section 2.3. While it seems indisputable that RQs signal that the speaker has an answer in mind, which he/she considers to be (entailed by) CG information, examples like (7) and (8) show that this answer does not have to be salient, known, or easily deducible to the hearer (see also Section 4).¹⁴ The interrogative character of RQs is especially obvious in RQs used to start discussions on controversial issues. Admitting that he does not see a real advantage for smaller companies in introducing a comprehensive personnel management software, a personnel manager initiates a lively debate posing the RQ in (16) in the Xing section ‘IT and personnel management’.

- (16) *Hallo, als Personaler in einer mittelständischen Unternehmensgruppe möchte ich einfach mal diese Frage stellen:
Wer braucht im Mittelstand **schon** ein umfassendes HR-IT-System?*
‘Hello, as a personnel manager in a Mittelstand company group, I would just like to ask this question:
Who needs [SCHON] a comprehensive HR IT system in the Mittelstand?’
(<https://www.xing.com/communities/posts/wer-braucht-schon-ein-umfassendes-hr-it-system-1005222467> [05/08/2018])

¹² Meibauer (1986) conceives of RQs as *indirekte Behauptungen* (indirect assertions). The distinction between primary and secondary illocutions goes back to Searle (1975).

¹³ “Das Gemeinte einer rhetorischen Frage ist nicht die Antwort [...] sondern eine Illokution.” Meibauer (1986: 183).

¹⁴ See also Krifka (2011: 1780–1781) and van Rooij (2003). Focusing on NPIs in the first place, they treat RQs as ordinary questions. In van Rooij’s account, the *rhetorical effect* of NPIs is a consequence of domain widening.

To initiate a debate rather than just voice his opinion, a speaker using an assertion instead of an RQ would have to clarify that the assertion is put up for discussion, or explicitly challenge his readers to convince him otherwise, which is unnecessary in (16). This highlights the differences between RQs and assertions at the illocutionary level, matching their semantics and syntax.

2.6.2 Discourse particles as markers of rhetorical questions

Whether hearers agree with or know the speaker's intended answer to an RQ, they should recognize the RQ as such. There are different ways to distinguish RQs from ISQs, e.g. only RQs can contain strong negative polarity items (NPIs, see Caponigro and Sprouse 2007: 123), negative RQs do not license NPIs (see Han 2002: 205), only RQs can be introduced by the discourse marker *after all* (see Sadock 1974), and RQs and ISQs also differ phonologically (see Wochner et al. 2015). German *wh*-questions containing the DiP *schon* can also only be rhetorical, no matter if there is a positive (7) or negative answer (8), see Meibauer (1986). However, *schon* is still ambiguous between a DiP and a temporal adverb in the following *wh*-question:

- (17) *Wer wird jetzt schon aufgeben?*
 who will now SCHON/already surrender
 'Who will surrender ([SCHON]) now (already)?'

In the reading as a temporal adverb,¹⁵ (17) can receive a reading as an ISQ or RQ. Thus, *schon* is neither necessary nor sufficient for marking rhetoricity in *wh*-RQs, and Meibauer (1986: 81) rejects the assumption of a special RQ clause type based on a selection of DiPs. Like Meibauer, we have decided not to assume a specific literal meaning for the DiP *schon* for the time being.¹⁶ While treating it as a mere marker of rhetoricity in *wh*-RQs, however, we are reluctant in adopting Meibauer's (1986: 124) claim that the DiP *schon* creates rhetoricity. We commit to saying that, by virtue of its still undefined abstract meaning, the DiP *schon* is only compatible with rhetorical *wh*-questions and thus has a strong disambiguating effect, see Section 2.3.

If "rhetorical *schon*" were distinct from the DiP that occurs in declaratives, creates a strong bias in declarative questions and is at least marked in (necessarily

¹⁵ Recall that Zimmermann (2014) pleads for a unified treatment of the adverb and DiP.

¹⁶ Meibauer (1986: 125) emphasizes that it cannot be ruled out that *schon* and *auch* have a literal meaning.

biased) polar questions,¹⁷ “rhetorical *schon*” should be found in rhetorical polar RQs. Moreover, *schon* and *auch*, between which Meibauer does not differentiate, are not distributed exactly alike. Both occur in wh-questions in their functions as DiPs only when the wh-questions are rhetorical, unlike *schon*-RQs, *auch*-RQs may receive only a negative answer:

- (18) a. (Cafeteria cook, at work confined to the kitchen, asking the service counter staff: ‘By the way, who does usually eat the stew?’
Service counter person: ‘Well,’)
wer isst schon / #auch Eintopf in der Mensa?
‘who eats [SCHON / AUCH] stew in the cafeteria? (The undergrads, of course, who can’t afford the decent stuff.)’
- b. (Greenish freshman to his tutor at 2 p.m.: ‘Can you excuse me from class, please? I think the stew today was bad.’
Tutor: ‘Well,’)
wer isst schon / auch Eintopf in der Mensa?
‘who eats [SCHON / AUCH] stew in the cafeteria? (You should have known better.)’

Thurmair (1989: 158–159) notes that *auch*-RQs typically ask for a reason where there is none:

- (19) (Ina: ‘Oh no, now I have grease on my silk shirt!’
Mother:) *Ja, warum ziehst du auch zum Kochen keine Schürze an?*
‘Well, why don’t you wear an apron when you’re cooking?’

Crucially, although *schon* is usually possible with negative answers, it is not possible in (19):

- (20) (Ina: ‘Oh no, now I have grease on my silk shirt!’
Mother:) *Ja, warum ziehst du (#schon) zum Kochen keine Schürze an?*
‘Well, why don’t you wear an apron when you’re cooking?’

Without pinpointing the semantics of these DiPs, we conclude that *schon* and *auch* have individual meanings on which their function as markers of rhetoricity is based. Since these lexemes, as DiPs, never occur in non-rhetorical wh-questions, to dub them ‘rhetorical DiPs’ helps to distinguish them from DiPs that fulfill the same function in wh-RQs and wh-ISQs, e.g. *wohl* (literally ‘presumably’) and *denn*.

¹⁷ See Zimmermann (2014: 18) on biased (declarative) questions with *schon*.

Without *schon*, a reading of (21) as ISQ is possible (e.g. in a conversation about students and their results in a multiple choice test):

- (21) *Wer ist denn (schon) perfekt?*
 ‘Who is [DENN (SCHON)] perfect?’

Meibauer (1986: 119) considers *denn* to play its usual role, which he describes as establishing a relation to a preceding utterance.¹⁸ Since *denn* only marks (contextually motivated) questions, we conclude that RQs can be marked by different DiPs as rhetorical utterances and as questions simultaneously. It might seem as if there was a slight tension between the meaning of *denn*, see (11), and the meaning of *schon*, see (10), but it is no more contradictory to express with *denn schon* that a question requires an answer that follows from the CG than to ask a question and signal with *schon* that its answer follows from the CG. In addition, according to Egg (2012: 300), the CG is not closed under deduction.¹⁹ Therefore, a hearer aware of all information from which the answer to a question follows may not have drawn the relevant inferences that a speaker strives to elicit by using a *denn schon*-RQ.

Despite the *shared knowledge*-component of both *ja* and RQs, RQs cannot host *ja*.²⁰ Neither internet nor corpus searches yield any hits for the unacceptable string in (22):

- (22) * *Wer ist ja perfekt?* (see (9))
 ‘Who is [JA] perfect?’

According to the distribution of *ja* and *denn*, RQs are questions (see also Thurmair 1993). An anonymous reviewer points out that the ban on *ja* in RQs was used as an argument against the view that DiPs are licensed at a pragmatic level. Thurmair (1993: 34) considers it at least possible that a DiP like *ja* might appear in an RQ if DiPs were dependent on the illocutionary type or communicative purpose of an utterance. However, recall that the discussion in Section 2.6.1 showed that the illocutionary resemblance between RQs and assertions is rather limited, and even assuming that *ja* operates at the speech act level (e.g. Bayer 2016), it need not be expected to operate on the indirect assertions that make RQs eligible arguments for discourse connectors such as *after all* (see Sadock 1974), rather than on the secondary illocutions, questions.

¹⁸ Following König (1977), we find this description a little too restrictive, as *denn*-questions can relate utterances to the extra-linguistic context as well.

¹⁹ Egg (2012) points this out because speakers acknowledge with *schon(p)* in assertions that *p* defies CG inferences.

²⁰ This study was initiated by the question why *ja* should not occur in RQs. We thank Maribel Romero for bringing up this issue a long time ago and for continued discussions.

Additionally, *denn* but not *ja* was argued to be compatible with VPs denoting sets of propositions of type $P_{\langle st, t \rangle}$. In short, there are pragmatic as well as structural reasons why *ja* is impossible in RQs, even without reference to a mismatch between *ja* and syntactic features or semantic operators in the clausal C system. Clauses like (22) are intuitively clearly unacceptable, and the empirical evidence of RQs with just *ja* is non-existent, as far as we can tell. We conclude that *ja* in combination with other DiPs can only be found in RQs because it can be interpreted differently than when it occurs on its own.

2.7 *ja schon* in rhetorical questions

Although illicit in RQs on its own, *ja* is exceptionally found in RQs combined with other DiPs (and adverbs). Intuitions on the data out of context differ, but speakers agree that *ja* is more tolerable above pertinent adverbs and DiPs:

- (23) *Gut, aber wer ist ja *(schon) restlos zufrieden in diesem Leben?*
 well but who is JA SCHON completely content in this life
 ‘Well, but who is completely content in this life?’
 (<http://www.yelp.de/biz/lebensbaumkreis-am-himmel-wien>
 [10/28/2016])

Schon is not the only DiP that occurs with *ja* in RQs. Other DiPs, and possibly adverbs, can play the same crucial role for the overall acceptability of a *ja*-RQ:

- (24) a. *Wer hat ja *(auch schon) was gegen ein paar harmlose „Fitmacher“?*
 ‘Who has [JA AUCH SCHON] anything against a few harmless “uppers”?’
 (<https://www.spiesser.de/artikel/tabletten-fuer-alle-wie-unser-leben-durch-pillen-besser-wird> [04/13/2016])
- b. *Wer hat ja *(schlieÙlich schon) einen Netzanalysator in einer normalen Haushalts NSHV.*
 ‘Who has [JA] after all [SCHON] a net analyzer in a normal household LVMD.’
 (https://forum.electronicwerkstatt.de/phpBB/Erfahrungsaustausch/erfahrung_mit_zwischenzaehlern-t116841f39_bs0.html [06/08/2018])
- c. *Aber wer konnte ja *(auch) ahnen dass die (nicht durchgeföhrt) Übung mal bitterer Ernst werden sollte.*
 ‘But who [JA AUCH] could anticipate that the drill (which was not conducted) was once going to be deadly serious.’
 (<http://www.zeit.de/2012/31/costa-concordia-sicherheitskonzept/komplettansicht> [09/08/2016])

The intuition that the unattested variants with just *ja* are much worse seems robust even among speakers who do not readily accept the attested RQs with *ja* and other DiPs, i.e. *ja* cannot occur in any kind of questions, including RQs, on its own, but it improves in the company of *schon* (and other DiPs). A same-scope analysis of combined DiPs cannot explain the findings. If, however, a mechanism is available to interpret a DiP as modifying another DiP or adverb, then speakers should make use of this mechanism when encountering a DiP in a combination with other items in an environment in which the DiP cannot occur on its own. Combined *ja schon* should hence be measurably more acceptable in RQs than just *ja*.

2.7.1 Good reasons to test *ja schon*-RQs

We chose *schon* to test for an interaction between *ja* and another DiP in our experiments because *schon* is relatively frequent. Testing *auch* would have complicated matters as all RQs containing *auch* seem to convey irony and/or sarcasm, see (24). As an anonymous reviewer points out, unknown factors like the type of wh-word (asking for subject or object) or expected answer (negative or positive) might affect the acceptability of *ja*. If so, we suspect that this will most likely be due to differences in the contextual conditions under which different wh-RQs are used. For instance, unlike *who*-RQs like (23) and (24-b), *why*-RQs might significantly more often occur in situations in which speakers confront addressees about their unreasonable behavior than in situations in which speakers want to express shared agreement among the interlocutors. If our suspicion is correct, then the impact of the type of wh-word on the acceptability of *ja* is not a question of grammaticality. Either way, it is desirable to keep the conditions under which to test for the potential interaction between *ja* and another DiP both plausible and stable, and even if only very specific RQs are able to display the phenomenon we are concerned about, we can still test for it *in this environment*. In order to test for the interaction between two DiPs, we therefore modeled our target sentences after the simplest and most natural findings like (23).

Regarding a potential interaction between combined DiPs, *ja schon*-RQs seem ideal in that *ja schon* resembles the combinations of DiPs for which Zimmermann (2011: 2030–2031) suggests combined meanings, i.e. *ja wohl* and *doch wohl*, which consist of DiPs that occur at different heights of attachment (see Coniglio 2008: 115), with *wohl* occurring relatively low. *schon* is even lower than *wohl*, i.e. *schon* does not precede *ja* (or even only *wohl*) in combinations:

- (25) **schon* > *ja* > **schon* > *wohl* > *schon*

2.7.2 Outline of a possible analysis

An improvement of *ja*-RQs due to other expressive elements in the scope of *ja* strongly suggests an interaction and a different-scope approach. We propose that *ja*, when it occurs with *schon* in wh-RQs, operates on the specific contribution of *schon* because *ja* requires a propositional argument and in the wh-RQs with *ja*, only a DiP like *schon* contributes an argument of type $p_{\langle st \rangle}$.²⁵ To specify, we distinguish several variants of the (rhetorical) question in (23) with and without DiPs. As (30-b) shows, the at-issue meaning is the same for any version of the question in (30-a):

- (30) a. *Wer ist (denn / ja) (schon) restlos zufrieden in diesem Leben?*
 ‘Who is ([DENN] / [JA]) ([SCHON]) completely content in this life?’
 b. At-issue meaning:
 $Q_{\langle st, t \rangle}$: Who is completely content in this life?

According to the working definition of *schon* in (10), we can paraphrase the non-at-issue meaning of the variant in (31-a) as in (31-b), with *schon* operating on the at-issue meaning of (31-a), i.e. the object of type $Q_{\langle st, t \rangle}$ in (30-b):

- (31) a. *Wer ist schon restlos zufrieden in diesem Leben?*
 ‘Who is [SCHON] completely content in this life?’
 b. Non-at-issue meaning:
 $[[SCHON]]((30-b)_{\langle st, t \rangle})$: The answer to (30-b) follows from the CG.

The variant featuring *denn* works completely parallel to (31) because *denn* selects the same argument as *schon* – the object of type $Q_{\langle st, t \rangle}$ in (30-b), the at-issue meaning (32-a). Assuming the meaning of *denn* in (11) yields (32-b):

²⁵ An interpretation of *ja* in RQs according to which the RQ is an uncontroversial discourse move, in the sense of being sharedly expected, is implausible as we would falsely predict *ja* to turn up in expectable ISQs:

- (i) (A researcher calling treasury:
 ‘As you know, we are doing the calculations for our next round of field studies. We know now how long we are going, and how much the travel expenses and accommodation will cost, so, you know, we only need to know one more thing now:’)
*Wie viel Geld steht uns (*ja) insgesamt zur Verfügung?*
 ‘How much money do [JA] we have at our disposal altogether?’

We thank Manfred Krifka for discussion and this argument.

- (32) a. *Wer ist denn restlos zufrieden in diesem Leben?*
 ‘Who is [DENN] completely content in this life?’
 b. Non-at-issue meaning:
 $\llbracket \text{DENN} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle})$: The answer to (30-b) is required.

If both *denn* and *schon* occur in the same question, they have the same scope and make two separate contributions in the non-at-issue dimensions:²⁶

- (33) a. *Wer ist denn schon restlos zufrieden in diesem Leben?*
 ‘Who is [DENN] [SCHON] completely content in this life?’
 b. Non-at-issue meaning 1:
 $\llbracket \text{SCHON} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle})$: The answer to (30-b) follows from the CG.
 c. Non-at-issue meaning 2:
 $\llbracket \text{DENN} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle})$: The answer to (30-b) is required.

For *ja schon*-RQs, however, a same-scope analysis is impossible because *ja* cannot modify objects of type $P_{\langle \text{st}, \text{t} \rangle}$, see the definition of *ja* in (3). Employing *ja* by itself in an RQ as in (34-a) results in a type mismatch, see (34-b):

- (34) a. **Wer ist ja restlos zufrieden in diesem Leben?*
 ‘Who is [JA] completely content in this life?’
 b. Non-at-issue meaning:
 $\llbracket \text{JA} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle}) = \#$: Type mismatch: A set of propositions cannot be uncontroversial.

Hence, for any *ja schon*-RQ, a different-scope reading is the only option:

- (35) a. *Wer ist ja schon restlos zufrieden in diesem Leben?*
 ‘Who is [JA] [SCHON] completely content in this life?’
 b. Non-at-issue meaning 1 ($p_{\langle \text{st} \rangle}$):
 $\llbracket \text{SCHON} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle})$: The answer to (30-b) follows from the CG.
 c. Non-at-issue meaning 2:
 $\llbracket \text{JA} \rrbracket(\llbracket \text{SCHON} \rrbracket((30\text{-b})_{\langle \text{st}, \text{t} \rangle}))_{\langle \text{st} \rangle}$: It is uncontroversial that the answer to (30-b) follows from the CG.

As argued in Section 2.3, *schon* is not a mere marker of rhetoricity, although its meaning is only compatible with *wh*-RQs. If we assumed that the information conveyed by *schon* was merely identical to the rhetorical reading of the question, we

²⁶ See Section 2.6.2 for a discussion of the apparent tension between the meanings of *schon* and *denn*, and Section 4.1 for illustrations of the use conditions of *denn schon*-RQs.

might want to find a way to explain why *ja* cannot modify the rhetorical reading if it is indicated by other means. An explanation could be that expressives cannot take scope over non-lexically encoded information, behaving as described by Potts (2005), whereas lexical expressives may be visible to other expressives in the sense of Gutzmann (2015).²⁷

If DiPs are expressives, the analysis sketched for *ja schon*-RQs in (35) treats *ja* as an expressive modifier in the sense of Gutzmann (2015). Thus, *ja* operates on the highly abstract propositional information contributed (conventionally) by *schon*, which, like any other expressive, contributes conventionally implicated meaning with “the same semantic force as a main clause assertion” (Potts 2005: 68), the standard environment for *ja*. An anonymous reviewer points out that the assumption of *ja* operating on the meaning contribution of *schon* remains problematic: Gutzmann’s (2015) system is more liberal than Potts’ (2005) or McCready’s (2010) and expressive propositions are not isolated at once, so that they remain available as arguments of expressive modifiers in principle, but there are no types in Gutzmann’s system that take expressive propositions as arguments.

First, we agree that we have only sketched a proposal, as the goal of this section was to make a suggestion for how to deal with data that cannot be accounted for at the moment. Our suggestion should be seen as a preliminary to our first experiment, which aims at determining how acceptable *ja* can become in the presence of *schon* in RQs. Furthermore, the natural findings of *ja*-DiP-RQs are highly marked, which is likely indicative of interpretive difficulties. Any analysis would presumably reflect this. In addition, we consider the expressions that Gutzmann presents exemplary although we cannot provide a more detailed discussion for reasons of space.

Importantly, the question whether Gutzmann’s system is fit to capture *ja schon*-RQs arises only if DiPs are expressive items and contribute conventionally implicated meaning. A comparison by Grosz (2016b) of use-conditional and presuppositional approaches to DiPs shows the evidence to be inconclusive. All things considered, we conclude that any proof of an interaction between *ja* and *schon* will not help to decide between the two approaches because we do not consider such an interaction as insurmountably problematic to Gutzmann’s (2015) system.

²⁷ Maribel Romero (p.c.) pointed out that it may generally hold that lexical operators cannot scope over silent operators. Whereas (i) has a reading in which the negation may scope over the universal quantifier (e.g. my vegetarian pet owl), such a reading is excluded with the silent generic operator in (ii).

- (i) All owls do not hunt mice $\neg(\forall)/\forall(\neg)$
- (ii) Owls do not hunt mice $\text{GEN}(\neg)/\text{*}\neg(\text{GEN})$.

Finally, while we are interested in the acceptability of a very specific phenomenon, the problems with its theoretical analysis are much the same for other comparable data, only a fraction of which was mentioned in Section 2.5. It would be a pity if the most intriguing data were hardly even presented due to theoretical difficulties. Thus we offer a first attempt at clarification, hoping to spur further debate. In a nutshell, we explored the interesting phenomenon of *ja schon*-RQs experimentally, detected a subtle yet measurable effect of *schon* on the acceptability of *ja*, can consequently report on noteworthy difficulties in substantiating an interaction between DiPs, found, again, that context seems to influence the acceptability of DiPs, and were able to describe subtypes of RQs that are not often considered as such in the pertinent literature.

3 Experiment 1: Acceptability of *ja* and *schon*

The goal of this experiment was to determine if the presence of *schon* detectably affects the acceptability of *ja* in RQs.

3.1 Method

We tested 30 participants (age 19–48 years, mean 24 years; 5 male; 1 left-handed), all self-declared German native speakers and students of the University of Konstanz. Participants received a reimbursement of 5 €. The materials consisted of 28 experimental items interspersed with 34 fillers (24 from a different experiment) resulting in 62 stimuli per participant. Each experimental item consisted of a context clause followed by the target RQ. We systematically varied the occurrence of *schon* and *ja* in a 2×2 design (36-c):

- (36) a. Context
Ab und zu ist es bewölkt,
 ‘From time to time it is cloudy,’
- b. Target
aber wer hat (ja) (schon) das perfekte Wetter in den Herbstferien?
 but who has JA SCHON the perfect weather in the fall.holidays
 ‘but who has perfect weather in the fall holidays?’
- c.

Conditions	JA-∅	JA-SCHON	∅-∅	∅-SCHON
Content	<i>ja</i>	<i>ja schon</i>		<i>schon</i>

All target clauses conformed to the following structure: All were introduced by the conjunction *aber* ‘but’, the subject interrogative pronoun *wer* ‘who’, and a finite verb in the present tense, for example *hat* ‘has’. Next came the slot with the DiP(s) according to the experimental conditions, followed by an object argument consisting of a determiner, an adjective and a noun, followed by a PP. The form of the target clauses *aber wer ... V_{fin} ja schon* was motivated by corpus findings, see (23)/(46) and (50). The implicit answer to the RQs was always negative (*Nobody!*).

The procedure was a rating task with a reference sentence (anchor) and an open scale, similar to *thermometer judgment* (Featherston 2009, Featherston 2008). The current task design was as follows: We presented the participants a single reference sentence (37), a declarative with a center-embedded object clause which is possible but dispreferred to the right-extraposed variant. This reference sentence was associated with a score of 0. We asked participants to judge the acceptability of the target sentences in comparison to the reference sentence. We described it as sentences being *better* or *worse*, *easier* or *harder to understand*. We stated explicitly that we are not asking for prescriptive rules or “good” writing style. We also provided some examples with respective proposals for scores.

- (37) *Die Angestellten haben, dass der Chef Probleme hat, nicht sofort*
 the employees have that the boss problems has not immediately
bemerkt.
 noticed
 ‘The employees did not immediately notice that the boss has problems.’

If a target sentence was *worse* than the reference sentence, participants should associate a negative score. If it was *better*, they should assign a positive score. The number range was open but only integers allowed.

The procedure was programmed in the python experiment suite *PsychoPy* (Peirce 2007) and run in a psycholinguistics lab. The experimental stimuli were randomized according to the Latin square design, so each participant saw each of the 28 items in exactly one of the four experimental conditions. The total list of stimuli was randomized by the experiment software. The experiment took approximately 15 minutes.

3.2 Predictions

The condition without any DiPs (\emptyset - \emptyset) should be acceptable. The \emptyset -SCHON condition should be equally good or even better since it marks an RQ explicitly. We expect the JA- \emptyset condition to receive significantly lower ratings than the two aforementioned ones because *ja* is virtually impossible in questions. The most interest-

ing predictions concern the condition with both DiPs (JA-SCHON): Under the hypothesis that DiPs can modify the meaning of other DiPs, we expect an interaction of the two conditions that might yield ratings as in the \emptyset - \emptyset condition. This is motivated by corpus findings. Under the hypothesis that multiple DiPs are interpreted in parallel we would expect that the presence of *ja* leads to the same decrease in acceptability with or without *schon*.

3.3 Data analysis and results

We analyzed the data using the statistical software package *R* (R Core Team 2015). Some data cells had to be removed because they contained no/missing data. We used linear mixed-effects models of the *lme4* package (Bates et al. 2015) to analyze the z-transformed response scores. Following Barr et al. (2013) we tried to fit a maximal random effect structure for the LME models, but had to simplify the random effect structure to obtain model convergence. We performed a model criticism as recommended in Baayen and Milin (2010) by excluding absolute standardized residuals exceeding 2.5 standard deviations. We report the results of the criticized model, taking effects as significant if the respective t-value exceeds an absolute value of 2. The fixed effects of the final model for this experiment were the presence vs. absence of the particles *ja* and *schon* as well as their interaction. The random effect structure of the model included random intercepts for participants and items and the two fixed effects as random slopes for both participants and items.

A graphical summary of the results is given in Figure 1 and the model output of the fixed effects of the criticized and raw models is given in Table 1. The statistical analysis revealed main effects for JA ($t = 11.6$) and SCHON ($t = 3.8$) indicating that *ja* led to lower and *schon* to higher acceptability judgments, as visible in Figure 1. The negative value of the interaction term of the raw model indicates that the difference between JA- \emptyset and JA-SCHON is larger than between \emptyset - \emptyset and \emptyset -SCHON which is also visible in the plot. However, that the values for this interaction term decreased considerably in the model criticism indicates that the difference is mostly driven by outliers.

3.4 Discussion

In interpreting our results, note that the value 0.0 on the Z-score scale in Figure 1 does not mark the threshold of grammaticality but the mean level of acceptability in relation to the reference sentence given in (37). Negative values do not indicate ungrammaticality, just lower acceptability than the mean acceptability. To give

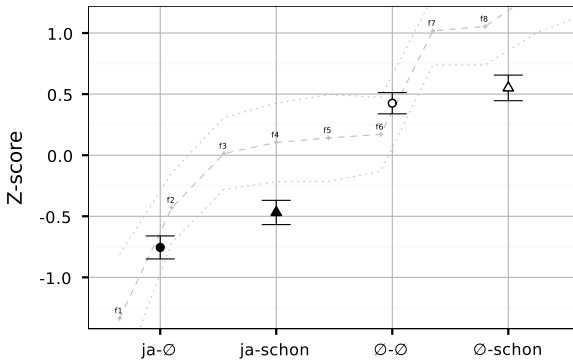


Figure 1: Mean acceptability ratings of experiment 1 (95% CIs). Background shows mean acceptability rating of filler items (95% CIs).

Table 1: Output of the LME model for experiment 1 (treatment coding).

	Criticized model			Raw model		
	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>
Intercept (JA-∅)	-0.73	0.07	-10.35	-0.75	0.07	-10.40
JA	1.16	0.10	11.63	1.18	0.10	11.45
SCHON	0.29	0.07	3.84	0.29	0.08	3.44
JA:SCHON	-0.06	0.07	-0.85	-0.16	0.09	-1.77

the reader an impression of the realm of acceptability, we included the judgments for independent fillers in Figure 1, of which three are given in (38), all of which are prescriptively grammatical. The underlined target utterance of filler item f1 in (38-a) has received considerably lower judgments than the JA-∅ condition even though (38-a) is not ungrammatical. The distribution of the fillers also shows that neither high nor low judgments for the experimental conditions are constrained by ceiling or floor effects. Hence the results only allow statements regarding the relative acceptability of the experimental conditions.

- (38) a. *(Ein Mörder treibt in unserer Gegend sein Unwesen. Ich ging dennoch hinaus, um mich mit meinen Freunden zu treffen.) Letzten Endes kann ich mir nicht hinauszugehen auch nicht vorstellen, auch wenn die Gefahr groß ist. (f1)*
 ‘(A murderer is walking abroad in our region. I still went outside to meet with my friends.) Eventually I cannot imagine not going out either, even when the danger is great.’

- b. (*Das Jahrestreffen unserer Ortsgruppe des Wildblumenvereins war sehr erfolgreich.*) Aber wer brachte denn den elften Kuchen für das Dessert? (f4)
 ‘(The annual meeting of our local chapter of the wildflower association was very successful.) But who [DENN] brought the eleventh cake for dessert?’
- c. (*Diese Eltern verstehen einfach nicht, woran es liegt. Bereits hundertmal haben sie ihre Kinder vor dem heißen Bügeleisen gewarnt. Trotzdem greifen sie immer wieder nach dem Kabel.*) Eigentlich ist die Ursache ganz simpel, denn Kleinkinder nehmen die Welt mit ganz anderen Augen wahr. (f8)
 ‘(These parents just don’t understand what’s wrong. They have already warned their children a hundred times about the hot clothes iron. Still they keep reaching for the cable.) Actually the cause is pretty simple because toddlers see the world with completely different eyes.’

Against this background we can assess if the effects for the individual DiPs conform to our predictions: Taking the bare \emptyset - \emptyset -RQ as center of reference, we can state that *ja* led to a large decrease in acceptability and *schon* led to a small increase in acceptability. Clearly most interesting are the results for the combination, i.e. the JA-SCHON condition. Against our predictions, *schon* did not cancel out the negative effect of *ja* nor remain ineffective. Instead, *schon* mitigated the negative effect of *ja* but left the *ja schon*-RQ still less acceptable than the bare \emptyset - \emptyset -RQ, which falls in line with the fact that findings of *ja schon*-RQs are rare and controversial. It was suggested to us that speakers might decide to disregard *ja* in *schon*-RQs, but the decrease for JA- \emptyset and JA-SCHON show that speakers notice *ja* in RQs.

Note that the statistical analysis revealed that the simultaneous presence of both *ja* and *schon* does not yield an effect that is significantly different than the sum of the effects of adding each DiP individually. However, this does not imply that the decrease of adding *ja* to a bare RQ and to a *schon*-RQ is due to the same cause, despite its comparable effect size. While the effects of *ja* and *schon* need individual explanations, it is a theoretical matter whether the effect of *ja schon* can be assumed to be the combination of these individual effects or must be attributed to a different cause. We assume the latter possibility because a simple combination is theoretically implausible, as discussed shortly.

First, the negative effect of *ja* is unanimously expected under all accounts although for different reasons. As laid out in detail in Section 2.7, we assume that

the main reason for the decrease in acceptability is that the object in the scope of *ja* is of the wrong semantic type. The positive effect of *schon* was unexpected, but we assume that it is caused by the explicit marking of the RQ as rhetorical, thereby making the interpretation more easily available. Furthermore we interpret the higher acceptability rating of *ja schon*-RQs in contrast to *ja-∅*-RQs as an indication that *ja* must modify the information conveyed by the latter DiP, as proposed in light of the authentic findings in Section 2.7. This explains why we never found *ja* in ISQs, and in the small number of RQs, it was never the only DiP. We further assume that the reason why *ja schon*-RQs are more degraded than bare *∅-∅*-RQs is due to the specific felicity conditions of those RQs that have not been satisfied in the experimental design. A detailed illustration of these felicity conditions will follow in Section 4.²⁸

Turning now to alternative interpretations of the statistical results, assuming an additive effect of the two DiPs would mean that *schon* improves both *ja*-RQs and *∅*-RQs to the same degree for the same reason. This would require a highly implausible model of acceptability judgments. It would imply that speakers compute two judgments for one utterance, a quite good one for *schon(Q)* and a quite bad one for *ja(Q)*, and then instead of being disturbed by the mismatch, sum it up as not so bad. Put differently, adopting the above explanations for the individual effects, according to which *schon* makes the rhetorical reading more easily available and *ja* is incompatible with questions, why should hearers be more tolerant if the reading with which *ja* is not compatible is more readily available? Hofmeister et al. (2014) show in a series of acceptability experiments that multiple grammatical violations may add up, as well as multiple processing difficulties. Crucially, however, processing difficulties only affect acceptability judgments in the absence of grammatical violations, i.e. grammatical violations overrule processing effects. Transferred to our data this leaves two possibilities: Either, the difference between bare RQs and *schon*-RQs results from the violation of a requirement according to which an RQ must be marked by *schon*, a view which we believe is indisputably unwarranted. Or this difference indicates that *schon* facilitates the interpretation of the utterances. In this case, a decrease caused by the absence of *schon* should not add up with a decrease caused by the presence of an incompatible lexeme. If the DiPs were interpreted independently, as assumed under a same-scope approach, we would rather expect equally low ratings for *ja* in any RQ, with *schon* or without, i.e. the negative impact of the grammatical violation caused by *ja* would prevail.

²⁸ See Keller (2001) and Sorace and Keller (2005: 1508–1510) for illustrations how missing (appropriate) context decreases acceptability judgments.

An additive interpretation of the effects leads to even more questionable consequences: We would have to conclude that the natural findings are the product of speakers making use of the mitigating effect of *schon* in order to be able to use *ja* despite the mismatch with the semantics of a question. Alternatively, if we assumed that the meaning of *ja* does not apply to *schon*, but that it was somehow possible to apply it to the meaning of the interrogative after all, it is unclear why the presence of *ja* would be tied to the presence of DiPs like *schon* at all. If speakers desire to make use of the discourse function of *ja* in an RQ, and if the effect of *schon* is really negligible, we would expect to find *ja* in RQs on its own as well, contrary to the facts. In consideration of these inconsistencies of an additive interpretation and the strict order of multiple DiPs, we interpret the observed improvement as indicating an interaction of *ja* and *schon*, favoring a different-scope approach.²⁹

Taking stock, we have a number of natural findings in which *ja* seems rather acceptable in a position to the left of other DiPs, and we were able to measure that the presence of *schon* improves the overall acceptability of RQs with *ja*. We cannot take *ja* as operating on the VP meaning because *ja* cannot apply to a set of propositions, so we take it as operating on the information conveyed by the DiPs in its scope. These DiPs are thus necessary to make sense of *ja*, which explains the slight improvement, but they are not sufficient to make *ja* completely acceptable in the RQs. In the words we used to ask for the speakers' judgments, *ja (schon)*-RQs are worse or harder to understand than the versions without *ja*, but *ja schon*-RQs are better or easier to understand than *ja-∅*-RQs.³⁰

Finally, the overall acceptability of *ja schon*-RQs cannot be reduced to grammaticality. Recall that we have argued in Section 2.2 that the acceptability of DiPs, especially *ja*, is heavily dependent on contextual conditions, that this is especially crucial when dealing with less canonical findings such as *ja* in semantically embedded environments, but that the wrong context renders even standard cases of assertions with *ja* unacceptable, see (4). Hence, we need to take a closer look at the discourse function of the authentic *ja schon*-RQs in their natural contexts and compare it to other RQs, specifically *denn schon*-RQs.

²⁹ Clearly, the logic of the different-scope approaches also applies to the idea of *ja schon* as a lexical unit. We favor the compositional approach because it is more insightful and easier to falsify.

³⁰ An anonymous reviewer remarks that, to his or her own surprise, he or she shared the intuitions on the natural findings on which we reported, but then the experimental results had the negative effect of casting doubt on the original intuitions. Note, however, that our experiment was designed to test only the influence of *schon* on the acceptability of *ja* in RQs. The effect might have been greater if the interpretive mechanism was less marked.

4 Felicity conditions of *ja schon*-RQs

The effect of *schon* on *ja* is more subtle than anticipated in our experiment, plausibly because the overall acceptability of *ja*-RQs is influenced by factors not targeted by the experimental design. Unlike the experimental data, the natural occurrences are production data, i.e. speakers planned their utterances as RQs with *ja* and do not run into any interpretive traps that would decrease the acceptability ratings for making the interpretation difficult.³¹ In the following, we look at contexts in which speakers might not possibly use *ja*, see Section 4.1, and those in which they decided to utter *ja schon*-RQs, see Section 4.2. Section 4.3 contrasts instances of *wer weiß ja schon p* ‘who knows [JA SCHON] p’ and *wer weiß denn schon p* and their contexts. As acceptability subsumes felicity and the latter has featured prominently in other non-canonical *ja*-utterances, we suspect that the intuitions on the natural *ja schon*-RQs are not wrong and they are actually more acceptable than the experimental data, see Section 4.4.

4.1 Rhetorical questions without shared awareness of the answer

Given the rather small number of natural findings, speakers seldom express by way of *ja schon*-RQs that it is uncontroversial that the answer to a certain question follows from the CG. As RQs have been described as questions to which both speaker and hearer know the answer and are aware of the shared knowledge, see Section 2.6.1, this is a bit surprising. We would either expect *ja* to appear in RQs more often, as it seems to match the notion of shared awareness of the answer, or we might expect it not to occur at all for being redundant (on top of difficult).

On closer inspection, many of the RQs in Section 2.6.1 are uttered in contexts where the speaker signals that the answer is in the CG in the sense of Biezma and Rawlins (2016) but the hearer is ignorant of the answer or the issue is controversial. In fact, run-of-the-mill RQs as in (18) above or (39) are not captured by definitions that require shared awareness (of the shared awareness) of the answer, cf. Caponigro and Sprouse (2007: 129). An RQ picking up on a prior ISQ, for instance, suggests that the hearer should be aware of the answer in spite of a context signaling that this is not the case. Accordingly, the speakers in (18-a) above or (39) do not give the hearers more time to think again but proceed to provide the answer themselves right away:

³¹ We thank Hans-Martin Gärtner for this suggestion.

- (39) A: *Wer ist **denn** Klaus?*
 ‘Who is [DENN] Klaus?’
 B: *Klaus? Wer wird das **schon** sein, mein Mann natürlich!*
 ‘Klaus? Who will that [SCHON] be, my husband of course!’
 (see <http://witze-ueber-witze.de/urlaubswitze-81.html> [09/13/2016])

Further, hearers may well disagree either with the expected answer (40) or the implication that the initial question was stupid (41):

- (40) A: *Du hättest Hans helfen müssen.* (see (8))
 ‘You should have helped Hans.’
 B: *Was hätte ich **schon** tun können?*
 ‘What could [SCHON] I have done?’
 A: ‘Well, I know you were ill, but you could have called him!’
- (41) A: *Wer ist **denn** Klaus?*
 ‘Who is [DENN] Klaus?’
 B: *Klaus? Wer wird das **schon** sein, mein Mann natürlich!*
 ‘Klaus? Who will that [SCHON] be, my husband of course!’
 A: ‘Hey, how should I know?’

In such cases it is not uncontroversial that the answer to the question follows from the CG. Crucially, we would not predict *ja* in such cases:

- (42) A: *Du hättest Hans helfen müssen.*
 ‘You should have helped Hans.’
 B: # *Was hätte ich **ja schon** tun können?*
 ‘What could [JA SCHON] I have done?’
- (43) A: *Wer ist **denn** Klaus?*
 ‘Who is [DENN] Klaus?’
 B: *Klaus? # Wer wird das **ja schon** sein, mein Mann natürlich!*
 ‘Klaus? Who will that [JA SCHON] be, my husband of course!’

4.2 Reasons to mark shared awareness lexically by using *ja*

Intuitively, the *ja schon*-RQs in (42) and (43) seem much worse than the naturally occurring *ja schon*-RQs, for instance (23), repeated in (44), or (24-b), repeated in (45):

- (44) *Gut, aber wer ist **ja schon** restlos zufrieden in diesem Leben?*
 ‘Well, but who is completely content in this life?’

- (45) *Wer hat **ja schließlich schon** einen Netzanalysator in einer normalen Haushalts NSHV.*
 ‘Who has [JA] after all [SCHON] a net analyzer in a normal household LVMD.’

That speaker and hearers share an awareness of the answer is obvious in the truism in (44), but it arguably also holds for (45) (by an electrician asking other experts for advice). However, shared awareness of the answer is not unusual in RQs of a different type than (40) and (41). To use *ja*, it should additionally be useful to point out that the answer is uncontroversially shared. This expectation is borne out in the findings. Consider (44) and (45) in their natural contexts:

- (46) [...] *Man geht im Kreis herum und sucht nach dem “eigenen” Baum. Meiner ist übrigens die Zypresse, angeblich der Baum der treuen Menschen, die aber ständig mehr brauchen, als sie bereits besitzen. Gut, aber wer ist ja schon restlos zufrieden in diesem Leben? Meine Füße werden schnell kalt, sehr kalt. [...]*
 ‘[...] You walk in a circle and look for your “own” tree. Mine, by the way, is the cypress, allegedly the tree of people who are faithful but always need more than they already have. Well, but who is [JA SCHON] completely content in this life? My feet are quickly getting cold, very cold. [...]
- (47) *Hat jemand gute Erfahrungen mit einem bestimmten Hutschienenzähler? Darf auch ruhig ein wenig verspielt sein. 🤪 (Wer hat **ja schließlich schon** einen Netzanalysator in einer normalen Haushalts NSHV. So etwas findet man auch in vielen Industrie NSHV-en nicht.)*
 ‘Has anyone had good experiences with any top-hat rail meter? Can [AUCH RUHIG] be a little playful. 🤪 (Who has [JA] after all [SCHON] a net analyzer in a normal household LVMD. You don’t find something like that in many industrial LVMDs either.)’

The context of (23)/(44), see (46), is a report on a café-restaurant in a park. The author is annoyed by the esoteric aspects of the venue (a circle of Celtic horoscope trees), which she only mentions as feature attractions (in the wider, omitted context) while praising the natural beauty and physical lighting conditions of the wintry ambience. With *ja* she stresses that she considers the readers to be aware of the shared answer to the issue. Unlike in (8)/(40) and (39)/(41), the issue does not arise from an utterance by the hearer, but only circumstantially, from the location.

Recall from Section 2.2 that *ja* relates the information in its scope to other information in the context. Paraphrasing the causal-explanatory discourse relation

of information in the scope of *ja* to contextual information is trickier in the case of RQs than in the case of two assertions, but we suggest that *ja* still marks the CEC relation paraphrased in (49).

When *ja* scopes over subsentential information, it often relates this information to the superordinate sentence.³² It therefore seems patent to try to relate the information in the scope of *ja* to information outside the RQ proper. In (46), the RQ is in the scope of *aber*, so the speaker's raising of objections might be a good candidate for the q-argument of *ja*, in parallel to (1) and (2) above. With *aber* 'but' and the RQ, the speaker challenges the basic premise of the horoscope that always needing more selects a subset of people. The discourse function of *ja* in (46) might thus be paraphrased roughly as in (48). (30-b) is the at-issue meaning of the RQ in (46):³³

(48) CEC relation marked by *ja* in (46), to be revised:

Since (uncontroversially) [_{p=}[[SCHON]]((30-b)<st,t>)] the answer to the question of who is completely content in this life follows from the CG], [_q the speaker raises objections to the information that cypress people in particular always need more than they already have].

However, it is unclear if this paraphrase motivates the use of *ja*, as a mere *schon*-RQ in the scope of *aber* 'but' would receive essentially the same interpretation. Moreover, since *ja* does not operate on the VP meaning of the RQ in (46) directly but on the contribution of *schon*, it is already embedded in the RQ. Therefore, we may not have to search for the second semantic argument of *ja* outside the RQ. If *ja*, when modifying another DiP, behaves like other instances of *ja* at the subclausal level, its second semantic argument can be found one level below the connector *aber* 'but':

(49) CEC relation marked by *ja* in (46), revised:

Since (uncontroversially) [_{p=}[[SCHON]]((44)<st,t>)] the answer to it follows from the CG], [_q the speaker asks the RQ who is completely content in this life].

If the meaning of *schon* is not identical to the rhetorical reading, (49) is not a tautology. Still, according to this paraphrase, the use of *ja* makes the RQ self-referential. Since the issue of complete contentment is brought up by the horoscope information about people who always need more than they already have,

³² This has been observed by Hinterhölzl and Krifka (2013) for DiPs in general in restrictive or central, i.e. proposition-modifying, subordinate clauses. See also Kratzer and Matthewson (2009) on surprise exclaimatives.

³³ The exact target of the objection is not vital to our argument.

the use of *ja* in effect signals that an RQ suggests itself in this context. This analysis may have to be refined, but it shows that an analysis based on the ordinary semantics of *ja* seems feasible. Contrary to *denn*, *ja* in the RQ also signals that no answer is needed between hearer and speaker, and thus the RQ in (46) is the closing remark to dismiss the subject of tree horoscopes altogether.

Unlike in (40) and (41), the issues expressed in the *ja schon*-RQs in (46) and (47) are not at the center of the discourse, but, assuming a question-based discourse model such as Roberts' (2012), terminal nodes in the discourse tree. The RQ in (47) is even one of two remarks in parentheses. Here, the issue expressed in the RQ does not arise from the extra-linguistic context as described by the speaker in (46), but it does not arise from an utterance by the hearer either, unlike in (40) and (41). Rather, the speaker preempts comments that might arise from his own prior request. The example may have to be analyzed differently from other *ja schon*-RQs because of the additional adverb *schließlich* 'after all', so we will not deal with it in detail. However, it is interesting that (47) suggests that the speaker wants to inform hearers that he himself is aware of the answer to the RQ, rather than express that he thinks the hearers should be aware of the answer (40)/(41) or are aware of the answer (46).

4.3 ...who knows ja / denn schon...

Another natural *ja*-RQ presupposing shared awareness that issue P is solved is (50). In the context of the RQ, a Hessian speaker (HES) complains in Hessian about another speaker's (STG) previous remark that Hessian is still the most unpopular dialect in Germany. STG's posts are in standard German and do not reveal other users where he is from. The obvious answer to HES's RQ is that only STG himself knows where he is from:

- (50) HES [all heavy dialect, except the underlined RQ, *flitzpiepe* a Hessian expletive]:

och menno, nich schon wieeedaaa, wenn schon di-a-leckt, dann dett baerlienerisch, quer beet friesisch, oda watt se da in quweit im winkl brabbeln, aber nie un nimmer hessisch platt.

*aber wer weiss **ja schon** wo du flitzpiepe herkommst?*

but who knows JA SCHON where you nitwit from.come
'oh man, not agaaaaiin, if it has to be dialect, then berlinese, random frisian, or whatever they babble in quweit im winkl, but never ever hessian low. but who knows where you nitwit come from?'

(<http://hukd.mydealz.de/deals/medimax-externe-2-5-festplatte-toshiba-stor-e-plus-2-tb-79-euro-750-gb-44-euro-397150> [06/11/2018])

In parallel to (49), we can paraphrase the contribution of *ja* in (50) as in (51):

(51) Non-at-issue contributions of *ja* in (50):

Since (uncontroversially) [_p=[[SCHON]]((50)<st,t>)] the answer to it follows from the CG, [_q the speaker asks the rhetorical question who knows where the nitwit of an addressee comes from].

As in (46), the speaker of (50) dead-ends the argument at this point. That he is not interested in further discussion can be judged from his reaction to STG's reply in (52):

- (52) STG: *Richtig, wer weiß **schon** wo ich Flitzpiepe her komme. Zumindest versteht man meine Sätze [...] in ganz Deutschland. [...] Hessisch ist schlimm! Ganz ganz schlimm! Schlimm, schlimm!*
 'Right, who knows [SCHON] where I nitwit come from. At least my sentences [...] are understood in all of Germany. [...] Hessian is horribly! Really really horrible! Horrible, horrible!'
- HES: *Bull !*
 'Bull !'

Note that the string *wer weiß ja schon* is suspiciously frequent in the natural findings, as illustrated by data like in (53):

- (53) a. [QuD:]
Was könnt ihr mir ueber eine Sterbegeldversicherung sagen? [sic]
 'What can you tell me about a death benefit insurance?'
 [Answer: ...]
*mein Mann dachte es wäre eine gute Lösung, das wir uns beide versichern lassen, denn wer weiß **ja schon** wer zuletzt von uns bleibt, und was passiert. Ich muss ihnen aber sagen das ich angefangen habe negativ über diese Sache zu denken [...]*
 '[...] my husband thought it would be a good solution that we both get the insurance because who knows [JA SCHON] which of us stays last, and what happens. But I have to tell you that I've started to think negatively about this [...]'
 (<http://www.daselternforum.de/19464-was-koennt-ihr-mir-ueeber-eine-sterbegeldversicherung-sagen.html> [09/28/ 2016])
- b. *leider bin ich mir nich so sicher ob ich das regelmäßige Tanken soll, weil wer weiß **ja schon** wann die das fertig Mischen.*
 'unfortunately I am not so sure if I should Refuel with that regularly, cause who knows [JA SCHON] when they have Mixed that up.'
 (<http://www.50er-forum.de/viewtopic.php?t=7583> [06/12/2018])

- c. *wer weiss ja schon, wo es uns im bevorstehenden jahr noch alles hin-treiben wird.*

‘who knows [JA SCHON] where all we are yet going to drift to in the coming year.’

(<https://exploringthetruth.wordpress.com/2012/08/21/18-hours-walking-in-3-days-without-mobile-signal/> [06/12/2018])

RQs like in (53) resemble the truism in (46) in that it is obvious between speaker and hearer who knows *p* (nobody), and the issue of who knows *p* is not going to be discussed further. The primary purpose of these RQs is not to solve the issue of who knows something (in a rhetoric sense of solving, i.e. agreeing, or making the hearer acknowledge the answer), but to express a general lack of certainty about the issue in the subordinate clause. (Consequently, the embedded issues cannot be solved and need not be discussed further either.) The *denn schon*-RQs in (54) contrast very clearly with the *ja schon*-RQs in (53):

- (54) a. Hugh: *Bei dir klingt das so, als hätten wir uns im letzten Monat vor Siegen gar nicht retten können. Aber wer weiß denn schon davon? Wen kratzt das?*

‘You sound as if we should have lost count of our victories last month. But who knows [DENN SCHON] of it? Who cares?’

Doc: ‘I want to tell you. There are millions [...] who ask themselves how old Doc Cole is doing [...]. But do you want to know who knows of it above all? You! [...]’

(Tom McNab, *Trans Amerika*, translated by Verena von Koskull, Berlin, 2010, p. 274)

- b. *Wer weiß denn schon, wer wir Südtiroler wirklich sind?* [article headline]

‘Who knows [DENN SCHON] who we South Tyroleans really are? [...] I do not believe that it pays off when people are sure of their own identity.’

(<https://www.suedstern.org/ansichten/wer-weiss-denn-schon-wer-wir-suedtiroler-wirklich-sind/> [06/13/2018])

The hearers in (54) are not presumed to be aware that nobody knows *p*, and as in (40) and (41), the RQs in (54) are controversially discussed. The interlocutors in (54-a) are partners in a footrace from Los Angeles to New York in 1931 and debate if the hard fight is worthwhile. Hugh’s two questions cast doubt on whether Doc’s enthusiasm is justified. By using RQs, Hugh signals that he considers it obvious that nobody knows or cares about how victorious they are according to Doc, but

he also calls Doc's attention to this in the first place, as Doc in his ardor is apparently not aware of it. Doc's reply then indicates that he disagrees with Hugh on the matter.

Similarly, the RQ in (54-b) is an article headline, i.e. the issue is of concern to the author and of public interest. The RQ sets up a topic for discussion and is repeatedly referred to in the following. The South Tyrolean author argues that the question of South Tyrolean identity, with which South Tyroleans are obsessed, can ultimately not be answered by anybody (*außer vielleicht dem Schützenkommandanten* 'except perhaps the rifle commander'), and if it could be answered, it might not be to the South Tyroleans' liking. Hence, as in (54-a) and unlike in (53), the matrix question is of argumentative relevance in the discourse and not just a phrase to express uncertainty about and then drop the issue expressed in the embedded clause.

The lack of shared awareness (about nobody knowing p), the controversy and the ensuing debate distinguishes the cases in (54) from *ja schon*-RQs, i.e. it seems impossible to replace *denn* felicitously with *ja* here:

- (55) *Bei dir klingt das so, als hätten wir uns im letzten Monat vor Siegen gar nicht retten können. Aber wer weiß (*ja) schon davon? Wen kratzt das?*

(see (54-a))

'You sound as if we should have lost count of our victories last month. But who knows [JA SCHON] of it? Who cares?'

However, we would not necessarily exclude *denn schon*-RQs from contexts like (53). *denn schon*-RQs are less marked and have less specific felicity conditions than *ja schon*-RQs in that contextual justification for bringing up an issue under *denn*, see definition (11), is a very unspecific requirement and even RQs on uncontroversial side issues can be regarded as momentarily central to the current discourse. For instance, a speaker aiming for explicit consent might employ *denn*, rather than *ja*, in cases like the ones in (53), whereas with *ja*, the RQs have a more musing flavor by expressly presupposing tacit approval, although the effect is subtle:

- (56) *leider bin ich mir nicht so sicher ob ich das regelmäßig tanken soll, weil wer weiß denn schon wann die das fertig mischen.* (see (53-b))

'unfortunately I am not so sure if I should refuel with that regularly because who knows [DENN SCHON] when they have mixed that up.'

However, while the use of *denn* is always possible in principle, note, finally, that replacing *ja* with *denn*, or even just leaving *ja* out, might in some cases cause misunderstandings, at least in the absence of prosody in written data, due to the pres-

ence of temporal adverbials as in (53-c), which seem to promote a reading of *schon* as an aspectual adverb. This need not change the rhetorical reading of the question, but it has the potential to do so:

- (57) *wer weiss (denn)schon, wo es uns im bevorstehenden jahr noch alles hinführen wird*
 ‘who knows [DENN SCHON]/already where all we are yet going to drift to
 in the coming year’ (see (53-c))

The desire to be absolutely unambiguous with regard to the rhetorical intention might thus be another driving factor for the use of *ja* in RQs. To summarize, *ja schon*-RQs are rare, but they are possibly just as rare as the contexts they occur in, so that the low acceptability ratings of isolated instances are probably more adequately attributed to markedness, due to interpretive complexity, rather than ungrammaticality.³⁴

4.4 Felicity conditions and experimental design

The contexts in our experimental items do not contradict a reading according to which the RQs are dismissive side remarks as described in Sections 4.2 and 4.3 due to prior shared awareness that the answer follows from the CG. However, there is no obvious motivation, comparable to the speaker’s bewilderment about esoterics in (46) or the speaker’s wish to preclude hearer comments by admitting to the peculiarity of a previous request in (47), to point the shared awareness out. We interpret the subtle improvement of the *ja schon*-RQs in our experiment as an indication that it should be discernable to hearers why a speaker forces them to stretch their interpretive capabilities by pointing out shared awareness by using *ja* in a question, on top of pointing out by using *schon* that the answer follows from the CG. The low scores of *ja schon*-RQs are reminiscent of other marked constructions that are only acceptable in specific contexts (see Viesel 2017 on *ja* in restrictive adnominal modifiers, adverbial and factive clauses). In conclusion, DiPs in the scope of *ja* are indispensable in RQs, but so are the felicity conditions of the resulting utterance.

Recall that our target RQs were presented only with preceding contexts designed to ensure the rhetorical reading, in order to test if *ja* is licensed by *schon*. There are no contexts evolving around different QuDs, unlike e.g. in (53-a), where

³⁴ See Vogel (2006) for an account of the connection between gradient acceptability and markedness, in the framework of Optimality Theory.

the speaker goes on to discuss disadvantages of the insurance after barely mentioning the motivation for one in the RQ. Our contexts would work with continuations developing the issues arising in the RQs, especially since issues like the perfect fall weather (36) are not as uncontroversial as truisms like nobody's perfect contentment, and neither is it obvious in our experiment that an imagined hearer or the participant are aware that the answer is deducible from CG information. Moreover, in Section 4.3 we observed that *denn* can be replaced for *ja* in any RQ: while *denn schon*-RQs are more than side remarks, it is enough if they are (perceived as) pressing questions at the time of utterance, but it is not necessary for the entire discourse to evolve around the question like in (54-b).

5 Experiment 2: Acceptability of *denn* and *schon*

The goals of this experiment were twofold: First we aimed to replicate the acceptability-improving effect of *schon* from experiment 1. Second, by replacing *ja* with *denn*, we wanted to trigger a contrasting effect of combining *schon* with another DiP in our RQs.

5.1 Method

We tested 30 participants (age 18–40 years, mean 23 years; 3 male; 1 left-handed). All were self-declared native speakers of German and received a reimbursement of 3 €. The materials consisted of 28 experimental items interspersed with 34 fillers (24 from a different experiment, 10 identical to experiment 1) resulting in 62 stimuli per participant. The experimental stimuli were the same as in experiment 1 except that *ja* was replaced by *denn*. The experimental items appeared in one of the four versions illustrated in (58):

- (58) a. *(Ab und zu ist es bewölkt,) aber wer hat (denn) (schon) das perfekte Wetter in den Herbstferien?*
 ‘(From time to time it is cloudy,) but who has [(DENN) (SCHON)] perfect weather in the fall holidays?’

b.	Conditions	DENN-∅	DENN-SCHON	∅-∅	∅-SCHON
	Content	<i>denn</i>	<i>denn schon</i>		<i>schon</i>

The experimental procedure and the data analysis were identical to experiment 1. The fixed effects of the final model for this experiment were the presence vs. absence of the particles *denn* and *schon* as well as their interaction. The random effect structure of the model included random intercepts for participants and items

as well as the two fixed effects and their interaction as random slopes for both participants and items.

5.2 Predictions

We expect the same effect for *schon* as in experiment 1, higher acceptability of the \emptyset -SCHON than of the \emptyset - \emptyset condition. As *denn* is compatible with all contextually justified interrogatives, we expect acceptability ratings in the *denn*- \emptyset condition to be at least as high as in the \emptyset - \emptyset condition. In the DENN-SCHON condition, we expect acceptability ratings as high as in the \emptyset -SCHON condition.

5.3 Results

The results are summarized in Figure 2 and Table 2. The statistical analysis revealed only a main effect of SCHON ($t = 2.7$). The presence of *schon* led to higher acceptability judgments. No main effect of DENN and no statistical interaction between DENN and SCHON could be detected.

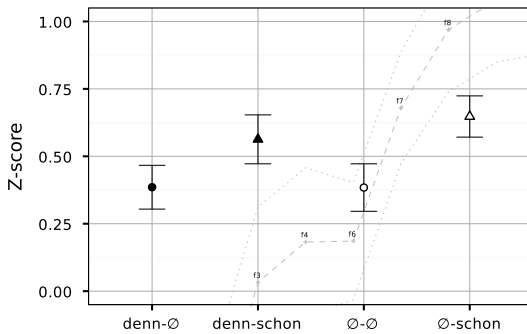


Figure 2: Mean acceptability ratings of experiment 2 (95% CIs). Background shows mean acceptability rating of filler items (95% CIs).

Table 2: Output of the LME model for experiment 2 (treatment coding).

	Criticized model			Raw model		
	Estimate	SE	t	Estimate	SE	t
Intercept (DENN- \emptyset)	0.40	0.06	6.76	0.39	0.06	6.32
DENN	-0.01	0.08	-0.10	0.00	0.08	-0.04
SCHON	0.18	0.07	2.68	0.18	0.07	2.63
DENN:SCHON	0.08	0.10	0.84	0.09	0.10	0.88

5.4 Discussion

The effect of *schon* in experiment 1 could be replicated,³⁵ *denn* has no apparent effect. Our predictions are borne out: Judging from their preference for the explicit *schon*-marking of questions that would otherwise be just as unambiguously rhetorical (see Section 6), we might expect speakers to strongly prefer *denn* in questions that are more than subordinate QuDs, e.g. set a pressing issue up for discussion, like (54).³⁶ Since labeling our RQs with *denn* as RQuDs in need of an answer did not affect acceptability, we conclude that our contexts are not tailor-made for *denn*, but indifferent to the discourse functions of both *ja* and *denn* and thus suitable to test only the effect of *schon* on *ja* in isolation, which they were designed for.

6 Experiment 3: Availability of the rhetorical reading

The experiment was conducted to ensure that the rhetorical reading of the target questions in experiment 1 and 2 was enforced by the preceding context independently of the DiPs.

6.1 Method

We tested 45 participant (age 18–32 years, mean 23 years; 7 male; 4 left-handed), all self-declared native speakers of German. One was bilingual with German and English. The experiment was conducted in a session with another experiment. Participants received 8 € for the whole session. The materials consisted of 30 experimental items interspersed with 35 fillers resulting in 65 stimuli per participant. We systematically varied the occurrence of the three DiPs *ja*, *denn*, and *schon* in a 2 + 2 + 2 design, see (59). The materials were basically identical to experiment 1 and 2. Because of the larger number of conditions, we created 2 additional items with the same structure. Each of the 30 items, such as (59), was associated with a

³⁵ Due to the same reference sentence, the numbers of the \emptyset - \emptyset and \emptyset -SCHON conditions in experiment 1 and 2 are directly comparable: the mean Z-scores are nearly identical. This illustrates that the employed method meets its methodological assumptions: precision and reliability.

³⁶ *denn* can be perceived as rather indispensable, see Bayer and Obenauer (2011: 468–469) on the “strong tendency” to use *denn* when expressing concern.

pair of continuations, as in (60), one of which rendered a rhetorical interpretation of the target RQ more plausible, the other an information-seeking reading.

- (59) *Ab und zu ist es bewölkt, aber wer hat (ja / denn) (schon) das perfekte Wetter in den Herbstferien?*
 ‘From time to time it is cloudy, but who has [(JA / DENN) (SCHON)] perfect weather in the fall holidays?’
- (60) a. Continuation for the rhetorical reading
Wir stellen uns deshalb auf die Jahreszeit ein.
 ‘We therefore adjust to the season.’
- b. Continuation for the information-seeking reading
Diejenigen sollen einen Reisebericht schreiben.
 ‘They should write a travel report.’

The procedure was a decision task. For every target, the two continuations were displayed in the lower part of the screen in left and right, respectively. The positions were varied so that for half the items and fillers, the RQ continuation appeared on the left, for the other half on the right. Participants were asked to decide which continuation they would prefer. The experiment lasted approximately 15 minutes.

6.2 Predictions

We predict an overall preference for the continuation disambiguating for the RQ reading. Assuming that DiPs specify the illocutionary force of utterances, we expect subtle differences in the preference patterns that ideally correlate with the acceptability judgments: *schon* might cause speakers to favor rhetorical continuations, the interrogative/open issue particle *denn* might do the opposite without *schon*, and *ja* only works with an RQ reading and should trigger a strong preference for these continuations. If the availability of an RQ reading is independent from DiPs, all conditions should show similar preference patterns.

6.3 Data analysis and results

The analysis procedure was identical to the previous experiments except that we used generalized logistic mixed-effects models due to the elicited categorical response. The generalized mixed effects model did not detect a significant effect or interaction for the experimental conditions. The strongest tendency was detected

for *schon* ($\beta = 0.26, z = 1.65, p = 0.10$). In line with our predictions, exact binomial tests revealed the preference for the continuation implying an RQ reading to be significantly higher than chance level in all conditions (Table 3).

Table 3: Results of the exact binomial test for the conditions of experiment 3.

	Percentage of RQ reading	<i>p</i> value
JA-∅	63.11	0.000101
JA-SCHON	66.67	0.000001
DENN-∅	59.11	0.007523
DENN-SCHON	65.78	0.000003
∅-∅	62.67	0.000176
∅-SCHON	67.11	<0.000001

Variability within participants as well as items was unexpectedly high. Figure 3 displays the responses per item. All but two stimuli show an overall preference for the predicted rhetorical continuation. Figure 4 shows the responses per participant. Most participants favor the RQ continuation for the majority of items but some disprefer them quite strongly.

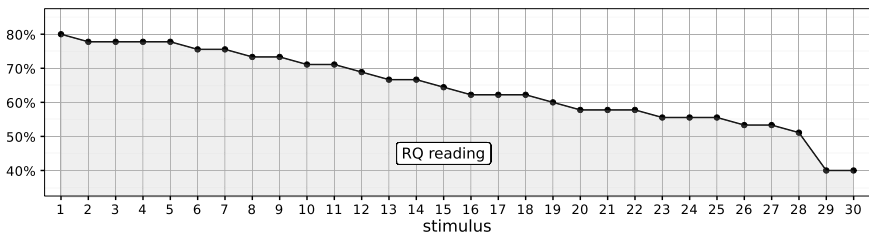


Figure 3: Percentage of predicted responses per item in experiment 3.

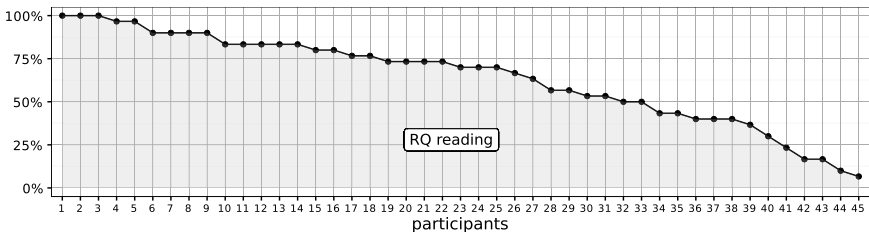


Figure 4: Percentage of predicted responses per participant in experiment 3.

6.4 Discussion

The continuations for RQ readings were preferred across all conditions. This indicates that an RQ reading was available in all conditions and even more prominent than an ISQ reading, so the experimental materials were overall well fitted to ensure the desired RQ interpretation. Further, the between-condition analysis did not indicate a significant correlation between DiPs and the rate of choosing an RQ reading. According to experimental logic, from this null result we cannot conclude that there is no correlation between the presence of DiPs and the availability of an RQ reading. Rather, if the presence of DiPs influences the availability of an RQ reading in similar sentences, then our setup is probably not suited to detect this difference because the effect is either too small or of a different nature. Considering that the task seems suited to detect the overall preference for an RQ reading, the influence of the DiPs is likely too small.³⁷ This renders it unlikely that the acceptability differences that we found in experiment 1 and 2 are a consequence enforcing or blocking a specific reading. Crucially, this weakens a potential argumentation that *ja* improved with *schon* because *schon* enforces the rhetorical reading.³⁸

To understand why the preference for the predicted continuation ranges around 65 % and not close to 100 %, we take a look at the variability between items and participants. Remember that we did not ask participants explicitly to decide whether an item was an RQ or not.³⁹ Instead, we asked participants to choose one of two continuations. These continuations have been created to strongly favor the two different readings. The ISQ continuations always contained a nominal expression such as *diejenigen* ‘they’ in (60-b), intended to point to an individual to trigger a sharp contrast with the answer to the RQ, namely *nobody*. However, (60-b) can also follow an RQ under the following interpretation: *Who (in the world) has perfect weather? If there are any, they should write a (damn) report!* The availability of such an interpretation for the ISQ continuation seems to be strongly context-dependent, which is indicated by the almost linear contin-

37 It is unsurprising that the materials include factors such as plausibility that robustly induce a bias for RQ readings independent of DiPs as these sentences were intentionally created as RQs by trained linguists and native speakers.

38 This is not contradictory to our interpretation of the facilitating effect of *schon*: Facilitating the interpretation may directly increase acceptability. But in the decision task, participants are asked to choose the sentence that best fits the context and not the sentence that is easier to understand.

39 Such a design might cause problems such as participants choosing each category equally often. To test the rate of RQ readings, we could not have balanced this effect by filler items without knowing the results in advance.

uum in Figure 3.⁴⁰ The same logic might explain part of the participant variation. Participants may differ in their preference for such (more emotional) discourse turns.⁴¹ For lack of space, we do not discuss more potential factors influencing this variation. Important is that the variability affects participants or items across conditions, i.e. in each of the six configurations of DiPs, so that our conclusions on their relative acceptability are not compromised.

7 Experiment 4: Influence of felicity conditions on acceptability

We conducted another acceptability experiment to explore if the felicity conditions of context may influence the acceptability judgments of *ja schon*-RQs. The experimental procedure and data analysis were identical to experiments 1 and 2. We tested 49 participants (age 19–37 years, mean 23 years; 9 male; 4 left-handed), all self-declared native speakers of German (5 bilinguals) and students of the university of Cologne receiving either course credits or 4 € for participation.

The materials consisted of the same⁴² 28 experimental items as in experiments 1 and 2, interspersed with 52 fillers (36 from a different experiment), resulting in 80 stimuli per participant. The target sentences were identical to the JA-SCHON and Ø-SCHON condition of experiment 1 (61-c). They followed one of two contexts manipulated to indicate shared awareness of the RQ content (61-a), or remain neutral about the knowledge state of the addressee (61-b).

40 Remember this was a post-hoc experiment to evaluate doubts about the availability of the RQ reading in our material. The materials were initially created as RQs so it is expectable that enforcing an ISQ reading was difficult.

41 Even if some variability is caused by participants getting the ISQ reading for some items with *schon*, this is not as unfathomable as it seems: It supports our view that the meaning of *schon* and the rhetorical reading are distinct, with the rhetorical reading being primary, and that DiPs are interpreted separately from and associated with the illocutionary setup of a clause only indirectly. Further, Schulz et al. (2017) made a similar discovery on *ja* in relative clauses, intended to disambiguate toward a non-restrictive reading. In an object choice task, speakers chose a restrictive reading for grammatically and visually ambiguous clauses with appositive prosody in only 61 % of the cases with *ja*, as opposed to 92 % without *ja*, i.e. the categorical predictions about the disambiguating effect of DiPs are not borne out fully, see also Trabandt (2016). We thank Petra Schulz (p.c.) for this information.

42 Only in one item, (61), tense was modified from present to past to make the context more plausible.

- (61) a. Context MUTUAL
Du hast bereits gesagt, dass ihr logischerweise für alle Wetter vorbereitet gewesen wart, als ihr Ende Oktober an die Ostsee gefahren seid. Aber wie war es denn nun?
 ‘You already said that you were prepared for any weather when you went to the Baltic Sea at the end of October. But how was it?’
- b. Context NEUTRAL
Du hast mir noch gar nicht von eurer Reise erzählt. Habt ihr euch denn wohlgeföhlt?
 ‘You haven’t told me of your trip. Did you you like it there?’
- c. Target
Ab und zu war es bewölkt, aber wer hat (ja) schon das perfekte Wetter in den Herbstferien?
 ‘From time to time it was cloudy, but who has [(JA) SCHON] perfect weather in the fall holidays?’

In the neutral context, we expect to replicate the difference between the JA-SCHON and \emptyset -SCHON condition from experiment 1. According to the felicity conditions for *ja schon*-RQs, we expect that the mutual context will increase acceptability for *ja schon*-RQs but not *schon*-RQs. The final model was comparable to Experiment 2, i.e. both factors (mutual vs. neutral context and presence vs. absence of *ja*) and their interaction were included as fixed effects and as random slopes for both participants and items.

7.1 Results

The results are summarized in Figure 5 and Table 4. The statistical analysis revealed a main effect of the DiPs ($t = 9.48$) with higher acceptability judgments for *schon*-RQs, replicating the results of experiment 1. The context manipulation did not turn out to be significant.

Subsequently, we performed an exploratory analysis to estimate how the influence of the contexts varies across the items and whether an effect might be found in a new experiment with slightly changed material. For each item, we computed the difference between context conditions (mutual-neutral) in the JA-SCHON and \emptyset -SCHON condition, respectively. These differences are displayed in Figure 6a and illustrate, first, that two thirds of the *ja schon*-RQs (solid line) show a positive difference indicating that the mutual context condition was rated higher than the neutral context condition. Second, the context influence of the *ja schon*-RQs (solid line) appears not to correlate with the differences for the *schon*-RQs

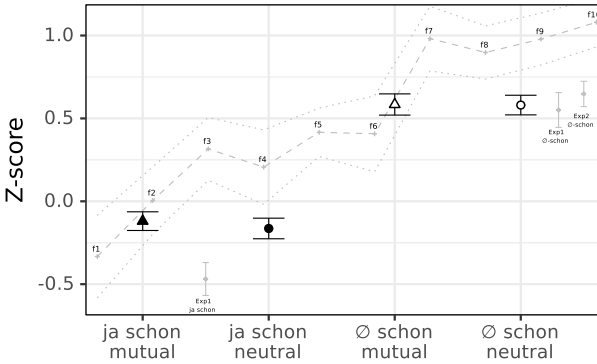


Figure 5: Mean acceptability ratings of experiment 4. Background: mean acceptability rating of filler items and correspondent conditions of experiment 1 and 2 (95% CIs throughout).

Table 4: Output of the LME model for experiment 4 (treatment coding).

	Crititized model			Raw model		
	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>
Intercept (ja schon-neutral)	-0.15	0.07	-2.13	-0.17	0.07	-2.35
PARTICLE (∅ schon)	0.73	0.08	9.48	0.75	0.08	9.46
CONTEXT (mutual)	0.02	0.03	0.71	0.05	0.04	1.06
PARTICLE:CONTEXT	0.02	0.05	0.40	-0.04	0.07	-0.62

(dashed line), as confirmed by Pearson’s product-moment correlation ($r(26) = -0.15, p = 0.45$). Applying the same LME model as above to a subset of the data, by excluding four items with the most negative difference (14 % of the data, marked area in Figure 6a), yields the predicted results (Figure 6b). The analysis still shows a robust main effect for PARTICLE but also a significant interaction, indicating higher acceptability judgments for the mutual context in the JA-SCHON condition but not in the ∅-SCHON condition.⁴³

43 Model output for the restricted data set in the exploratory analysis:

	Estimate	SE	<i>t</i>
Intercept (ja schon-neutral)	-0.19	0.07	-2.67
PARTICLE (∅ schon)	0.77	0.08	9.63
CONTEXT (mutual)	0.10	0.05	2.20
PARTICLE:CONTEXT	-0.11	0.08	-1.42

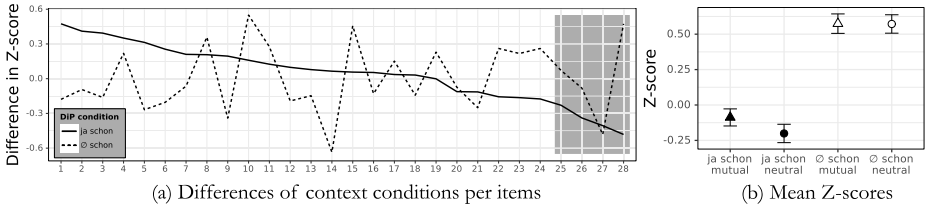


Figure 6: Graphical summaries of the exploratory analysis of experiment 4.

7.2 Discussion

The results replicated again the contrast in our previous experiments. Figure 5 shows the judgments for the *schon*-RQs in all three experiments to be nearly identical, indicating that the additional context in this experiment did not affect overall acceptability of the RQs. The *ja schon*-RQs in this experiment seem significantly more acceptable compared to the judgments of experiment 1. However, the filler items f1 and f2 also show higher absolute Z-scores, indicating that the increase is not (solely) caused by the prolonged context of the experimental items but most likely by the absolute acceptability of other stimuli in this experiment.

The context manipulation did not result in the predicted effect. The exploratory analysis indicated that there is potential of finding a context effect in future experiments by minimally adjusting the material. Note the exploratory effect of context was comparably small in contrast to the penalty of the presence of *ja*. However, the difference score in Figure 6a is only due to context. Participants were instructed to judge only target items, which are identical for both context conditions. The difference score shows that participants might be influenced by the context and that the potential effect of context influence spans 0.8 scores (Figure 6b), which is approximately the difference between *ja schon*- and *schon*-RQs. Additionally, the contexts did not uniformly increase acceptability for a single stimulus but seem to interact with the particle combination, as expected under our assumptions of the specific felicity conditions for *ja schon* and *schon* alone.

We did not succeed in creating homogeneous supporting contexts. This was already conjectural during the construction of the items. As mentioned in Section 6.4, the original material was ill-suited for this manipulation although we used it to retain comparability to the other experiments. Contextual felicity is inherently complex, operating on multiple levels. By satisfying mutual knowledge about the answer to the RQ, we might violate other constraints. Still, the results signal that felicity is important in interpreting the acceptability data of DiPs. As

shown already by Crain and Steedman (1985), context is very influential for language processing and interpretation processes and can even induce or prohibit garden path effects. Crucially, they illustrate that a null context is as influential in these matters as an assumedly ill-fitting overt context.

8 Conclusion

Our primary goal was to explain why *ja* appears sporadically in RQs if accompanied by another particle or adverb. Due to its basic function of marking common knowledge, *ja* is incompatible with questions, including RQs, which raises the issue how an accompanying particle could cancel the incompatibility. We focused on combined *ja* and *schon* in RQs, the most frequent found pattern. The predictions of our theoretical analysis were tested in four psycholinguistic experiments, yielding two main insights: *ja* operates on the meaning of *schon*, and *ja schon*-RQs must meet very specific contextual conditions to be (fully) felicitous and acceptable.

We first provided a detailed analysis of the meaning contributions of *ja* and *schon* individually and in combination. In experiment 1, we tested these predictions, expecting to confirm the intuitions on the natural findings of *ja schon*-RQs according to which the acceptability is heavily dependent on the presence of *schon*. Although *schon* did improve the acceptability of *ja*-RQs, the detected effect is rather subtle, which is why we deem *schon* necessary but insufficient to license *ja*. We took a closer look at the contexts of *ja schon*- and *denn schon*-RQs and concluded that a marked grammatical mechanism like the one that we argued to be at work in the natural findings of *ja schon*-RQs is unacceptable if contextually unwarranted. Our overall conclusion is that there is an interaction between the DiPs in *ja schon*-RQs.

Contrasting natural findings of RQs with *ja* and *denn* in context, we demonstrated that natural *ja schon*-RQs are identifiable as dismissive side remarks and are contextually motivated in that the speaker has a reason to indicate that it is uncontroversial, i.e. there is a shared awareness between speaker and hearer (as expressed by *ja*), that the answer to the RQ follows from the CG (as expressed by *schon*). *Denn schon*-RQs are (at least momentarily) QuDs around which discourses may evolve and which may be hotly debated although the speaker signals the answer to follow from the CG. Unlike *ja schon*-RQs, *denn schon*-RQs are not marked for, alternatively: do not presuppose, shared awareness of the answer's following from CG information. In experiment 2, we replaced *ja* with *denn*: the partial null

result for *denn* supported our predictions concerning the meaning contribution and the felicity conditions of *denn* in contrast to *ja*.

We reported two follow-up experiments strengthening our interpretations. Experiment 3 confirmed that participants interpreted the experimental stimuli as RQs, independently of DiPs. Although experiment 4 failed to show the expected contrast across all items, an exploratory analysis revealed that felicitous contexts may selectively increase the acceptability of *ja schon*-RQs without affecting the acceptability of *schon*-RQs. In sum, the experimental results support our theoretical analysis that *schon* is a necessary precondition to license *ja* in RQs, as are the contextual felicity conditions. The experiments also revealed that *schon* improves the acceptability of bare RQs and *denn*-RQs. The different effects that we attribute to the combination of *ja* vs. *denn* with *schon* can be connected to the discussion of same-scope vs. different-scope approaches to multiple DiPs (Section 2.5). We tentatively assume the following heuristic: If the higher particle is dependent on another element, they constitute a different-scope construction, as for *ja schon*-RQs. If both elements may appear in the respective environment on their own, a same-scope analysis seems preferable, as for *denn schon*-RQs. Whether this heuristic can be upheld for a wider set of combinations of DiPs must be decided by future research.

Defining the meanings of the DiPs, we took into account that DiPs surface in the midfield of German sentences above VP and select complements of type $p_{\langle st \rangle}$ (*ja*) or $P_{\langle st, tv \rangle}$ (*denn*) or both (*schon*). Thus *ja* is excluded from RQs without reference to a mismatch with the illocution or clause type of the utterance. We justified this approach in light of recent research on *ja* and other DiPs in non-assertive environments. However, whether a structural dependence between DiPs and the clausal C system is assumed or not, *ja* must operate semantically on information other than the at-issue meaning, as this is generally the only way for it to occur in any question. Yet without an agreement relation between *ja* and the clausal left periphery, *ja* can be assumed to merge in its usual position with the *schon*-modified VP and not cause an agreement violation. Finding the object in its syntactic scope to denote a set of propositions in the at-issue dimension, *ja* would then necessarily apply to the meaning of *schon*, a semantic object of type $p_{\langle st \rangle}$. Alternatively, *ja schon* could be analyzed as a syntactic complex, but it remains unclear what would trigger the syntactic association with *schon*, due to the information-structural differences between *schon* and stressed phrasal constituents that *ja* occasionally attaches to (Section 2.7.1).

The distribution of DiPs in German RQs is informative to the ongoing debate on RQs in general insofar as German RQs are marked as questions rather than assertions, but a shared awareness of the obviousness of the answer is only present

in a subset. Our approach to combined DiPs feeds into current theoretical debates on DiPs specifically and expressives generally. Having proposed that *ja* in RQs must be operating on non-at-issue information contributed e.g. by *schon*, we argued that this does not necessarily mean that DiPs are not expressives, given that Gutzmann's (2015) framework for use-conditional meaning already provides a type of use-conditional modifier. If *ja* is able to operate on *schon* as proposed above, this mechanism could be applied to other lexical items and environments, some of which we presented above.

Acknowledgements: We especially thank Josef Bayer, María Biezma, Maribel Romero, Hans-Martin Gärtner, Umesh Patil and two anonymous reviewers for discussion and general support. Remaining mistakes are all ours.

The second author gratefully acknowledges the funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613465 within the AThEME project.

References

- Baayen, Harald R. & Petar Milin. 2010. Analyzing reaction times. *International Journal of Psychological Research* 3(2). 12–28.
- Barr, Dale J., Roger Levy, Christoph Scheepers & Harry J. Tily. 2013. Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68(3). 255–278.
- Bates, Douglas, Martin Maechler, Ben Bolker & Steve Walker. 2015. Fitting linear mixed-effects models Using lme4. *Journal of Statistical Software* 67(1). 1–48. doi:10.18637/jss.v067.i01.
- Bayer, Josef. 2012. From modal particle to interrogative marker: A study of German *denn*. In Laura Brugé, Anna Cardinaletti, Giuliana Giusti, Nicola Munaro & Cecilia Poletto (eds.), *Functional heads*, 13–28. Oxford: Oxford University Press.
- Bayer, Josef. 2016. Why doubling discourse particles? Ms., University of Konstanz.
- Bayer, Josef. 2018. Criterial freezing in the syntax of particles. In Jutta Hartmann, Marion Jäger, Andreas Kehl, Andreas Konietzko & Susanne Winkler (eds.), *Freezing: Theoretical approaches and empirical domains*, 225–263. Berlin & Boston: de Gruyter Mouton.
- Bayer, Josef, Jana Häussler & Markus Bader. 2016. A new diagnostic for cyclic *wh*-movement: Discourse particles in German questions. *Linguistic Inquiry* 47(4). 591–629.
- Bayer, Josef & Hans-Georg Obenauer. 2011. Discourse particles, clause structure, and question types. *The Linguistic Review* 28(4). 449–491.
- Bayer, Josef & Volker Struckmeier (eds.). 2017. *Discourse particles: Formal approaches to their syntax and semantics*. Berlin & Boston: de Gruyter.
- Bayer, Josef & Andreas Trotzke. 2015. The derivation and interpretation of left peripheral discourse particles. In Josef Bayer, Roland Hinterhölzl & Andreas Trotzke (eds.), *Discourse-oriented syntax*, 13–40. Amsterdam: Benjamins.

- Biezma, María. 2014. The grammar of discourse: The case of *then*. In Todd Snider, Sarah D'Antonio & Mia Weigand (eds.), *Proceedings of SALT 24*, 373–394. Washington, D.C.: LSA and CLC Publications.
- Biezma, María & Kyle Rawlins. 2016. *Is this a rhetorical question or what?* Ms., University of Konstanz, Johns Hopkins University.
- Caponigro, Ivano & Jon Sprouse. 2007. Rhetorical questions as questions. In Estela Puig-Waldmüller (ed.), *Proceedings of Sinn und Bedeutung 11*, 121–133. Barcelona: Universitat Pompeu Fabra.
- Coniglio, Marco. 2008. *Die Syntax der deutschen Modalpartikeln: Ihre Distribution und Lizenzierung in Haupt- und Nebensätzen*. Venezia: Università Ca' Foscari dissertation.
- Crain, Stephen & Mark Steedman. 1985. On not being led up the garden path: The use of context by the psychological syntax processor. In David R. Dowty, Lauri Karttunen & Arnold M. Zwicky (eds.), *Natural language parsing: Psychological, computational, and theoretical perspectives*, 320–358. Cambridge: Cambridge University Press.
- Davidson, Donal. 1967. Causal relation. *Journal of Philosophy* 64(21). 691–703.
- Doherty, Monika. 1985. *Epistemische Bedeutung* (Studia grammatica 23). Berlin: Akademie.
- Egg, Markus. 2012. Discourse particles at the semantics-pragmatics interface. In Werner Abraham & Elisabeth Leiss (eds.), *Modality and theory of mind: Elements across languages*, 297–333. Berlin & Boston: de Gruyter.
- Egg, Markus. 2013. Discourse particles, common ground, and felicity conditions. In Daniel Gutzmann & Hans-Martin Gärtner (eds.), *Beyond expressives: Explorations in use-conditional meaning*, 125–149. Leiden: Brill.
- Featherston, Samuel. 2008. Thermometer judgments as linguistic evidence. In Claudia M. Riehl & Astrid Rothe (eds.), *Was ist linguistische Evidenz?*, 69–90. Aachen: Shaker.
- Featherston, Samuel. 2009. A scale for measuring well-formedness: Why syntax needs boiling and freezing points. In Samuel Featherston & Susanne Winkler (eds.), *The fruits of empirical linguistics: Volume 1: Process*, 47–74. Berlin & New York: de Gruyter Mouton.
- Féry, Caroline. 2006. Laute und leise Prosodie. In Hardarik Blühdorn, Eva Breindl & Ulrich H. Waßner (eds.), *Text – Verstehen: Grammatik und darüber hinaus*, 164–183. Berlin & New York: de Gruyter.
- Féry, Caroline. 2010. Information structure of *schon*. In Thomas Hanneforth & Gisbert Fanselow (eds.), *Language and logos: Studies in theoretical and computational linguistics*, 160–175. Berlin: Akademie Verlag.
- Franck, Dorothea. 1980. *Grammatik und Konversation*. Königstein: Scriptor.
- Fraser, Bruce. 2006. Towards a theory of discourse markers. In Kerstin Fischer (ed.), *Approaches to discourse particles*, 189–204. Amsterdam: Elsevier.
- Frühau, Felix. 2018. *On discourse particles in adjective phrases and the representation of speech acts*. Berlin: Humboldt-Universität zu Berlin master thesis.
- Gärtner, Hans-Martin. 2017. Root infinitivals and modal particles: An interim report. In Josef Bayer & Volker Struckmeier (eds.), *Discourse particles: Formal approaches to their syntax and semantics*, 115–143. Berlin & Boston: de Gruyter.
- Gast, Volker. 2008. Modal particles and context updating: The functions of German *ja*, *doch*, *wohl* and *etwa*. In Ole Letnes, Eva Maagerø & Heinz Vater (eds.), *Modalität und Grammatikalisierung*, 153–177. Trier: Wissenschaftlicher Verlag.
- Groenendijk, Jeroen A. G. & Martin J. B. Stokhof. 1984. *Studies on the semantics of questions and the pragmatics of answers*. Amsterdam: Universiteit van Amsterdam dissertation.
- Grosz, Patrick G. 2016a. Information structure and discourse particles. In Caroline Féry & Shin

- Ishihara (eds.), *The Oxford handbook of information structure*, 336–358. Oxford: Oxford University Press.
- Grosz, Patrick G. 2016b. Discourse particles. Ms., University of Tübingen, <https://semanticsarchive.net/Archive/GQ4ZDU0N/grosz-SemCom-discourse-particles.pdf> (27.06.2019).
- Gutzmann, Daniel. 2009. Hybrid semantics for modal particles. *Sprache und Datenverarbeitung* 33(1–2). 45–59.
- Gutzmann, Daniel. 2015. *Use-conditional meaning: Studies in multidimensional semantics*. Oxford: Oxford University Press.
- Han, Chung-hye. 2002. Interpreting interrogatives as rhetorical questions. *Lingua* 112. 201–229.
- Hinterhölzl, Roland & Manfred Krifka. 2013. Modal particles in adverbial and adnominal clauses. Ms., Università Ca' Foscari Venezia, Humboldt-Universität zu Berlin.
- Hofmeister, Philip, Laura Staum Casasanto & Ivan A. Sag. 2014. Processing effects in linguistic judgment data: (Super-)additivity and reading span scores. *Language and Cognition* 6(1). 111–145.
- Jacobs, Joachim. 1991. On the semantics of modal particles. In Werner Abraham (ed.), *Discourse particles: Descriptive and theoretical investigations on the logical, syntactic and pragmatic properties of discourse particles in German*, 141–162. Amsterdam: Benjamins.
- Jacobs, Joachim. 2018. On main clause phenomena in German. *Linguistische Berichte* 254. 131–182.
- Kaufmann, Stefan. 2010. Strong and weak presupposition: German *ja* under quantifiers. Ms., Northwestern University.
- Keller, Frank. 2001. Experimental evidence for constraint competition in gapping constructions. In Gereon Müller & Wolfgang Sternefeld (eds.), *Competition in syntax*, 211–248. Berlin & New York: de Gruyter Mouton.
- Klein, Wolfgang & Alexander Geyken. 2010. Das Digitale Wörterbuch der Deutschen Sprache (DWDS). *Lexicographica: International Annual for Lexicography* 26. 79–96.
- König, Ekkehard. 1977. Modalpartikeln in Fragesätzen. In Harald Weydt (ed.), *Aspekte der Modalpartikeln: Studien zur deutschen Abtönung*, 115–130. Tübingen: Niemeyer.
- Kratzer, Angelika. 1999. Beyond *Oops* and *Ouch*: How descriptive and expressive meaning interact. Paper presented at the Cornell Conference on Theories of Context Dependency, Cornell University, 26 March 1999.
- Kratzer, Angelika. 2004. Interpreting focus: Presupposed or expressive meanings?: A comment on Geurts and van der Sandt. *Theoretical Linguistics* 30. 123–136.
- Kratzer, Angelika & Lisa Matthewson. 2009. Anatomy of two discourse particles. Paper presented at SULA 5 – Semantics of Under-represented Languages in the Americas, MIT/Harvard University, May 15–17, 2009.
- Krifka, Manfred. 2011. Questions. In Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning*, vol. 2, 1742–1785. Berlin & New York: de Gruyter Mouton.
- Lauer, Sven. 2014. Mandatory implicatures in Gricean pragmatics. In Judith Degen, Michael Franke & Noah D. Goodman (eds.), *Formal and experimental pragmatics: Workshop proceedings of ESSLLI 26*, 21–28. Tübingen: Universität Tübingen.
- Lindner, Katrin. 1991. *Wir sind ja doch alte Bekannte*: The use of German *ja* and *doch* as modal particles. In Werner Abraham (ed.), *Discourse particles: Descriptive and theoretical investigations on the logical, syntactic and pragmatic properties of discourse particles*

- in German, 163–201. Amsterdam: Benjamins.
- McCready, Eric. 2010. Varieties of conventional implicature. *Semantics and Pragmatics* 3(8). 1–57.
- Meibauer, Jörg. 1986. *Rhetorische Fragen*. Tübingen: Niemeyer.
- Mroczynski, Robert. 2012. *Grammatikalisierung und Pragmatikalisierung: Zur Herausbildung der Diskursmarker wobei, weil und ja im gesprochenen Deutsch*. Tübingen: Narr.
- Müller, Sonja. 2017. Combining *ja* and *doch*: A case of discourse structural iconicity. In Josef Bayer & Volker Struckmeier (eds.), *Discourse particles: Formal approaches to their syntax and semantics*, 203–240. Berlin & Boston: de Gruyter.
- Ormelius-Sandblom, Elisabet. 1997. *Die Modalpartikeln ja, doch und schon: Zu ihrer Syntax, Semantik und Pragmatik*. Stockholm: Almqvist & Wiksell International.
- Peirce, Jonathan W. 2007. PsychoPy: Psychophysics software in Python. *Journal of Neuroscience Methods* 162(1–2). 8–13.
- Potts, Christopher. 2005. *The logic of conventional implicatures*. Oxford: Oxford University Press.
- R Core Team. 2015. *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/> (27.06.2019).
- Rinas, Karsten. 2007. Abtönungspartikel-Kombinationen und Skopus. *Sprachwissenschaft* 32. 407–452.
- Roberts, Craige. 2012. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5(6). 1–69.
- Rojas-Esponda, Tania. 2013. The road signs of communication. In Raquel Fernández & Amy Isard (eds.), *DialDam: Proceedings of the 17th Workshop on the Semantics and Pragmatics of Dialogue*, 131–139. Amsterdam: University of Amsterdam.
- van Rooij, Robert. 2003. Negative polarity items in questions: Strength as relevance. *Journal of Semantics* 20(3). 239–273.
- Sadock, Jerrold M. 1974. *Toward a linguistic theory of speech acts*. New York: Academic Press.
- Schulz, Petra, Emanuela Sanfelici, Alex Thiel & Corinna Trabant. 2017. On the semantics and syntax of relative clauses in acquisition. Paper presented at the closing conference of the Research Unit “Relative Clauses”, Goethe-Universität Frankfurt, May 4, 2017.
- Searle, John R. 1975. Indirect speech acts. In Peter Cole & Jerry L. Morgan (eds.), *Syntax and semantics: Volume 3: Speech acts*, 59–82. New York: Academic Press.
- Sorace, Antonella & Frank Keller. 2005. Gradiance in linguistic data. *Lingua* 115. 1497–1524.
- Stalnaker, Robert. 2002. Common ground. *Linguistics and Philosophy* 25(5/6). 701–721.
- Thurmair, Maria. 1989. *Modalpartikeln und ihre Kombinationen*. Tübingen: Niemeyer.
- Thurmair, Maria. 1993. Äußerungsform oder Äußerungsfunktion?: Zu den Bedingungen für das Auftreten von Modalpartikeln. *Deutsche Sprache* 21. 22–43.
- Trabant, Corinna. 2016. *On the acquisition of restrictive and appositive relative clauses*. Frankfurt: Goethe-Universität dissertation.
- Viesel, Yvonne. 2015. Discourse structure and syntactic embedding: The German discourse particle *ja*. In Thomas Brochhagen, Floris Roelofsen & Nadine Theiler (eds.), *Proceedings of the 20th Amsterdam Colloquium*, 418–427. Amsterdam: ILLC, University of Amsterdam.
- Viesel, Yvonne. 2017. Discourse particles ‘embedded’: German *ja* in adjectival phrases. In Josef Bayer & Volker Struckmeier (eds.), *Discourse particles: Formal approaches to their syntax and semantics*, 173–202. Berlin: Gruyter.
- Vogel, Ralf. 2006. Degraded acceptability and markedness in syntax, and the stochastic interpretation of Optimality Theory. In Gisbert Fanselow (ed.), *Gradiance in grammar*:

- Generative perspectives*, 246–269. Oxford: Oxford University Press.
- Wochner, Daniela, Jana Schlegel, Nicole Dehé & Bettina Braun. 2015. The prosodic marking of rhetorical questions in German. *INTERSPEECH* 2015. 987–991.
- Zeevat, Henk. 2004. Particles: Presupposition triggers, context markers or speech act markers. In Reinhard Blutner & Henk Zeevat (eds.), *Optimality theory and pragmatics*, 91–111. Basingstoke: Macmillan.
- Zimmermann, Malte. 2011. Discourse particles. In Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning*, vol. 2, 2011–2038. Berlin & New York: de Gruyter Mouton.
- Zimmermann, Malte. 2014. Wird schon stimmen! A degree operator analysis of *schon*. Ms., Universität Potsdam, <https://www.ling.uni-potsdam.de/~zimmermann/papers/MZ2016-schonPaper.pdf> (27.06.2019).