

# Biased declarative questions in Swedish and German: Negation meets modal particles (*väl* and *doch wohl*).

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This paper investigates a class of biased questions with declarative syntax in Swedish and German that differ in their bias from the familiar class of declarative questions: *rejecting questions* (RQs), which may occur with or without negation. We provide a semantic-pragmatic analysis of RQs and show for negative RQs that the negation is non-propositional. We analyze the non-propositional negation as the speech-act modifying operator FALSUM (Repp 2009a, 2013). In both languages, FALSUM interacts with modal particles whose meanings relate to contrast and the epistemic state of the speaker. We propose that the illocutionary operator in RQs is REJECTQ, which is an operator that comes with presuppositions that are the source of the particular bias of RQs.

## 1 Introduction

This article investigates a class of declaratives in Swedish and German that are used as questions but systematically differ in both form and function from the declarative questions (DQs) that have been described in the literature (Gunlogson 2003, 2008; Šafářová 2006; Trinh 2014; Gyuris 2017). See (1) for examples of negative questions with a declarative syntax. (1a) illustrates the familiar kind of DQ. (1b) illustrates an English rendering of what Seeliger (2015) called *rejecting question* (RQs)<sup>1</sup> for reasons that we will discuss further below.

- (1) a. Peter isn't coming? *'simple' declarative question*  
b. Surely Peter isn't coming? *'rejecting' question*

(1a) and (1b) have in common that they cannot be uttered in out-of-the blue contexts, and that they express that the speaker had particular assumptions with respect to the true state-of-affairs before s/he asked the question. So, questions like (1a, b) are *biased*. Seeliger (2015) argued that the biases of negative questions with a declarative syntax like those in (1a) vs. (1b) differ. We will provide a systematic discussion of question bias in cases like (1a) vs. (1b) in the present paper, and extend the discussion to positive questions with a declarative syntax.

Formally, English (1a) and (1b) differ in the presence of the epistemic adverb *surely* and

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<sup>1</sup> Seeliger coined the term for RQs containing a negation. We will use it here to refer both to negative and to positive declaratives that are used as RQs.

in their prosody. Whereas (1a) tends to have a rising contour (cf. Gunlogson 2003; Šafářová 2006), (1b) ends more reliably in a fall, with a L+H\* pitch accent on *coming*. In Swedish and German, the languages under investigation in the present paper, the formal differences concern the position of the negation (in Swedish), the presence of modal particles, which do not occur in the familiar negative DQs, see (2a) vs. (2b), and prosody.

- |     |    |      |                              |        |        |                |        |                |
|-----|----|------|------------------------------|--------|--------|----------------|--------|----------------|
| (2) | a. | (i)  | Peter                        | kommt  | nicht? | <i>German</i>  |        |                |
|     |    | (ii) | Peter                        | kommer | inte?  | <i>Swedish</i> |        |                |
|     |    |      | Peter                        | comes  | not    |                |        |                |
|     |    |      | 'Peter isn't coming?'        |        |        |                |        |                |
|     | b. | (i)  | Peter                        | kommt  | doch   | wohl           | nicht? | <i>German</i>  |
|     |    |      | Peter                        | comes  | MP     | MP             | not    |                |
|     |    | (ii) | Inte                         | kommer | Peter? |                |        | <i>Swedish</i> |
|     |    |      | not                          | comes  | Peter  |                |        |                |
|     |    |      | 'Surely Peter isn't coming?' |        |        |                |        |                |

The modal particles *doch* and *wohl* are obligatory in German RQs.<sup>2</sup> Since their meaning in RQs seems to be different from the meanings that have been identified for them in assertions (see Section 4), we will not give translations for them here. In Swedish, the necessity of the presence of a modal particle depends on the position of the negation. In (2b.ii), the negation occurs in the clause-initial position, Spec,CP, which is an unusual position for the negation in the Germanic languages and thus has attracted some attention in the literature (Christensen 2005; Lindström 2007; Petersson 2008; Østbø 2013; Brandtler & Håkansson 2012, 2014). In (2b.ii) no particle is required. However, as we will see later on, the negation can also take its ordinary clause-medial position, but then a RQ requires the presence of the modal particle *väl*, or, in positive RQs in specific contexts the particles *visst* or *nog*. We will discuss the meaning of the Swedish particles in Section 5. Prosodically, DQs and RQs differ as follows. In German, DQs tend to come with rising intonation (von Essen, 1966 and subsequent literature<sup>3</sup>) but RQs always end in a fall. Their nuclear accent (which in (2b.i) is on the main verb) is a prominent L\*+H pitch accent, which intuitively is more prominent than a run-of-the-mill nuclear accent in an ordinary assertion. However, this claim needs experimental back-up. In Swedish, DQs do not end in a fall but are differentiated from assertions by other means, viz. DQs are characterized by higher peaks of the lexical accents (e.g. Gårding 1979), a later peak on the prefinal accent and a longer duration of the prefinal syllable (House 2003). RQs, when compared to rejections, largely share these question-marking features (Seeliger & Repp 2017). Whether or not DQs differ from RQs prosodically in Swedish is an open issue.

In this paper, we investigate how the morpho-syntactic formal markers in German and Swedish (modal particles, fronted negation) contribute to the interpretation of declaratives as

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<sup>2</sup> A declarative containing only *doch* which is followed by the question tag *oder?* can also be used as a RQ. Since question tags raise a number of independent issues, we will gloss over this variant here. We will say more about the precise readings with and without individual particles in German in section 4.

<sup>3</sup> This is a tendency. As has been shown by Petrone & Niebuhr (2014), there are pre-nuclear prosodic means to distinguish declaratives and declarative questions that end in a fall.

RQs. We provide a detailed empirical discussion of German RQs and the speech-act-characteristic particle combination *doch wohl*, which raises an issue of compositionality because the two particles individually have meanings that do not seem to combine compositionally in RQs. Similarly for Swedish, we explore the contribution of modal particles. We also present experimental evidence on Swedish RQs that verifies quantitatively Seeliger's (2015) proposal about the relation between the syntactic position of the negation / the presence of the modal particle *väl* in the declarative on the one hand, and question bias on the other. On the basis of the empirical findings, we make a theoretical proposal for the semantic-pragmatic and syntactic analysis of RQs. Importantly, this analysis takes into account specific characteristics of the negation in negative RQs, which we show to be non-propositional.

The paper is structured as follows. Section 2 discusses the notion of *question bias* in greater detail and introduces a classification scheme for *bias profiles*<sup>4</sup> that was proposed by Sudo (2013). Section 3 discusses the bias profile of RQs. Section 4 explores the morpho-syntactic properties of RQs in German and makes a preliminary proposal for the syntactic and semantic-pragmatic analysis of RQs in that language. Section 5 explores the morpho-syntactic properties of Swedish RQs and presents the experimental evidence on Swedish negative RQs. Section 6 offers a detailed analysis of the negation in negative RQs and argues that the (un)acceptability of polarity-sensitive items in these questions supports the assumption that the negation is non-propositional. It then proposes a semantic-pragmatic and a syntactic analysis for RQs in Swedish and German. Section 7 concludes.

## 2 Question bias

The normal way to ask a neutral question that expects a *yes*- or *no*-answer is to ask a positive polarity question with an interrogative syntax, which in English involves subject-auxiliary inversion as in *Is Peter coming?* The same holds for equivalent interrogative structures in Swedish and German. Formal deviations from these structures produce questions that express some kind of bias. For instance, asking a negative polar question like *Isn't Peter coming?*, asking a positive question with declarative syntax like *Peter is coming?* or asking a negative question with declarative syntax like (1a) is not possible in a neutral out-of-the-blue context, and/or without certain speaker assumptions about the true state-of-affairs. For negative polar questions with an interrogative syntax, question biases were investigated first by Ladd (1981), Büring & Gunlogson (2000) and Romero & Han (2004). Declarative questions received a first detailed investigation in Gunlogson (2003).

Questions biases have been suggested to come in different types. Sudo (2013) proposed that for an adequate description of different question types, it is necessary to distinguish *evidential* and *epistemic* bias. Evidential bias concerns contextual evidence. Some question types are only felicitous in contexts where there is evidence for one of the propositions denoted by the question  $\{p, \neg p\}$ <sup>5</sup>, for other questions it is necessary that there be evidence against one

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<sup>4</sup> The term *bias profile* was coined by Gärtner & Gyuris (2016) but they use a different notation for bias profiles than we do.

<sup>5</sup> For ease of exposition we will assume in these introductory sections that questions expecting a *yes*- or *no*-answer, denote  $\{p, \neg p\}$  independently of their syntactic form.

of these propositions, for yet other questions it is necessary that there be no evidence for one or the other of these propositions. For instance, certain negative polar questions, e.g. *Isn't there a vegetarian restaurant around here?*, cannot be asked felicitously if there is contextual evidence for the positive proposition  $p$ , i.e. *that there is a vegetarian restaurant* (cf. Büring & Gunlogson 2000 and subsequent literature).

With respect to epistemic bias, Sudo (2013) observes that most question types allow inferences about the epistemic state of the speaker, in particular about his/her previous assumptions. For instance, a speaker might have thought that the positive proposition is true and wishes to double-check that this is indeed the case, or s/he thought that the negative proposition is true, has started doubting, and now checks whether the positive proposition is true (cf. Ladd 1981). For the moment we are assuming that the actual intentions of the speaker – to double-check one or the other proposition – are not part of the pragmatics that licenses the use of biased questions. Plausibly, these intentions arise as a consequence of a conflict between evidential and epistemic bias.

To encode evidential and epistemic bias, Sudo (2013) proposes the following scheme. Both types of bias can take the values [+positive] (bias for  $p$ ), [neutral] (no bias), and [+negative] (bias for  $\neg p$ ). Evidential bias can furthermore take the values [–positive] for questions that are incompatible with evidence for  $p$ , and [–negative] for questions that are incompatible with evidence for  $\neg p$ . This is illustrated by (3). It gives possible contexts for a question denoting  $\{Peter\ is\ coming; Peter\ is\ not\ coming\}$ , and shows what values the evidential bias of the question might take in these contexts. (4) gives possible speaker assumptions.

- (3) **Evidential bias:** Relevant contexts for Maria asking the question  $\{Peter\ is\ coming; Peter\ is\ not\ coming\}$
- a. **Evidence for  $p$ :** Paul and Maria are looking at a list of guests for tonight's dinner party. Maria sees Peter's name on the list.  
*compatible with [+positive]; [–negative]*
  - b. **Evidence for  $\neg p$ :** Paul and Maria are looking at a list of guests for tonight's dinner party. Maria sees that Peter's name on the list is crossed out.  
*compatible with [+negative]; [–positive]*
  - c. **Evidence for neither  $p$  nor  $\neg p$ :** Paul is looking at a list of guests for tonight's dinner party. Maria is watching him from the other end of the table, where she cannot see the list.  
*compatible with [neutral]; [–negative]; [–positive]*
- (4) **Epistemic bias:** Speaker assumptions for the question  $\{Peter\ is\ coming; Peter\ is\ not\ coming\}$
- a. Peter is coming. (=  $p$ ) *compatible with [+positive]*
  - b. Peter is not coming. (=  $\neg p$ ) *compatible with [+negative]*
  - c.  $\{p, \neg p\}$  *compatible with [neutral]*

In the following we will apply this scheme first to 'simple' DQs (this section) and then to RQs (Section 3). A summary of this discussion with an overview of the bias profiles of the

individual question types can be found in Table 1 at the end of Section 3. Note that throughout this paper, we will use the variable  $p$  to refer to the positive proposition in the question denotation  $\{p, \neg p\}$  and  $\neg p$  to refer to the negative proposition. Thus, a negative declarative denotes  $\neg p$ , and a positive declarative denotes  $p$ . Both types may come with a bias for e.g.  $p$ , which in our notation means that they would have the same bias, viz. for the positive proposition in the question denotation  $\{p, \neg p\}$ .

Starting with positive declarative questions (*PDQs*), consider (5) for an example in English, German and Swedish. All three PDQs are only felicitous in contexts comparable to (3a). Their evidential bias is [+positive], i.e. they require contextual evidence for  $p$ . This is also the proposition that is denoted by the declarative. Furthermore, (5a-c) can only be uttered in this context if Maria thought beforehand that Peter would not be coming, or if she had no specific assumptions (she might not have thought about whether Peter would be coming or not, or she might have had doubts).<sup>6</sup> In other words, the only epistemic bias that is excluded for the PDQs in (5) is [+positive]. This type of bias currently cannot be encoded in Sudo's (2013) bias system because biases that cover two out of three polarities – [–positive] in our case – are only allowed as values for evidential biases, not for epistemic biases. We will amend the system accordingly and allow 'minus'-biases for epistemic biases, too (also see Gärtner & Gyuris 2016).

- (5) *Positive declarative questions (PDQs)*  
*evidential*: [+positive]; *epistemic*: [–positive]  
 Maria: a. Peter is coming?  
           b. Peter kommt?                      *German*  
           c. Peter kommer?                    *Swedish*  
           Peter comes

Let us next turn to the negative declarative questions (NDQs) in (6a-c). These questions can only be uttered felicitously in contexts comparable to (3b), that is if there is contextual evidence for  $\neg p$ . This is (again) the proposition that is denoted by the declaratives, which in (6) contain a negation. The evidential bias of the NDQs is [+negative]. Turning to the epistemic bias of (6a-c), the NDQs allow the conclusion that Maria had assumed  $p$  to be true, or that she had no assumptions about  $\{p, \neg p\}$ , i.e. the epistemic bias of (6) is [–negative].<sup>7</sup>

<sup>6</sup> An anonymous reviewer suggests that this is the epistemic bias of these questions when realized with a L\*H% contour on the verb. If they are realized as a H\*H% contour, they can be used as confirmation questions with a [+positive] epistemic bias. The role of intonation in DQs will have to be investigated in detail in future research.

<sup>7</sup> The felicity of a NDQ with the speaker having no epistemic bias for  $p$  seems to depend on particular characteristics of the context and on the prosody of the NDQ. In the contexts that we have been considering for (6), the interlocutors were considering a list, which could have a person's name or a person's crossed-out name on it, or the person's name could not be on the list at all. As a consequence, asking about a person whose name is crossed out can be a question which expresses that the speaker just noticed that that person was relevant for the list at all and had not previous bias. In such a context, (6) is a clarification question. It can be followed by *OK. I didn't even know that he was considered for the guest list*. Intuitively, clarification questions have a slightly different prosody from DQs that are uttered in a situation where a speaker had an epistemic bias for  $p$ . The rise that is characteristic of DQs involves a less low target before the high tone (i.e. no L\* H-H% contour) and is more gradual. Obviously, this issue needs to be explored experimentally. The relevance of the context for the two types of epistemic bias of (6) can be seen rather clearly if we compare (i) and (ii) below. The epistemic bias of (i) is [+

- (6) *Negative declarative questions (NDQs)*  
*evidential*: [+negative]; *epistemic*: [–negative]

Maria: a. Peter isn't coming?  
 b. Peter kommt nicht? *German*  
 c. Peter kommer inte? *Swedish*  
 Peter comes not

Comparing the PDQs in (5) and the NDQs in (6) we find that they are identical in terms of their evidential and epistemic biases in the sense that both types of questions require contextual evidence for the proposition that is denoted by the declarative, and both require that the speaker must not have already assumed what is denoted by the declarative.<sup>8</sup> In what follows we will apply these insights about different kinds of question biases to RQs.

### 3 Bias in rejecting questions

Consider (7), which is repeated from the introduction. (7a-c) intuitively are only felicitous in context (3a) from Section 2, viz. the context where Maria is looking together with Paul at a list of guests for a party and where she finds Peter's name on the list. The evidential bias is [+positive].

- (7) *Negative rejecting questions (NRQs)*  
*evidential*: [+positive]; *epistemic*: [+negative]

Maria: a. Surely Peter isn't coming?  
 b. Peter kommt doch wohl nicht? *German*  
 Peter comes MP MP not  
 c. Inte kommer Peter? *Swedish*  
 not comes Peter

So (7a-c) pattern with the PDQs in (5) in terms of evidential bias. Note that this is the case

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positive] rather than [–negative].

- (i) Context: Someone is coming into a windowless room dry and wearing sunglasses.  
 Maria: It's not raining?  
 (ii) Context: For the last 10 weeks, Peter has been recording in a list when it rained. For several days there is no 'rain'-mark in the list. Maria is curious because she collects weather data from different places.  
 Maria: On 10 September it didn't rain? OK, I'll mark that down in my list too.

The difference between (i) and (6ii) is that in (i) the context only makes the possibility that the sun is shining salient, not the possibilities that it is raining or not raining (although, of course, the outfit of the person entering is not suggestive of rain). In the list scenario in (ii) both 'rain'-possibilities are *made salient*. The negation in (ii) is 'licensed' by the specific form of the contextual evidence – namely, by the *absence* of a mark in a list of rainy days. Thus, there is overall evidence for two polarities concerning rain, which is compatible with neutral epistemic bias. In (i), on the other hand, the contextual evidence does not 'prime' the predicate *rain*, so asking a question about (the absence of) rain implicates that the speaker had previous assumptions about the weather, specifically *that it is raining*.

<sup>8</sup> An exception are so-called *expert contexts* (Beun 2000; Gunlogson 2003), e.g. when somebody buying a train ticket at a counter is verifying that a train is departing at a certain time: *And the train is leaving at 5 p.m.?*

although the proposition that is denoted by the declarative is  $\neg p$  in the negative RQs, and  $p$  in the PDQs. This means that a generalization that was recently proposed for polar interrogatives and DQs, viz. that the proposition denoted by the prejacent of the question (i.e. the meaning of the TP without the question operator) must not contradict the contextual evidence (Trinh 2014), is not valid for RQs.<sup>9</sup>

With respect to epistemic bias, the two question types differ. While a PDQ allows for the possibility that the speaker of the question had no previous assumptions about the questioned proposition (i.e. neutral epistemic bias), a negative RQ (= NRQ) obligatorily expresses that the speaker of the question was (and continues to be) opinionated about the questioned proposition – specifically that s/he took  $\neg p$  to be true. While the latter is also a possibility for PDQs, it is just one of two possibilities. Thus, whereas the epistemic bias for PDQs is [–positive], for NRQs it is [+negative]. Comparing PDQs to NDQs, we found in the last section that the epistemic bias of NDQs is [–negative], that is the speaker must not have assumed that  $\neg p$  is true. The epistemic bias of PDQs is [–positive], that is the speaker must not have assumed that  $p$  is true. Thus, in both NDQs and in PDQs the speaker must not have assumed that the proposition that is denoted by the declarative (NDQ:  $\neg p$ , PDQ:  $p$ ) is true. DQs pattern with each other, NRQs are different.

We mentioned in the introduction that there are also positive RQs (PRQs), which hitherto had not been observed. Consider (8). (8a-c) are felicitous in context (3b) from Section 2, viz. the context where Maria finds Peter's name on the list to be crossed out. So the evidential bias is [+negative], the counterpart to that of the NRQ. As for the epistemic bias of (8a-c), Maria must have assumed that Peter would be coming, viz. the bias is [+positive], the opposite of the epistemic bias of the NRQ. Note that the Swedish question must either contain the modal particle *väl* and a clause-initial *men* ('but'), or a modal particle in clause-initial position. We will come back to this observation in Section 5.

(8) *Positive rejecting questions (PRQs)*

*evidential*: [+negative]; *epistemic*: [+positive]

Maria: a. Surely Peter is coming?

b.	Peter	kommt	doch	wohl?	<i>German</i>
	Peter	comes	MP	MP	

c.	Men	Peter	kommer	väl?	<i>Swedish</i>
	but	Peter	comes	MP	

c'.	Visst/Nog	kommer	Peter?
	MP	comes	Peter

The bias profiles of the four question types are summarized in Table 1. We see that RQs differ from DQs in that RQs are 'more biased' than DQs. The speaker of a RQ assumed a specific

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<sup>9</sup> We will see in Section 6.1 that the negation in negative RQs is not propositional negation, so these questions are not actually problematic for Trinh's generalization, from which questions with so-called *high negation* (Ladd 1981), which has been analyzed as being outside the proposition (e.g. Romero & Han 2004; Repp 2009a, 2013) are excluded. However, the same observation obtains for positive RQs, which are discussed below, and these do pose a problem for Trinh's generalization.

proposition to be true, viz.  $\neg p$  (NRQ) or  $p$  (PRQ), whereas the speaker of a PDQ and a NDQ is less 'prejudiced' as it were. As a consequence, the conflict between what seems to be real (as suggested by the contextual evidence) and what the speaker believed to be true is more drastic in RQs. Overall, the speaker of a RQ might be said to reject what s/he sees and to insist on what s/he believed – hence the term *rejecting question*.<sup>10, 11</sup> As we already mentioned, there is some overlap in the situations where RQs and DQs can be used, notably with 'criss-crossing' polarities. A NRQ is used in a subset of the situations where a PDQ can be used. For both types of questions there must be contextual evidence for  $p$ , but in NRQs the speaker is more restricted in his/her assumptions: she/he must have assumed  $\neg p$ , which is a subset of the situations where the speaker did not assume  $p$ . Similarly, a PRQ is used in a subset of the situations where a NDQ is used.

**Table 1: Overview over types of questions with declarative syntax**

Question type		Declarative denotes <sup>12</sup>	Evidential bias	Epistemic bias	Example
Declarative	<i>PDQ</i>	$p$	[+positive]	[-positive]	<i>Peter is coming?</i>
	<i>NDQ</i>	$\neg p$	[+negative]	[-negative]	<i>Peter isn't coming?</i>
Rejecting	<i>PRQ</i>	$p$	[+negative]	[+positive]	<i>Surely Peter is coming?</i>
	<i>NRQ</i>	$\neg p$	[+positive]	[+negative]	<i>Surely Peter isn't coming?</i>

## 4 Rejecting questions in German

### 4.1 The meaning of the modal particles *doch* and *wohl* in isolation

In the previous sections we saw that in German, RQs differ from DQs in that they contain the modal particles *doch* and *wohl*. We will see in this section that both of these particles are

<sup>10</sup> We take the rejecting component of the meaning of RQs to be conventionalized in the sense that RQs usually express that the speaker would prefer keeping their prior commitment, but this preference can be overridden. In (i), the RQ indicates that the speaker had a strong expectation that the sun would *not* be shining, but there does not seem to be any indication that s/he would prefer to keep this expectation, i.e. that the bias would be bulletic. Instead, the RQ indicates surprise or puzzlement. The bias is 'merely' epistemic (see Section 4 for more on this issue).

- (i) Context: It has been raining non-stop for weeks. The speaker now sees that the sun is shining.  
 Es scheint doch wohl nicht die Sonne?  
 it shines MP MP not the sun  
 'Surely the sun isn't shining?'

<sup>11</sup> We would like to point out here that RQs are different from non-*wh*-echo questions, which are also sometimes called *incredulity questions* (e.g. Cohen 2007). The terminology might suggest that the two question types are the same. However, as (i) illustrates, in contrast to incredulity questions, RQs are not coherent in a discourse that echoes the previous utterance (as is expected on the basis of the bias profiles of RQs summarized in Table 1).

- (i) A: Peter kommt. B: Peter kommt? (= incredulity question)  
 B': #Peter kommt doch wohl? (= RQ)

<sup>12</sup> We will argue in Section 6.1 that the negation in NRQs is not actually propositional negation, so that the declarative does not denote  $\neg p$ . The above notation is thus simplified.

required to mark a declarative as RQ.<sup>13</sup>

On its own, *doch* is typically used – in declarative assertions – to remind the addressee that the proposition that the modal particle scopes over is part of the common ground already, and that that proposition is in conflict with a previous proposition, e.g. one that was just uttered by the other interlocutor, or one that was presupposed, entailed or implicated by a previous utterance (e.g. Thurmair 1989; Lindner 1991; Jacobs 1991; Karagjosova 2004; Zimmermann 2011; Repp 2013). Furthermore, a recent investigation of the role of *doch* for the interpretation of discourse relations (Döring 2016; Döring & Repp to appear) suggests that speakers often employ the reminding function of *doch* to signal that they consider the proposition *doch* scopes over as uncontroversial, and thus to strengthen the argument that they are trying to make.

For the particle *wohl* it has been argued that if it occurs in declaratives it has an epistemic meaning. The speaker hypothesizes that the proposition that *wohl* scopes over is true but s/he is not absolutely certain (e.g. Abraham 1986, 1991; Asbach-Schnitker 1977; Doherty 1979, 1985; Gast 2008). The particle has also been suggested to restrict the validity of the speech act (Thurmair 1989). Zimmermann (2004) suggests that *wohl* is a speech-act modifying particle which indicates that the speaker's commitment to the proposition is weakened.

What is particularly relevant for the present context is that Doherty (1985) observes that declaratives with *wohl* can be used as assertions or as questions (also cf. Thurmair 1989). Zimmermann (2004) suggests that the question meaning arises via pragmatic reasoning from a clash of the meaning of the particle with the meaning of the speech act in certain contexts. He provides an example where a *wohl*-declarative conveys a hypothesis about who the addressee's boyfriend is (lit. *Peter is wohl your boyfriend?*), i.e. about something the addressee obviously is already informed about. By implicature this means that the declarative cannot be intended as an assertion: it is not informative. So it is plausibly intended as a question. We think that this reasoning is problematic because declaratives with *wohl* can also be uttered if it is not obvious that the addressee knows the answer. Consider (9), where the most plausible interpretation of the context is that neither interlocutor knows anything about 'the guy' apart from what they are seeing. Still, Maria's utterance most plausibly is interpreted as a question – as Paul's reaction indicates.

- (9) Paul: Look, the guy from this morning is still standing by Ann's door.  
Maria: Der weiß wohl nicht, dass sie im Urlaub ist?  
          he knows MP not that she in vacation is  
          'Doesn't he know that she is on vacation?'  
Paul: We could ask him.

So, we think that Zimmermann's (2004) account does not explain why *wohl* can 'turn' an assertion 'into' a question. Instead, we will assume that the function of *wohl*, to indicate speaker uncertainty and a weakened commitment to a proposition, is easily interpreted as an invitation for the addressee to settle whether the proposition should be part of the common ground or not

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<sup>13</sup> As we mentioned in Footnote 2, a declarative containing only *doch* which is followed by the question tag *oder?* ('or') can also be used as a RQ. An anonymous reviewer points out, that for him/her *oder* is not even needed. We do not share this judgement. The issue needs to be tested quantitatively in future research.

(also cf. Thurmair 1989; and see Gast 2008, who suggests that hypotheses prompt the hearer to react). Obviously, this idea raises the issue of why not every *wohl*-utterance is a question. We would like to suggest here – in opposition to claims in Zimmermann (2004) – that *wohl*-utterances that are intended as questions get a little help from prosody. We agree with Zimmermann that such utterances do not necessarily end in a rise. However, we know from the prosodic literature that declarative questions might end in a fall and still be distinguishable from assertions, e.g. by the nuclear accent and by the shape, slope, and alignment of the preceding prenuclear pitch accents (see Petrone & Niebuhr 2014). So, it is very likely and in our view intuitively correct that declarative questions with *wohl* are marked prosodically. How they are marked exactly is a matter of future research. In sum, we will assume that *wohl* can occur in declaratives that due to the presence of *wohl* are fairly readily interpreted as questions. As a short-hand, we will say that *wohl* has a question-inducing function but we will be assuming throughout that the question meaning additionally is marked by prosody.

Another meaning shade of *wohl* that will become important later on is what we may call an *evidential* or *reportative* meaning. In (10) Ann uses *wohl* to indicate that she has heard by word-of-mouth that the person in the picture is Maria's boyfriend.

(10) Context: Bea is pointing at a photograph.

Bea: Weißt du wer das ist?

'Do you know who this is?'

Ann: Das ist wohl Marias Freund.

that is MP Maria's boyfriend

'That's Maria's boyfriend (or so I've heard).'

The reportative meaning does not necessarily imply a weak commitment. This can be seen if we compare *wohl* to the modal verb *sollen* ('should'), which may have a deontic or a reportative meaning. For the reportative meaning of the modal verb it has been observed that a speaker may be committed to the truth of the proposition or not, or that s/he might even be committed to its falsity (Öhlschläger 1989; Diewald 1999; Mortelmans 2001; Faller 2017). Although *wohl* cannot be used in all of these cases, it can certainly be used in the first case, i.e. if the speaker is committed to the truth of the proposition. Consider (11) from Faller (2017: 58), which illustrates that a speaker can be committed to the proposition that is denoted by a sentence which also contains *sollen* (i.e. the speaker is committed to the prejacent). The *sollen*-sentence is given in italics. The final sentence in the example presupposes the truth of the prejacent of the *sollen*-sentence, which indicates that *sollen* is only used to express the reportative character of the statement. (12) is an equivalent of the *sollen*-sentence with *wohl* rather than with *sollen*. Replacing the *sollen*-sentence in (11) with (12) is coherent.

(11) In Offenburg ist ein kurioser Diebstahl in einem Seniorenheim aufgefallen. *Ein Dieb soll aus dem Seniorenheim innerhalb von drei Monaten rund 500 gebrauchte Wischmopps entwendet haben.* [. . .] Was genau der Dieb mit den 500 Wischmopps vorhat, ist nicht bekannt.

'In Offenburg, a curious theft in a home for senior citizens has attracted attention. *A thief reportedly stole around 500 used mops from the home over three months.* [ . . . ] What exactly the thief plans to do with the 500 mops is not known.' (<http://www.anwalt-strafverteidiger.de/strafrecht-meldungen/strafrecht/diebstahl/>, last accessed 4/6/2014)

- (12) Ein Dieb hat **wohl** aus dem Seniorenheim innerhalb von drei Monaten rund 500 gebrauchte Wischmopps entwendet.

Thus, we may assume that *wohl* may be used to indicate that the speaker has some kind of reportative evidence for his/her assumption (also cf. Modicom 2012 on the assumption that *wohl* may mark hearsay evidentiality; and Haumann & Letnes 2012 on the role of evidentiality for *wohl* in general). The reportative meaning shade is not present in DQs with *wohl*. Thus, the speaker is not asking the addressee for evidenced truth in such questions.

## 4.2 Combining *doch* and *wohl*

Let us now return to RQs and explore the combination of *doch* and *wohl*, which discerns RQs from other declaratives that have a question meaning. Recall from Section 3 that RQs come with an evidential bias that is opposite to what the speaker had assumed to be true. The speaker utters a RQ to express the conflict and his/her wish to verify what the true state-of-affairs is. Intuitively, we might therefore say that in RQs *doch* signals that there is a conflict between the proposition *doch* scopes over and the contextual evidence, and that *wohl* has its question-inducing function. It might be the case that the question-inducing function, which we argued above may be a consequence of *wohl*'s hypothesizing function, is strengthened because there is a conflict.

There are a few aspects that are worth noting about this scenario. First, the reminding meaning of *doch* intuitively seems to be absent in RQs and does not figure in the above scenario. However, as it turns out, RQs are not actually special in this respect. The reminding function of *doch* is not present in other contexts either, for instance in contexts where the speaker expresses surprise about something that s/he just realized (e.g. *Das ist doch Peter!* 'Oh, wow, that's Peter!'). Kaufmann & Kaufmann (2012: 211) call this meaning shade *realizing the obvious*. We might hypothesize that the conflict-indicating meaning component of *doch* lends itself to mark surprise because there is a contrast with a previous knowledge state. This seems to be compatible with the biases of RQs. What about the 'obvious'-part in *realizing the obvious*, that is, what is marked as being obvious? The c-command relations suggest that *doch* scopes over *wohl*, and both scope over the proposition. If *doch* and *wohl* combine compositionally we would expect one of the two following readings. On the one hand (a), *doch* may signal that the speaker just realized, and is surprised about the obvious state-of-affairs that the proposition in the scope of *wohl* is true or not (i.e. *wohl* induces a question meaning). On the other hand (b), *doch* may signal that the speaker just realized, and is surprised about the obvious state-of-affairs that there is an uncertainty with respect to the proposition (i.e. *wohl* does not induce a question meaning). The problem with both of these interpretations is that they do not capture what a RQ seems to express. Interpretation (a) is trivial in the sense that it would be odd for a speaker to signal that s/he just realized that a proposition may be true or not because that is the case for all contingent propositions. Interpretation (a) would be saying something like *Oh, wow, I am only*

*realizing now that Peter arrived or didn't arrive!* With respect to interpretation (b) we observe that the uncertainty, which (reportative uses ignored) lies at the heart of *wohl*, intuitively is very different from the uncertainty that is signalled in declaratives with *wohl* but without *doch*, i.e. the cases discussed in the previous subsection. So, there seems to be a compositionality problem here.

Particle combinations are somewhat notorious for compositionality problems. For instance, it is perfectly fine to combine *ja* and *doch* in a sentence (Doherty 1985; Lindner 1991; Müller 2017a), although the meaning of the latter seems to subsume the meaning of the former (viz. *ja* expresses the reminding / uncontroversiality meaning of *doch*, but not the conflict-indicating meaning; also see Müller 2017b for comparable redundancy effects in the combination of *halt* and *eben*). Still, some particle combinations are compositional, as was observed for instance for *ja wohl* by Zimmermann (2004) for sentences like *Peter kommt ja wohl* ('Peter is coming'). Here *ja* indicates that speaker and addressee share the hypothesis that Peter is coming – probably because of some rumour that they heard together (= the reportative use of *wohl*). In other words, the weak commitment to the proposition is already part of the common ground.

In the following we will explore the compositionality issue for *doch wohl* by comparing this particle combination to *ja wohl* as well as to isolated occurrences of the three particles (*ja*, *doch*, *wohl*) in speech acts that involve a conflict but are not questions: we will look at rejections both without and with negation. This exploration will give us some better insight into the role of modal particles in rejective speech acts. To start, consider (13). (13) is a dialogue where Ann makes a claim that is rejected by Bea by way of challenging a condition that needs to be fulfilled for Ann's claim to be possibly true: Noah can only come to the party if he is available, i.e. if he is not at sea. To render these dialogues more natural, we added a continuation, which gives a motivation for Noah's being at sea. As (13a-c) show, Bea's rejection may include the particle *doch*, or no particle, but it may not contain *ja* unless the rejection is followed directly by an explicit statement like *Therefore he cannot come to the party*.

- (13) Ann: Noah kommt morgen zur Party. ('Noah is coming to the party tomorrow.')
- Bea: a. Noah ist auf See. Sein Chef hat den Dienstplan geändert.  
       Noah is at sea his boss has the roster changed.
- b. Noah ist doch auf See. Sein Chef hat den Dienstplan geändert.
- c. #Noah ist ja auf See. Sein Chef hat den Dienstplan geändert.  
       'Noah is at sea (b./c. – as you should know). His boss changed the roster.'

A straightforward explanation for the infelicitous use of *ja* in (13) suggests itself if we assume with some of the previous literature on *ja* and *doch* (e.g. Kaufmann & Kaufmann 2012; Grosz 2014a; Döring 2016), that the meaning components of the particles described above are presuppositions. We may assume that in a context where there is a conflict like in (13), *doch* is preferred over *ja* due to the principle *Maximize Presupposition* (Heim 1991) because in that context the additional presupposition of *doch* (indication of conflict) is met. The difference between (13a), which has no particle, and (13b) with *doch* is that (13a) lacks the additional meaning that the proposition *Noah is at sea* should have been known to the addressee already.

Let us next turn to *wohl* in rejections. (14) illustrates that it is possible to insert *wohl* into the kind of rejection we just considered. However, only the reportative reading of *wohl* is available, (14a). The (likely) source of the information is given in the second sentence: Noah's boss. The question reading, see (14b), unsurprisingly is incoherent in this context – with or without the second sentence.

- (14) Ann: Noah kommt morgen zur Party. ('Noah is coming to the party tomorrow.')
- Bea: Noah ist wohl auf See. Sein Chef hat den Dienstplan geändert.
- a. 'I heard that Noah is at sea. His boss changed the roster.'
  - b. #'Noah is at sea, isn't he? His boss changed the roster.'

Next, consider the combination of *doch/ja* and *wohl* in the rejections in (15). Comparing (15) to (13) shows that if *doch/ja* are combined with *wohl*, their contextual appropriateness is inverted. This suggests that the meaning of these two particle combinations is not compositional. The combination *doch wohl*, if it were compositional, should have a reading in which the conflict plus reminder meaning (seen in (13)) combines with the reportative use of *wohl* (seen in (14)), which *prima facie* should be able to combine. However, a declarative with *doch wohl* is not felicitous as a rejection in this context. In contrast to this, although *ja* on its own is not felicitous in rejections (seen in (13)), it may combine with *wohl* to insist on the truth of a proposition that contrasts with a meaning aspect of a previously asserted proposition.<sup>14</sup>

- (15) Ann: Noah kommt morgen zur Party. ('Noah is coming to the party tomorrow.')
- Bea: a. #Noah ist doch wohl auf See.  
 Intended: 'Noah indisputably is at sea – as you should know.'
- b. Noah ist ja wohl auf See.  
 'Noah indisputably is at sea – as you should know.'

On a speculative note, what might be happening in (15b) is that the reminding meaning of *ja* is employed to imply uncontroversiality (see above: Döring 2016; Döring & Repp to appear), which in conjunction with the reportative use of *wohl* leads to a high, 'certified-by-others' certainty reading. So there might be room for a compositional derivation of *ja wohl* in rejections (which requires closer scrutiny of reportative *wohl*). It is important to note, however, that this interpretation still is rejection-specific. As we mentioned above, in other contexts (recall the rumour scenario for an utterance with *ja wohl*, discussed above example (13)), sentences like (15b) can express that the speaker wishes to remind the addressee that they share a weakened commitment, i.e. *uncertainty* with respect to the proposition.

In principle, the reasoning for *ja wohl* in terms of signalling high, evidence-based speaker certainty should also apply to *doch wohl*. However, the only reading that (15a) may have is as

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<sup>14</sup> An anonymous reviewer does not share our judgement here. For him/her both replies are equally bad. For us, the contrast is quite sharp. Note that the intonation of (15b) must be one where there is a L\*+H L-% contour, with the L\*+H on *See* ('sea'). Overall, it is quite likely that there are interindividual differences with respect to the acceptability of modal particles / particle combinations in German. These need to be investigated in quantitative research, which is beyond the scope of the present paper.

a positive RQ.<sup>15</sup> Thus, the addition of *wohl* to a rejection with *doch* like (13b) turns the rejection into a RQ. The reportative meaning of *wohl* does not surface in the RQ. Instead the question-signalling meaning arises. The reminder meaning component of *doch*, which was part of the rejection, is no longer present. The conflict meaning component is present. The precise role of the contrastive meaning component of *doch* needs closer scrutiny. It is interesting to note in this connection that (15b) with *ja wohl*, which differs from (15a) in the lack of the contrastive component, becomes less rejective and more question-like if it is preceded by the conjunction *aber* ('but'), which also indicates contrast (see Repp 2013 for a close comparison of *doch* and *aber*). Although such judgements are extremely subtle and need to be investigated quantitatively in future research, they receive some indirect support from Swedish RQs, where the modal particle *väl*, which is very similar to *wohl*, combines with the Swedish variant of *but*, see Section 5.3 further below.

Overall, it seems that the combination of *wohl* with the particles *doch* and *ja* in rejections proceeds somewhat in a pick-and-mix fashion. Some meaning components of the individual particles are part of the particle combinations, others are not. Which ones are, and which ones are not, essentially seems to be conventionalized. Note that this does not only hold for rejections without a negation, which we concentrated on up to now, but also for rejections with a negation, see (16), which shows that a sentence with *doch wohl* cannot be used as a rejection whereas a sentence with *ja wohl* can.

(16) Ann: Noah kommt morgen zur Party. ('Noah is coming to the party tomorrow.')

Bea: a. Noah ist nicht in der Stadt.

b. #Noah ist ja nicht in der Stadt.<sup>16</sup> b'. Noah ist ja wohl nicht in der Stadt.

c. Noah ist doch nicht in der Stadt. c'. #Noah ist doch wohl nicht in der Stadt.

d. Noah ist wohl nicht in der Stadt.

Sein Boss hat den Dienstplan geändert.

'Noah is not in town. His boss changed the roster'

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<sup>15</sup> (15a) is actually not terribly good as a PRQ although the contextual evidence should license such a reading. We think that this is because RQs very often have a reproachful flavour in the sense that the speaker complains about what s/he is seeing and that his/her original expectations are not met. In (15a), complaining about Noah's apparently not being at sea is not very plausible if no additional context is given. If the speaker had ordered Noah to set sail to do a certain job and now learns that Noah is not actually at sea, there would be a good reason for complaining and (15a) would be felicitous as a PRQ. The reproachful flavour of RQs can be seen very well in conventionalized phrases with future tense, e.g. *du wirst doch wohl* ('surely you will...'), *man wird doch wohl ... dürfen* ('surely one may'), see (i) and (ii).

(i) Context: Ben is not offering his seat to an old woman on the tram.

Mary to Ben: Du wirst der alten Frau doch wohl einen Platz anbieten?  
 you will the.DAT old.DAT woman MP MP a seat offer  
 'Surely you will offer that old lady a seat?'

(ii) Man wird doch wohl noch fragen dürfen?

one will MP MP still ask may  
 'Surely one may ask a question?'

<sup>16</sup> Like (13c), (16b) improves if it is followed by some additional information that highlights the relevance of the utterance to the antecedent.

We conclude from our discussion that the particle combination *doch wohl* does not receive a compositional interpretation but has a conventionalized meaning which signals that the speech act it occurs in is a RQ. Having said this, it is still reasonable to assume that the use of *doch* and *wohl* to signal the RQ reading is (historically) motivated in the way that we described at the beginning of this subsection. In the next subsection we make a preliminary proposal for how RQs can be modelled at the semantics-pragmatics interface.

### 4.3 Proposal for German rejecting questions

When the sentence type does not match the speech act type – as is the case with any kind of declarative that is used as a question, and other 'minor' speech act types – the issue arises of how the pragmatic question meaning can be derived from the syntax and semantics of the declarative sentence. In Sections 2 and 3 we saw that, depending on their morpho-syntactic and prosodic properties, declaratives of the same polarity have completely different conditions for their use as questions. In the previous two subsections we saw that the morpho-syntactic means that are employed to mark declaratives as RQs in German do not determine these conditions in a direct compositional way. In Section 5, we will see that the formal means employed to mark declaratives as RQs in Swedish do not lend themselves freely to a compositional analysis either. Furthermore, the means that are used in Swedish are not the same means as in German, although there is some overlap. All this suggests that the formal means that mark a RQ should be considered as *cues* for the speech act that is expressed, rather than compositional building blocks (cf. Grosz 2014 for a recent proposal on cues). However, considering that the particle combination *doch wohl* is obligatory in RQs – which is not a typical characteristic of speech act cues (they often are optional) –, and considering that syntax brings meaning and form together, we think that there must be a syntactic representation of the particular speech act in terms of an illocutionary question operator that interacts with the morpho-syntactic marking.

On the basis of our discussion on question bias in Sections 2 and 3, we assume that illocutionary question operators always carry information about the evidential and epistemic biases of the question, i.e. they encode the question's bias profile.<sup>17</sup> Concretely, we will assume that there is an illocutionary operator REJECTQ, for which we give a preliminary definition in (17), to be revised in Section 6.2. In (17)  $q$  stands for the proposition denoted by the declarative, irrespective of whether it contains a negation or not. The superscripts are shorthand for evidential bias, and for epistemic bias of the speaker. So, REJECTQ applies to a proposition  $q$  and requires the context to provide a proposition with the opposite polarity from  $q$ , and it requires the speaker to have assumed  $q$ . REJECTQ then provides a set of propositions as the meaning of the RQ.<sup>18</sup> After our discussion of Swedish we will see that REJECTQ does not operate 'directly' on a proposition and that its meaning therefore needs to be adapted, Section

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<sup>17</sup> This kind of information essentially encodes the felicity conditions of the speech act, so encoding it in the speech act operator in our view is highly appropriate.

<sup>18</sup> Krifka (2015) suggests that declarative questions are monopolar, i.e. only offer one proposition to the interlocutor (the one denoted by the declarative) so that s/he may commit to that proposition. Commitment is considered likely if there is contextual evidence for the offered proposition. As it stands, the proposal cannot account for the bias profile of RQs, especially the evidential bias, which is the opposite of what is expected under Krifka's analysis. We will leave this issue for future research.

6.2.

(17)  $\llbracket \text{REJECTQ} \rrbracket = \lambda q: [-q]^{\text{evid}} \& [q]^{\text{epist}}. \{q, \neg q\}$  (To be revised)

REJECTQ imposes language-specific restrictions on the formal means that must be present in a declarative if that declarative is to be used as a RQ. In German this is simply a requirement for the presence of the modal particle complex *doch wohl*. We assume that REJECTQ probes for this complex and enters an Agree relation with it. Note that this implementation is a simple feature checking mechanism for morphological units that does not require semantic or pragmatic evaluations. The situational appropriateness of REJECTQ will be verified at the level of semantics/pragmatics, not syntax.

## 5 Rejecting questions in Swedish

Turning our attention to Swedish RQs, we need to extend the scope of our investigation beyond modal particles. As mentioned in Section 1, Swedish RQs can be marked by the non-canonical, clause-initial position of the negation. We will therefore begin our analysis of Swedish RQs by giving some background on clause-initial negation in Section 5.1 before turning to modal particles, particularly *väl*, in Section 5.2.

### 5.1 Fronted negation

We pointed out in the introduction that in Swedish NRQs the negative marker *inte* occurs in the clause-initial position. Recall that this was not the case in Swedish NDQs. We will use the term *fronted negation* here because there are good arguments that the negation is moved to the clause-initial position rather than being base-generated there (Zeijlstra 2013; Seeliger in prep.). As already mentioned, fronted negation is quite rare in the Germanic languages.<sup>19</sup> In Swedish, fronted negation only occurs in declaratives and has been claimed to come in different subtypes. Lindström (2007) differentiates *responsive*, *interrogative* and *additive* fronted negation. Seeliger (2015) argues that the former two are restricted to rejective utterances, viz. to rejections (responsive negation) and to NRQs (interrogative negation), i.e. the type of utterances at issue in the present paper. The difference between NRQs and rejections is marked prosodically (Seeliger & Repp 2017). Additive negation differs from the type of fronted negation described here considerably (and will therefore be excluded from the scope of this article). Among other differences, the negative marker in additive negation is stressed, arguably a means of marking

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<sup>19</sup> However, contrary to common assumptions, German does allow fronted negation in certain contexts, see (i) for an example from an autobiographical work, where the fronted negation contrasts with the positive polarity of the previous sentence.

(i) Ich verschonte die Bonner Politik auch dort mit offenem Widerspruch, wo deutlichere Kritik angezeigt gewesen wäre. Nicht verschonte ich sie allerdings mit einer Initiative, die – so bescheiden sie war – die Mauer einen Spalt öffnete (Willi Brandt: *Erinnerungen*. Propyläen-Verlag. 1989. p. 70.)  
'I spared Bonn open disagreement even regarding those issues in which more explicit criticism would have been appropriate. I did NOT, however, spare them an initiative that – humble though it might have been – opened a crack in the wall.' (Willy Brandt: *Memories*.)

A corpus analysis carried out by the first author shows that polarity contrast regularly licenses *nicht* in a fronted position and is not completely uncommon in German (see Seeliger in prep.); cf. also Ulvestad (1975).



- (19) Peter kommer (väl). Swedish  
 Peter comes MP  
 'Peter is coming(, isn't he?)'

In essence, we propose that declaratives with *väl* cannot be assertions. They are declarative questions. Positive declaratives with *väl* have the bias profile of PDQs, viz. there must be (contextual) evidence for the denoted proposition *p*, and the speaker must not have assumed *p* beforehand (recall that the speaker of a *väl*-utterance in the moment of the utterance only *hypothesizes p* to be true). We must leave open here what exactly the difference between a PDQ without *väl* and one with *väl* is.

When negation enters the picture, the issue gets more complicated. If *väl* and *inte* combine compositionally, the negative declarative version of (19) should roughly express *Peter isn't coming, is he?*. In terms of bias profiles, this negative declarative should have the same bias profile as a NDQ without *väl*. However, if Petersson (2008) is right, i.e. if a sentence like (18) above, which is a negative declarative with *väl*, can be used to paraphrase a sentence with fronted negation and without *väl*, *väl* and *inte* do not combine compositionally. The reading that Petersson suggests for (18) is that of a rejecting question. In the experiment presented in Section 5.4, we test Petersson's claim quantitatively, viz. we tested whether negative declaratives with *väl* can have the bias profile of RQs.

Note that Swedish *väl* does not seem to have the reportative meaning of German *wohl*. The Swedish example (20), which is the translation of German (10) in Section 4.1, does not have the reportative meaning that (10) has. In (20) Maria only utters a hypothesis. Further input from Bea is required. In German (10), Ann provides a complete answer, which clearly marks the epistemic source of the asserted proposition as hearsay. In Swedish, this evidential marking must be marked by a different modal particle: by clause-medial *visst* (which has a different meaning from clause-initial *visst* (cf. Aijmer 1996; Petersson 2008; Scherf 2017), see Section 5.3 for discussion).

- (20) Context: Bea is pointing at a photograph  
 Bea: Vet du vem det är?  
       'Do you know who this is?'  
 Ann: Det är väl Marias pojkvän.  
       that is MP Maria's boyfriend  
       'That's Maria's boyfriend, isn't it?'

### 5.3 Combining fronted negation and modal particles

To investigate the meaning contribution of *väl* and negation in rejective utterances we will proceed as we did for German, that is we will explore how rejections can be marked morpho-syntactically in Swedish. First consider the rejections in (21), which are the translations of German (13) in Section 4.2, and which do not contain a negation. (21) shows that the rejecting

utterance can come without any particle, see (21a)<sup>20</sup>, or with the clause-medial particle *ju*, see (21b). Clause-medial *ju* has the same meaning as German *doch* but can also be used in contexts where there is no conflict, i.e. in contexts where German *ja* would be used (Aijmer 1996). In (21b) the speaker not only rejects the assumption that Noah is able to come to the party because he is not at sea, but also reminds the addressee that Noah's being at sea should have been known to him/her.

- (21) Ann: Noah is coming to the party tomorrow. [positive rejection]  
 Bea: a. Noah är till sjöss.  
       Noah is to sea  
       b. Noah är ju till sjöss.  
       'Noah is at sea (b. – as you should know).'

Turning to rejections containing a negation, consider (22), which shows that they can occur without a particle or with the particle *ju*. Furthermore, the negation can be fronted (recall Section 5.1), and combine with *ju* or not. As before, we assume that *ju* has a reminding function. The fronting of the negation in (22c) and (22d) marks the proposition *that Noah is not at sea* as uncontroversial and as conflicting with the context, i.e. in this case it conflicts with Ann's assumption that Noah is in fact at sea.

- (22) Context: Whenever Noah is on shore leave, he visits every party.  
 Ann: Noah is not coming to the party tomorrow. [negative rejection]  
 Bea: a. Noah är inte till sjöss.  
       Noah is not to sea  
       b. Noah är ju inte till sjöss.  
       c. Inte är Noah till sjöss.  
       d. Inte är ju Noah till sjöss.  
       '(But) Noah is not at sea (b./c./d. – as you should know).'

Turning to RQs, recall that we observed in Section 3 (example (8)) that Swedish positive RQs can be marked in several ways. (23) shows how RQs may be marked in the context that we have been considering in the sections on German. In (23a) we see that a declarative without any additional morpho-syntactic marking cannot express a RQ reading. This is the same as in German. The particle *väl* can occur in a positive RQ but ideally combines with the conjunction *men* ('but'), i.e. the contrast that is part of the rejective meaning ideally is expressed overtly, see (23b).<sup>21</sup> This is similar to German, where *wohl* combines with the contrast-marking modal

<sup>20</sup> Rejections without a particle usually are a little better with the conjunction *men* ('but'). We are glossing over this issue here.

<sup>21</sup> There is some corpus evidence that suggests that *men* is not always required, see (i) for an example (from the Språkbanken corpus of the University of Gothenburg, <https://spraakbanken.gu.se/>) of an utterance with *väl* that arguably has a PRQ reading without *men*:

(i) Hört på H&M's barnavd av ca 7-åring: "Jag vill ha den tröjan!" Mamman: "Det är väl en tjejtrosa?" Han: "Är du från stenalderen eller?"  
 'Overheard in H&M's children's department from a 7-year-old: "I want that sweater!" The mother: "Surely

particle *doch*. The preference for *men* in such RQs also parallels our observation for German that the particle combination *ja wohl*, if combined with *aber* ('but') more readily receives a RQ reading in that language (recall the discussion below example (15) in Section 4.2).

- (23) Ann: Noah is coming to the party tomorrow. [positive RQ]  
 Bea: a. #Noah är till sjöss?  
 b. Men Noah är väl till sjöss?  
 c. #Visst/Nog är Noah till sjöss?  
 d. #Visst/nog är väl Noah till sjöss?  
 MP is MP Noah to sea  
 'Surely Noah is at sea?'

Turning to clause-initial *visst/nog*, which we showed in Section 3 to be able to mark positive RQs, (23c) and (23d) show that they are infelicitous in the present context. This discrepancy obviously is remarkable. For clause-initial *visst/nog*, Petersson (2008) lists three types of meaning, which are identical for both particles.<sup>22</sup> *Visst/nog* can express that the speaker is completely sure of the embedded proposition's truth (e.g. *Noah is definitely coming to the party.*), or that the speaker considers the embedded proposition likely to be true and appeals to the addressee for confirmation (with *visst/nog* having a similar question-inducing function like *väl*; e.g. *Surely Noah is coming to the party?*), or that the speaker concedes that a previously asserted proposition is true but has reservations, which are typically expressed in a subsequent sentence (e.g. *Noah is certainly coming to the party, but...*). On the basis of these characterizations we expect that (23c/d) should be felicitous on the second type of meaning – which is what we found in example (8) in Section 3, which was a PRQ in the context where the speaker saw that someone's name was crossed out on a list of party guests but had expected that the person would come to the party. The difference between the earlier example and the present example is the explicitness of the contextual evidence. In the earlier example the contextual evidence that was rejected was explicit. In the present example the contextual evidence only has an indirect relation to the proposition that is rejected in the RQ. So, it seems that although clause-initial *visst/nog* in the literature have not been related to any kind of evidential meaning, such a meaning is present (also cf. Scherf in prep.). That this should be so is plausible at least for *visst* because *visst* in clause-medial position is an evidential marker. For *nog* the issue is somewhat less clear because *nog* in clause-medial position meanders between a high certainty and a weak certainty reading. We leave the latter issue to future research.

With respect to negative RQs, we observed above that there are several issues regarding the acceptability of various formal means to indicate that a declarative has a RQ reading. We observed that fronted negation in rejective utterances overall seems to be marked. Furthermore, we predicted that the combination of fronted negation with the particle *väl* should give a negative declarative the bias profile of a NDQ rather than the bias profile of a NRQ. These issues require closer scrutiny. The previous literature on the different readings of fronted negation leaves many questions open. The (various) question contexts in which fronted

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*that's a girls' sweater?*". Him: "Are you from the stone age or something?"

<sup>22</sup> Note that *visst* and *nog* have no overlap in their meanings if they are in clause-medial positions.

negation can occur have been largely put aside by previous investigations (e.g. Brandtler & Håkansson 2012, 2014). The similarities between (in our terminology) rejections and RQs or (in the terminology of Lindström 2007 responsive and interrogative negation) have been overlooked.<sup>23</sup> There is one earlier investigation of the acceptability of declaratives with fronted negation, Østbø & Garbacz (2014), but this investigation is restricted to declaratives with clause-final doubling of negation (e.g. *Inte är Noah till sjöss inte*), whose role in our view is not yet well-understood.

In the next subsection we will present an acceptability judgement study that investigated the acceptability of RQs with fronted negation, and explored whether a RQ reading can also be indicated by means of a combination of low negation and the modal particle *väl*, as was claimed by Petersson (2008). Thus, the paradigm that we investigated is the one given in (24) except that the contextual evidence was not provided by another speaker (Ann in (24)) but by a prose passage. Note that *men* ('but') did not feature in this paradigm. The hash sign in (24a) and its lack in (24b-d) anticipate the results.

(24) Context: Whenever Noah is on shore leave, he always visits every party.

Ann: Noah is not coming to the party tomorrow. [negative RQ]

Bea: a. #Noah är inte till sjöss?

b. Noah är väl inte till sjöss?

c. Inte är Noah till sjöss?

d. Inte är väl Noah till sjöss?

not is MP Noah to sea

'Surely Noah is not at sea?'

## 5.4 Experiment on the interaction of negation and the modal particle *väl* in Swedish negative rejecting questions

The experiment tested declaratives denoting a negative proposition  $\neg p$  that were marked with fronted vs. clause-medial negation and with vs. without the modal particle *väl* in contexts that would support a NRQ reading of the declarative. Thus, the context was such that it would be appropriate for a question with the bias profile *evidential*: [+positive], *epistemic*: [+negative], that is a question where the illocutionary operator REJECTQ as defined in Section 4.3 takes a negative declarative as its complement. We hypothesized that declaratives with fronted negation would be more acceptable than declaratives without fronted negation unless the latter contained the modal particle *väl* (Petersson 2008).

### 5.4.1 Method

**Participants.** 24 native speakers of Swedish (21 to 48 years,  $M = 27.8$ ) participated in the experiment. They took part in the study voluntarily, without payment.

**Materials and Design.** The materials consisted of 16 experimental items, 32 filler items and four practice filler items. Every experimental item introduced a scenario in which it was natural

<sup>23</sup> Østbø (2013) hypothesizes that fronted negation in questions and rejections is formally the same.

to utter a rejecting question, see (25) for an example item. The items started with a scene description, which provided contextual evidence for a proposition with positive polarity, i.e. the evidential bias that Seeliger (2015) postulates for RQs, [+positive], was met by the context. In (25), the context provides evidence for the positive proposition *that it will rain*: The father in the scenario grabs an umbrella. Then one of the interlocutors, in (25) this is the mother, asks a question about that proposition: *{it will rain, it will not rain}*. This is the target question. It always had declarative syntax, contained the negative marker *inte*, and ended in a question mark.

The target question came in four different versions. It either did or did not contain the modal particle *väl*, and the negative marker *inte* was either in its canonical low position, or in the preverbal, fronted position. The experiment had a 2×2 within-subjects within-items design, with the factors MODAL PARTICLE (*väl* present or not) and NEGATION (fronted or low). We used a Latin square design so that participants were randomly assigned to one of four groups, which differed in the order of filler and experimental items. Participants saw each experimental item once, in one of the four conditions, and four items per condition.

### (25) Sample item

Det är söndag och familjen Johansson tänker ta en promenad just nu. Alla tar på sig kläderna, men pappan också tar med sig ett paraply. Mamman säger:

'It is Sunday and the Johanssons are about to go for a walk. Everyone is getting dressed, but the father also grabs an umbrella. The mother says:'

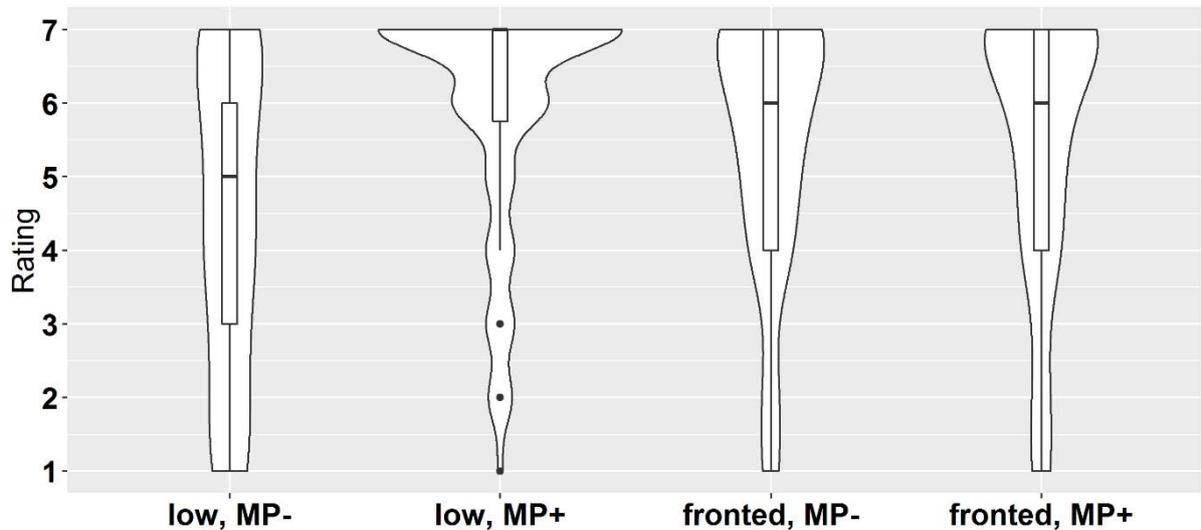
Condition	NEGATION	MP	
[1]	low	–	Det ska inte regna idag?
[2]	low	+	Det ska väl inte regna idag?
[3]	fronted	–	Inte ska det regna idag?
[4]	fronted	+	Inte ska det väl regna idag?
			not will it MP rain today

The filler items were *wh*-questions and verb-first polar questions in contexts with no contextual evidence for the questioned proposition.

**Procedure.** The experiment was web-based. Participants worked through it at their own pace. The items were presented visually on a computer screen in the following way. At the very top, there was the instruction in Swedish: *Please read the following context and question*. Below the instruction, there were the scene description and the target question. In the lower half of the screen, there was the Swedish version of the following question: *How fitting is this question in this context?*. Underneath it there was a 7-point scale which consisted of numbered radio buttons. The end points of the scale were labelled with *helt lämplig* ('very fitting'; (= 7), *helt olämplig* ('very unfitting'; = 1). Participants were asked to give their judgement on the scale by clicking on the appropriate button. Note, that the word *question* (Swedish *fråga*) was used explicitly in the instruction and in the request to give the judgement. This was done to make a reading of the target question as a rejection less likely. In principle, such a reading is possible for conditions [1] and [3], where there is no modal particle, if participants additionally ignored the question mark at the end of the target question.

### 5.4.2 Results

The distribution of the ratings is shown in Figure 1. The statistical analysis was conducted by using cumulative link mixed models (R package *ordinal*; Christensen 2015) with random intercepts for subjects and items. The model parameters are given in Table 2. There was a main effect of MODAL PARTICLE, and an interaction of NEGATION and MODAL PARTICLE. Overall, items that included *väl* received higher acceptability ratings than items that did not include *väl*. However, this effect was only reliable for conditions where the negation was low. When the negation was fronted the presence or absence of *väl* had no effect on the (already quite high) acceptability.



**Figure 1.** Distribution of ratings (on the y-axis) in each of the four conditions as a *violin plot*, overlaid with *box-and-whiskers plots*. The width of the violin at a particular rating indicates the number of judgements for that rating. A wider violin means that there were more judgements for that rating. The box-and-whiskers plots show means (bold horizontal line), quartiles (lower and upper end of the box) and 1.5 times the interquartile range (vertical lines /whiskers) of the ratings in each condition. The dots are judgements that lay outside the  $1.5 \times$  interquartile range. Note that the means did not enter any statistical analysis. The box-and-whiskers-plots are here only for illustrative purposes.

**Table 2: Model parameters for the experiment**

	<i>estimate</i>	<i>se</i>	<i>z</i>	<i>p</i>
NEGATION	.115	.099	1.16	.25
MODAL PARTICLE	.442	.104	4.27	<.0001
Interaction	-.328	.100	-3.29	<.001

### 5.4.3 Discussion

We take these results to largely confirm our predictions that a Swedish negative declarative with fronted negation comes with an evidential bias for the positive proposition, [+positive].

The results indicate that such declaratives are highly acceptable in a context that provides evidence for the positive proposition. In contrast to this, negative declaratives containing low negation are much less acceptable in such a context if they do not contain the modal particle *väl*. Thus, without *väl*, the evidential bias of a negative declarative with low negation is different. This is predicted by our considerations about the context sensitivity of RQs vs. NDQs. The results of our experiments also support the claim by Petersson (2008), according to which negative declaratives may receive the same reading as negative questions with fronted negation if they contain the particle *väl*. In the experiment, such negative declaratives were judged to be highly acceptable. We conclude from this result that these declaratives also have the evidential bias [+positive], and are, in fact, RQs.

## 6 Proposal

In Section 4.3, we proposed that RQs come with the illocutionary operator REJECTQ. REJECTQ takes the proposition denoted by a declarative sentence,  $q$ , which can be positive or negative, as complement, forms a question meaning  $\{q, \neg q\}$  and presupposes that there is contextual evidence for  $\neg q$  and that the speaker had assumed  $q$  to be true. Furthermore, we proposed that in German, REJECTQ enters a syntactic Agree relation with the modal particle complex *doch wohl*. For Swedish, the results of the experiment presented in the previous section suggest that the meaning definition of REJECTQ also applies to Swedish but that REJECTQ requires a different syntax. To repeat, in Swedish NRQs either the negation is fronted, or low negation is combined with the particle *väl*; *väl* may also occur with fronted negation. So, in Swedish there are three ways of marking NRQs, rather than only one, as in German. For PRQs we observed in Section 5.3 that the conjunction *men* ('but') combines with *väl*, and that if the contextual evidence is 'direct' (see example (8), Section 3), one of the modal particles *visst* or *nog* may occur in clause-initial position. So, overall, Swedish has a rather large variety of morpho-syntactic means to express RQs. However, it seems that at least one of them must be used (in addition to intonation), in the sense that a declarative with just low negation cannot well be used as a NRQ and a positive declarative without *men* and *väl* cannot well be used as a PRQ. This means that RQs must come with some kind of morpho-syntactic cue (cf. Grosz 2014) but which cue it is, is not determined by syntax.

Now, the fact that there is syntactic movement of the negation to the clause-initial position, i.e. a very high position, both in NRQs and in rejections in Swedish is in itself remarkable. It has been claimed that the negation in rejections is not propositional (Van der Sandt 1991; Repp 2009a) but takes speech-act level scope. As a consequence, it also has a higher position in the clause. Furthermore, some negative polar questions (NPQs) have been argued to come with non-propositional, so-called *high negation* (Romero & Han 2004; Repp 2009a, 2013). This raises the issue if the negation in NRQs possibly is non-propositional. If the negation is non-propositional it should not license negative polarity items (NPIs) that require negation, that is a NRQ should not be able to host NPIs. In the next subsection we will explore this issue in detail by investigating the acceptability of polarity-sensitive items in NRQs. In subsection 6.2 we will present our final proposal for the syntax and semantics of RQs.

## 6.1 Polarity-sensitive items in rejecting questions: Evidence for non-propositional negation

In Swedish, there is good evidence that the negation in NRQs is non-propositional. A first piece of evidence is presented by Seeliger (2015), who shows that Swedish NRQs cannot host negative polarity items (NPIs) like *någonsin* ('ever'), see (26) for a NRQ with fronted negation.

(26) Context: Peter and Mary are about to travel to Greenland.

Mary: It will be nice to see Greenland again.

Peter: \*Inte har du någonsin varit på Grönland?  
not have you ever been on Greenland

Intended: 'Surely you haven't ever been to Greenland?' Seeliger (2015: 582)

Another indication for non-propositional negation in Swedish NRQs comes from the acceptability of the Swedish counterparts of the 'negative' and 'positive' English additive particles *either/too*, which have featured prominently in the investigation of the above-mentioned negative polar questions (NPQs) in English (Ladd 1981; Romero & Han 2004). The particle *too*, which must not be c-commanded by propositional negation in ordinary assertions, can occur under high negation in NPQs. The particle *either*, which requires propositional negation, cannot occur in NPQs with high negation. Romero & Han (2004) analyse high negation as the negation outscoping the epistemic conversational operator VERUM (inspired by Höhle 1992, see further below). High negation is thus too 'high up' to license NPIs like *either*. Repp (2006, 2009a, 2013) proposes that high negation is the illocutionary operator FALSUM, which does not license NPIs because it does not operate on the propositional level (see further below for details). Thus, the acceptability of *either* and *too* under a negative marker will be indicative of propositional vs. non-propositional negation. In Swedish, the element corresponding to *too* is the PPI *också* ('too'). (27) illustrates that *också* can occur in NRQs. The element corresponding to *either* in Swedish, *heller*, according to Brandtler & Håkansson (2014) is only felicitous in additive fronted negation (i.e. not in the contexts we are considering here).

(27) The party list context from the introduction: Maria sees that Noah is on the list and then discovers that Peter, whom she hates, is also on the list.

Inte kommer Peter också?

not comes Peter too

'Surely Peter isn't coming, too?'

Turning to German and starting with the *either/too*-test, the element corresponding to *too* is *auch* if c-commanded by the negation, viz. *nicht auch* ('not also') – rather than *auch nicht* ('also not'), which corresponds to *either* (Repp 2009a). (28) shows that *nicht auch* is acceptable in a NRQ.<sup>24</sup>

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<sup>24</sup> It should be noted here that *auch nicht* is possible in NRQs, see (i).

(i) The party list context from the introduction: Maria sees that Noah's name on the list is crossed out, but Peter, whom she hates, is on the list.

Peter kommt doch wohl auch nicht?

(28) Same Context as (27)

- a. Peter kommt doch wohl nicht auch?  
Peter comes MP MP not also  
'Surely Peter isn't coming, too?'

As for the German counterpart of the NPI *någonsin* ('ever') from (26), we cannot apply the same test in German because German *jemals* ('ever') must be licensed by a negation in a higher clause or by interrogative syntax. Therefore, we will discuss a number of different NPIs. This discussion will show that German NPIs show rather varied acceptability patterns in NRQs – and as we will see, do not necessarily show the same acceptability pattern in NRQs and in NPQs with high negation. In what follows, we will look at three NPIs that seem to be representative of (at least) three types of NPIs that exist in German,<sup>25</sup> see (29), (30) and (32). In (29) we test a verbal NPI without a direct object: *sich lumpen lassen* ('to let oneself be considered poor', with negation: 'to splash out'), in (30) a verbal NPI that takes a direct object: (*etwas*) *ausstehen können* ('to be able to stand (something)'), and in (32) a nominal NPI with the negative determiner *kein*: *ein Schwein* ('a pig').

The examples show that all these NPIs are unacceptable in NPQs with high negation (bias profile: *evidential*: [-positive]; *epistemic*: [+positive]), see the b-examples. In NRQs (bias profile: *evidential*: [+positive]; *epistemic*: [+negative]), the NPIs are not all unacceptable, see the a-examples.

The verbal NPI without a direct object, (29a), is acceptable in a NRQ. The contrast with the NPQ is quite sharp.

The acceptability of the verbal NPI with direct object in the NRQs in (30a) depends on the position of the negation. If the negation occurs before the definite direct object *Godard*, see (30a.i), the NRQ is unacceptable just like the NPQ in (30b.i). (31a&b) show that the negation in principle may occur before the definite object in both types of question, so it must be the particular context in (30a&b.i) that rules out this word order. If the negation occurs after the direct object – which is the default position of the negation in ordinary declarative assertions if there is no object focus (Büring 1994)<sup>26</sup> – the NRQ is fine, see (30a.ii). With that word order,

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Peter comes MP MP also not  
'Surely Peter isn't coming, either?'

The difference between (27a) and (i) is the proposition that satisfies the presupposition of *also*. In (27a), it is presupposed that someone in addition to Peter is coming, which is satisfied by the contextual evidence (Noah is coming). In (i), it is presupposed that someone in addition to Peter is not coming, which is satisfied by the speaker's previous assumption (epistemic bias). The negation in (i) is low. We will leave these interactions for future research.

<sup>25</sup> There are also adverbial NPIs, which we will ignore here for reasons of space. Overall, the landscape of German NPIs is rather underexplored and to our knowledge, there are no systematic studies. However, there is a corpus of polarity-sensitive items, the CoDII database (Trawiński & Soehn 2008; <https://www.english-linguistics.de/codii/codiinpi/de/list-complete.xhtml>) which also offers information on various licensing environments.

<sup>26</sup> Definite objects leave the scope of negation unless they are focussed (Büring 1994). If they are part of a (VP) focus, they may occur to the left of the negation if they are topical, as has been shown for correction structures (Repp 2009b).

the NPQ also is acceptable, see (30b.ii). Importantly, however, the NPQ in (30b.ii) is no longer a question with high negation but with low negation, i.e. propositional negation. It is felicitous in different kinds of contexts, i.e. it has a different bias profile from a NPQ with high negation (see Domaneschi, Romero & Braun 2017 for a discussion of German NPQs). We suggest that the NRQs in (30a.i&ii) differ from each other in a similar way. It seems that we are dealing with propositional negation in (30a.ii) and that this is not a bona fide NRQ but rather a "PRQ" with low negation. This issue requires closer scrutiny, and we think that a proper investigation of the word order in NPQs and NRQs must include a detailed investigation of their information structure (focus and givenness). Note that *Godard* is given and not focussed in (30a&b.i), whereas in the examples in (31a&b), *Godard* intuitively is focussed. This issue is beyond the scope of the present paper.

Finally, the *kein*-NPI in (32a/b-i) is unacceptable in NPQs with high negation and in NRQs. (32a/b-i) show that the unacceptability is not due to the fused negation in *kein* ('no' = *nicht* + *ein* ('not' + 'a')), whose acceptability has been suggested to be linked to low vs. high negation in NPQs (Büring & Gunlogson 2000).

- (29) a. *NRQ*: Ben tells Ann that Peter and himself had a great night out at the pub the previous evening, celebrating Peter's new job. Ben says that he was worried a bit at first because the pub was quite an expensive one. Ann, who knows that Peter is normally very generous, cuts in:

Ann: Peter hat sich doch wohl nicht lumpen lassen?  
 Peter has REFL MP MP not rags.verb let  
 'Surely Peter has splashed out?'

- b. *NPQ high negation*: Ben tells Ann that at last night's party Peter bought drinks for everybody. She is surprised because normally Peter is not very generous.

Ann: \*Hat sich Peter nicht lumpen lassen?  
 has REFL Peter not rags.verb let  
 Intended: 'Hasn't Peter played the poor man?'

- (30) a. *NRQ*: Ann always thought that Peter hates French films because he always mocks her for her great interest in them. Now Ben tells her that Peter invited him to go and see an old Godard film at the film museum.

Ann: (i) \*Peter kann doch wohl nicht Godard ausstehen?  
 Peter can MP MP not stand  
 (ii) Peter kann Godard doch wohl nicht ausstehen?  
 'Surely Peter cannot stand Godard?'

- b. *NPQ with high negation*: Ann always thought that Peter loves French films because he always shows great interest in them. Now Ben tells her that Peter turned down his invitation to go and see an old Godard film at the film museum, and scoffed at the suggestion.

Ann: (i) \*Kann Peter nicht Godard ausstehen?  
           can Peter not Godard stand  
       (ii) Kann Peter Godard nicht ausstehen?  
           'Surely Peter cannot stand Godard?'

- (31) a. *NRQ*: Peter mag doch wohl nicht Godard?  
           Peter has MP MP not the  
           'Surely Peter doesn't like Godard?'

- b. *NPQ with high negation*: Mag Peter nicht Godard?  
           Peter likes Godard  
           'Doesn't Peter like Godard?'

- (32) Ben tells Ann that the headmaster of the school knows everything about last week's secret meeting of the special occasions committee...

- a. *NRQ*: ...He suggests that someone must have told the headmaster's wife about the party that they are planning for his jubilee. The wife is known for being quite a blabbermouth. Still, Ann thinks that the information did not go via the wife – because everybody knows that she gives away secrets.

Ann:

- i. ??Der vertraut doch wohl kein Schwein so ein Geheimnis an?  
       her entrusts MP MP no pig such a secret to  
       'Intended: Surely nobody under the sun would trust her with such a secret?'

- ii. Der vertraut doch wohl niemand so ein Geheimnis an?  
       her entrusts MP MP nobody such a secret to  
       'Surely no one would trust her with such a secret?'

- b. *NPQ with high negation*: ...He considers that the headmaster's wife might have told him but then dismisses this idea because he thinks that nobody would tell her. Ann is surprised.

Ann:

- i. \*Vertraut der kein Schwein so ein Geheimnis an?  
 entrusts her no pig such a secret to  
 'Intended: Wouldn't a living soul trust her with such a secret?'
- ii. Vertraut der keiner so ein Geheimnis an?  
 entrusts her nobody such a secret to  
 'Would nobody trust her with such a secret?'

Briefly summarizing these data, we find that NRQs and NPQs with high negation share the following characteristics. (i) They allow positive-polar *too*. (ii) They do not allow *kein*-NPIs. (iii) They allow a non-default high position of the negative marker with respect to definite objects but from that position the negation does not license a lower NPI. All these characteristics speak for an analysis of the negation in NRQs as non-propositional. The challenges for an analysis of the negation in NRQs as non-propositional are the acceptability of fused *kein* because that has been associated with low negation in NPQs, and the difference between NRQ and NPQs with high negation with respect to the acceptability of purely verbal NPIs, which are only licensed in NRQs.

Starting with the latter difference, we suggest that it is a consequence of the different communicative contribution that NPQs and NRQs make. NRQs are closer in meaning to rhetorical questions than are NPQs with high negation, and rhetorical questions allow a wider range of NPIs than information questions do (Borkin 1971 and subsequent literature). Rhetorical questions allow strong NPIs (e.g. English *lift a finger*) and weak NPIs (e.g. English *any, ever*), whereas information-seeking questions only allow weak NPIs. This difference has been accounted for in terms of balancing the answer options (Krifka 1995) and increasing the entropy of the question, that is its informativity (van Rooy 2003). The less biased a question is the higher is its informativity because the *average* informativity of the answers is largest when the answers are equally likely to be true (van Rooy 2003).

Weak NPIs in information-seeking questions serve the purpose of reducing the bias for a negative answer that would be present in the question if it did not contain the NPI (Krifka 1995; van Rooy 2003). For instance, if a speaker thinks that a question like *Has John been to Peru?* is more likely to receive a negative answer when considering a standard temporal domain (e.g. in the last few years), that bias can be reduced by extending the domain with the NPI *ever*. With the NPI, the question is 'more general' (rather than quite specific), which will increase its information gain.

For strong NPIs in rhetorical questions, van Rooy (2003), following Kadmon & Landmann (1990) suggests that they 'unsettle' a settled question. For instance, a question without a NPI may be settled because the speaker takes the negative answer to be true, or considers the positive answer extremely unlikely. As a consequence, such a question would have an extreme bias for one answer option. The NPI is then used to reduce this extreme bias

by making a positive answer more likely – the NPI denotes something minimal so that a positive answer is more likely to be true. As a consequence, the question is 'unsettled' and it has an increased entropy. Krifka (1995) also says that by using a NPI, the speaker makes the positive answer more likely. The purpose is to signal that the addressee will be unable to truthfully assert this answer, suggesting that the negative answer is true.

These ideas can be transferred to NRQs. NRQs are more insistent than NPQs: the speaker is less prepared to give up his/her opinion. The epistemic bias is [+negative]. This makes them very similar to rhetorical questions. For NPQs with high negation, the epistemic bias is [+positive], i.e. not what would be required for rhetorical questions. Of course, the existing accounts of NPIs in questions do not distinguish between epistemic and evidential bias. This is something that needs to be investigated in greater detail in future research. However, we can show here that the verbal NPI *sich lumpen lassen*, which is possible in NRQs but not in NPQs, can indeed occur in a bona fide rhetorical question, see (33). The speaker of (33) is very certain that the answer to his/her question is 'nobody'. By using the NPI, the speaker maximizes the probability of an answer to the contrary, i.e. that 'sich lumpen lassen' is in fact true of someone, thus challenging the addressee to provide such an impossible answer.

- (33) Wer hat sich da schon lumpen lassen?  
 who has REFL there MP rags.verb let  
 'Who played the poor man in that situation, after all'

The NPI *sich lumpen lassen* can also occur in positive polar rhetorical questions expressing a firm belief in the truth of the negative answer. The NPI cannot occur in non-rhetorical polar questions. So, it seems that the rhetoricity of a question is important for the acceptability of NPIs in NRQs. The main difference between rhetorical questions and NRQs is that rhetorical questions are used to insist that the *addressee* should hold a specific belief, while NRQs point out that the *speaker* is in a specific epistemic state. More specifically, a rhetorical question conveys that the addressee cannot truthfully assert *p*; while a NRQ conveys that the speaker cannot truthfully assert *p*. This results in a weaker, less 'insisting' bias for NRQs in comparison to 'ordinary' rhetorical questions.

Before we turn to the other challenging piece of data, viz. the acceptability of fused *kein(er)* outside of NPIs, let us look at *kein*-NPIs. Crucially, these are not licensed in rhetorical questions, as is illustrated for constituent questions in (34) for the familiar *pig*-NPI and the *kein*-NPI *eine Menschenseele* ('a human soul'), and for corresponding polar rhetorical questions in (35).

- (34) a. \*Wem hat damals schon ein Schwein seine Geheimnisse anvertraut?  
 whom has then mp a pig his secrets entrusted  
 Intended: 'Whom did anyone at all trust with their secrets back then, after all?'
- b. \*Wer hat an diesem Abend schon eine Menschenseele gesehen?  
 who has on this evening mp a soul seen  
 Intended: 'Who saw anyone at all on that evening, after all?'

- (35) \*Hat den ein Schwein / eine Menschenseele angerufen? Siehste!  
 has him a pig / a human.soul called you.see  
 'After all, did anyone call him? Told you so!'

We suggest that *kein*-NPs are what Giannakidou (2011) calls *strict NPIs*. They are only licensed in anti-veridical environments, viz. under negation and with *without*. That the latter is true for the above NPIs is illustrated in (36):

- (36) Paul ging ohne {einem Schwein / einer Menschenseele} Bescheid zu sagen.  
 Paul left without a pig a soul information to say  
 'Paul left without telling anyone.'

The fact that *kein*-NPIs can neither occur in NRQs nor in NPQs with high negation is evidence for our conclusion that the negation in these questions is non-propositional.

Let us now consider our observation that *keiner*, which is a fusion of the negation with an indefinite pronoun, can occur in NRQs. Such a fusion has been suggested to be impossible in NPQs with high negation. Buring & Gunlogson (2000) observe that the negative determiner *kein* is split into negation + indefinite determiner (*nicht + ein*) in these questions. So we would expect the same to be the case in NRQs, contrary to fact. Taking a closer look at the negative determiner/pronoun we find that *kein(er)* seems to be fairly flexible and that the fusion does not seem to depend entirely on the negation being propositional or not. In default declaratives with propositional negation that are used as negative assertions, *kein(er)* must occur before the highest non-specific indefinite. Corrections – which arguably contain non-propositional negation – may contain the fused form (Repp 2009a), or the split form see (37).

- (37) Peter hat {kein / nicht ein} Auto gekauft, sondern ein Motorrad.  
 Peter has no not a car bought but a motorbike  
 'Peter didn't buy a car but a motorbike.'

Furthermore, in NRQs it does not seem to make a difference whether the fused or the split form occurs. There is no meaning difference between *nicht ein* and *keiner* in (38a, b). In both cases the speaker receives evidence for a positive proposition (the addressee has ordered a coffee) and indicates previous belief in the truth of a negative proposition (the addressee would not order coffee).

- (38) It is 8 o'clock at night. Ben is in a café. He has been having sleeping problems because he has been drinking too much coffee in the evenings. Ann arrives. She knows about Ben's sleeping problems and can't believe her eyes: There is a cup of coffee in front of Ben:  
 Ann a. Du hast doch wohl nicht einen Kaffee bestellt?  
           you have MP MP not a coffee ordered  
       b. Du hast doch wohl keinen Kaffee bestellt?  
           'Surely, you haven't ordered a coffee.'

These observation suggests that the negation may be interpreted as high negation even when it occurs in the fused form. In other words, non-fusing is a diagnostic for high negation, but fusing is not a diagnostic for low negation.

To summarize, there is considerable evidence that the negation in rejections and in RQs is non-propositional. Intuitively this makes sense because non-propositional negation is a reflex of the speaker rejecting (evidence for) a positive proposition in both cases.

## 6.2 REJECTQ and FALSUM: Illocutionary operators in rejection questions

On the basis of our discussion in the previous subsection we propose, following Seeliger (2015), that the negation in rejections and in RQs denotes the operator FALSUM from Repp (2009a, 2013). FALSUM is an epistemic speech-act level operator (here simply referred to as *illocutionary modifier*) which signals that the speaker is essentially not committed to the proposition  $q$  that is at issue – because there are zero degrees of strength for sincerely committing to  $q$  and for adding  $q$  to the common ground. The counterpart of FALSUM in PRQs is VERUM (originally proposed in Höhle 1988, 1992<sup>27</sup>; cf. also Lohnstein 2012, 2016; Romero & Han 2004; Repp 2013) – or an evidential version of it: the particles *visst/nog* occur clause-initially in PRQs. They signal high certainty but require direct contextual evidence. We assume that the illocutionary modifiers FALSUM and VERUM occur in the specifier position of ForceP: at LF in German, and in Swedish either at the surface or at LF. ForceP is headed by the speech act operator REJECTQ<sup>28</sup>, thus:

(39) [<sub>ForceP</sub> FALSUM/VERUM [<sub>Force'</sub> REJECTQ [<sub>TP</sub> ...]]]

The definition of REJECTQ is given in (40). REJECTQ takes a proposition  $q$  and an illocutionary modifier (*IM*) as its arguments. It comes with two presuppositions. The first is that on an evidential basis there is the degree of commitment to add  $\neg q$  to the common ground that is expressed by the respective IM. Thus, if IM is FALSUM, the evidence is such that it does not support commitment to  $\neg q$ ; if IM is VERUM the evidence is such that it supports high commitment to  $\neg q$ . The second presupposition of REJECTQ is that on an epistemic basis (i.e. according to the speaker's previous assumptions), there is the IM-determined degree of commitment to add  $q$  to the common ground. The non-presuppositional meaning contribution of REJECTQ is to form a set of propositions that are modified by IM such that one set is the complement set of the other. Thus, a rejecting question essentially asks the addressee what the commitment to a specific proposition should be in the face of conflict with contextual evidence.

(40)  $\llbracket \text{REJECTQ} \rrbracket = \lambda q \lambda \text{IM}: \llbracket \text{IM}(\neg q) \rrbracket^{\text{evid}} \ \& \ \llbracket \text{IM}(q) \rrbracket^{\text{epist}}. \ \{ \text{IM}(q), \neg \text{IM}(q) \}$

Sample derivations for the PRQ *Peter kommt doch wohl?* ('Surely Peter is coming?') and for

<sup>27</sup> Note that VERUM is not a category that is related to focus anymore, as it was originally proposed by Höhle, cf. Romero & Han (2004) for the original definition of VERUM as an epistemic conversational operator.

<sup>28</sup> We deviate here from the proposal in Repp (2009) where FALSUM scopes over the proposition and speech act operators scope over FALSUM. However, the semantic composition of the two elements is similar.

the NRQ *Peter kommt doch wohl nicht?* ('Surely Peter isn't coming?') are given in (41). For better readability, the presupposition is underlined. Note that both in the PRQ and in the NRQ, the proposition *p* is non-negative because *FALSUM* and *VERUM* are not propositional operators.

- (41) a. Peter kommt doch wohl? ('Surely Peter is coming?')
- $$\begin{array}{c} \underline{[\text{VERUM}(\neg\text{Peter kommt})]^{evid}} \ \& \ \underline{[\text{VERUM}(\text{Peter kommt})]^{epist}} \\ \{ \text{VERUM}(\text{Peter kommt}), \neg\text{VERUM}(\text{Peter kommt}) \} \\ \swarrow \qquad \searrow \\ \lambda q.\text{VERUM}(q) \qquad \lambda\text{IM}: \underline{[\text{IM}(\neg\text{Peter kommt})]^{evid}} \ \& \ \underline{[\text{IM}(\text{Peter kommt})]^{epist}} \\ \qquad \qquad \qquad \{ \text{IM}(\text{Peter kommt}), \neg\text{IM}(\text{Peter kommt}) \} \\ \qquad \qquad \qquad \swarrow \qquad \searrow \\ \text{REJECTQ} \qquad \qquad \text{Peter kommt} \\ \lambda q\lambda\text{IM}: \underline{[\text{IM}(\neg q)]^{evid}} \ \& \ \underline{[\text{IM}(q)]^{epist}}. \{ \text{IM}(q), \neg\text{IM}(q) \} \end{array}$$
- b. Peter kommt doch wohl nicht? ('Surely Peter isn't coming?')
- $$\begin{array}{c} \underline{[\text{FALSUM}(\neg\text{Peter kommt})]^{evid}} \ \& \ \underline{[\text{FALSUM}(\text{Peter kommt})]^{epist}} \\ \{ \text{FALSUM}(\text{Peter kommt}), \neg\text{FALSUM}(\text{Peter kommt}) \} \\ \swarrow \qquad \searrow \\ \lambda q.\text{FALSUM}(q) \qquad \lambda\text{IM}: \underline{[\text{IM}(\neg\text{Peter kommt})]^{evid}} \ \& \ \underline{[\text{IM}(\text{Peter kommt})]^{epist}} \\ \qquad \qquad \qquad \{ \text{IM}(\text{Peter kommt}), \neg\text{IM}(\text{Peter kommt}) \} \\ \qquad \qquad \qquad \swarrow \qquad \searrow \\ \text{REJECTQ} \qquad \qquad \text{Peter kommt} \\ \lambda q\lambda\text{IM}: \underline{[\text{IM}(\neg q)]^{evid}} \ \& \ \underline{[\text{IM}(q)]^{epist}}. \{ \text{IM}(q), \neg\text{IM}(q) \} \end{array}$$

We assume that the insisting nature of RQs that we mentioned in the introductory sections, and thus their rhetorical flavour, follow from the specific epistemic bias of the speaker: before the speaker asked the question s/he thought that s/he was committed to a certain proposition, or that s/he was definitely not committed to that proposition. This is different from NDQs and PDQs where it is only required that the speaker did not actively believe what the contextual evidence suggests.

Turning to the syntactic side of REJECTQ, our proposal for German from Section 4.3 can stay as it was except that the negation in NRQs is not interpreted in situ but as the *FALSUM* operator, which at LF (German) or at the surface (sometimes in Swedish) appears high in the structure, as we just saw. The assumption that *FALSUM* appears in the specifier position of REJECTQ is similar to Zimmermann's (2004) assumptions about the syntax-semantics interface of sentences with *wohl*. As for the modal particle complex *doch wohl*, we assume that this complex enters a feature chain with appropriate features on the REJECTQ head:

- (42) [<sub>ForceP</sub> *FALSUM* [<sub>REJECTQ</sub><sub>[NRQ]</sub> [<sub>Peter kommt</sub> [<sub>doch wohl</sub>]<sub>[NRQ]</sub> nicht [<sub>vP</sub> t<sub>Peter</sub> t<sub>kommt</sub>]]]]

For Swedish, we assume that REJECTQ can come with or without a syntactic feature that

overtly attracts FALSUM or the modal particles *visst/nog* to its specifier position. As we argued above, the uniting semantic-pragmatic feature of these elements is that they are illocutionary epistemic operators. As for the presence of *väl* in NRQs, *men* ('but') plus *väl* in PRQs and *ju* in rejections, we must assume that they are cues in the sense of Grosz (2014), i.e. that their presence is required in cases of potential ambiguity between different types of speech act. In Swedish negative declaratives, ambiguity arises if the negation is low: negative declaratives with low negation in principle can be assertions, NDQs, rejections, NRQs (and possibly other speech acts). We know that rejections and NRQs differ in their prosody (Seeliger & Repp 2017). Intonation can also disambiguate NDQs and assertions (Gårding 1979; House 2003). However, intonation does not seem to be enough for a disambiguation of rejective vs. non-rejective utterances, i.e. RQs vs. DQs, and rejections vs. negative assertions. Morpho-syntactic means are employed for this differentiation.

## 7 Conclusion

We have argued that RQs in German and Swedish are best modelled by an illocutionary operator, REJECTQ, which takes a proposition and an illocutionary modifier as its argument, and which comes with certain presuppositions concerning the evidence available in the situation as well as the speaker's previous assumptions. The presence of the illocutionary modifier FALSUM can be indicated by a high syntactic position of the negation (in Swedish), and by the combination of a negative marker in its canonical position with modal particles or modal particle stacks that do not receive a compositional meaning. The presence of VERUM is only indicated by modal particles or modal particle stacks. This proposal brings questions with declarative syntax in line with theories about questions with interrogative syntax, in which more than one syntactic position and pragmatic function of negation have long been proposed (Romero & Han 2004; Repp 2009a, 2013; Krifka 2015).

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