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*Bart Geurts, Nijmegen (The Netherlands)*

## 76. Discourse particles

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## Abstract

*The article gives an overview of the distribution and interpretation of discourse particles. Semantically, these expressions contribute only to the expressive content of an utterance, and not to its core propositional content. The expressive nature of discourse particles accounts for their taking scope over question and imperative operators and over structured propositions, setting them apart from modal auxiliaries and adverbs. Discourse particles are distinguished from other discourse-structuring elements by their specific semantic function of conveying information concerning the epistemic states of discourse participants. A discussion of German discourse particles identifies three semantic core functions: (i.) the proposition expressed is marked as part of the Common Ground (ja); (ii.) it is marked as not activated with one of the discourse participants (doch); (iii.) the commitment to the proposition expressed is weakened (wohl). Further topics discussed are the interaction of discourse-particles with sentence types, secondary pragmatic effects (politeness, surprise, indirect speech acts), and the feasibility of a surface-compositional analysis and its problems. The article concludes with a brief cross-linguistic survey that shows that discourse particles are in languages across the world.*

## 1. Introduction

Discourse particles form a closed class of invariable natural language expressions. They help to organize a discourse by conveying information concerning the epistemic states of the speaker, or her interlocutors, or both, with respect to the descriptive, or propositional, content of an utterance. This article discusses their semantic contribution to the meaning of an utterance.

The structure of the article is as follows: The remainder of the introduction gives a first approximation to the meaning of discourse particles in general. This is followed by a brief overview of the existing literature. Finally, the class of discourse particles is set off from the larger class of discourse markers, i.e. elements with a more general discourse-structuring function. Section 2 discusses the semantic contribution of discourse particles by concentrating on three discourse particles from German. Section 3 turns to the interaction of discourse particles with sentence types. Section 4 shows how the presence of discourse particles can trigger illocutionary effects in certain contexts. Section 5 discusses issues of compositionality. Section 6 provides a brief cross-linguistic comparison. Section 7 concludes with a list of open problems. Due to the often elusive or ineffable (cf. article 95 (Potts) *Conventional implicature*; Potts 2007) quality of the semantic contribution of discourse particles, the discussion is mainly restricted to discourse particles in German, but it nonetheless provides the necessary tools for the analysis of parallel phenomena in other languages.

### 1.1. The general meaning of discourse particles

Discourse particles in the narrow sense are used in order to organize the discourse by expressing the speaker's epistemic attitude towards the propositional content of an utterance, or to express a speaker's assumptions about the epistemic states of his or her interlocutors concerning a particular proposition. More generally, discourse particles have the function of fitting the propositional content of a sentence to the context

of speech by giving an utterance its specific ‘shade’ (Hartmann 1998: 660), or alternatively, by imposing restrictions on appropriate contexts for a given utterance (cf. articles 89 (Zimmermann) *Context Dependency* and 95 (Potts) *Conventional implicature*). For this reason, they are sometimes also called *shading* or *modal particles* (Weydt 1969, Hartmann 1998). Discourse particles thus play a role at the semantic level of *discourse maintenance* in the sense of Krifka (2008). Alternatively, they can be seen as contributing to the *procedural meaning* component of Blakemore’s (2002) relevance-theoretic approach. Discourse particles provide the discourse participants not with descriptions of particular states of affairs, but rather with clues as to which propositions count as mutually accepted, as controversial, or as uncertain. That is, they establish a link between the proposition expressed by an utterance and the knowledge and belief systems of the discourse participants. This semantic characterization of discourse particles brings them in close connection to evidential markers (cf. article 50 (Portner) *Verbal mood*) in other languages, as the two kinds of expressions operate on overlapping semantic domains; see section 6.4.

To illustrate, the sentences in (1a–c) do not differ in propositional content: They all have the same truth-conditions (cf. article 33 (Zimmermann) *Model-theoretic semantics*). A difference in the choice of the particle (*ja*, *doch*, *wohl*) leads to a difference in felicity conditions, however, such that each sentence will be appropriate in a different context.

- (1) a. Max ist *ja* auf See.  
 b. Max ist *doch* auf See.  
 c. Max ist *wohl* auf See.  
 Max is PRT at sea

As a first approximation, (1a) indicates that the speaker takes the hearer to be aware of the fact that Max is at sea. In contrast, (1b) signals that the speaker takes the hearer not to be aware of this fact at the time of utterance. (1c), finally, indicates a degree of speaker uncertainty concerning the truth of the proposition expressed. In each case, the discourse particle does not contribute to the descriptive, or propositional, content of the utterance, but to its expressive content, where expressive content refers to the more elusive or ineffable aspects of semanto-pragmatic meaning that link the proposition expressed to the context of utterance (cf. article 95 (Potts) *Conventional implicature*). In the case of discourse particles, they do so by introducing felicity conditions on the knowledge states of the discourse participants concerning the situations or events described by the propositional content of the utterance.

## 1.2. Literature overview

There is quite a large body of literature on discourse particles in languages that have them (see, e.g., Zeevat 2000, 2005 on Dutch; Karlsson 1979 and Abraham & Wuite 1984 on Finnish; Holton, Mackridge & Philippaki-Warbuton 1997 on Greek; Li 2006 on Chinese; Hara 2006 on Japanese), and in particular on discourse particles in German. The existing accounts differ in empirical coverage and analytical depth. At one extreme, we find mainly descriptive accounts that more or less list the various uses of discourse particles in various contexts and give paraphrases of their semantic contribution (e.g. Weydt 1969, Kriwossonow 1977, Helbig & Kötz 1981). Next, we find contrastive studies

that compare the particle system of one language (often German) with that of another (e.g. Nekula 1996; Péteri 2002; Rinas 2006). Finally, there is also an increasing number of formal semantic studies of the meaning of individual particles, which try to derive their different uses and their syntactic distribution on principled semantic grounds, see e.g. the case studies in Abraham (1991a), Kratzer (1999), and Zimmermann (2008), among others. Doherty's (1985) formal study of various discourse particles constitutes a promising first attempt at a compromise between descriptive adequacy and formal rigour, which is taken up in Karagjosova (2004a).

Owing in part to the elusive semantic nature of discourse particles, formal semantic studies of them are a relatively recent development, dating back no longer than 20 years ago or so. As a result, there is to date no generally accepted formal analysis of the meaning of discourse particles and other expressive elements, but see Kaplan (1997) for a promising line of research on expressives in general. Discourse particles have been treated alternatively (i.) as modifiers on illocutionary operators, cf. Jacobs (1991) and Lindner (1991), or as speech act modifiers (Waltereit 2001, Karagjosova 2004a); (ii.) as speech act markers of non-standard discourse contexts (Zeevat 2000, 2005); (iii.) as adding felicity conditions on appropriate utterance situations, which combine with the standard truth-conditional meaning of the clause, cf. Kratzer (1999); (iv.) as epistemic functors over propositions or facts, which sometimes come with additional implicatures, cf. Doherty (1985) and Ormelius (1991); (v.) as modifiers on sentence type operators in the C-domain of the clause, cf. Zimmermann (2008); or (vi.) as contributing to the procedural meaning in a relevance-theoretic framework, cf. König & Requardt (1991).

Further controversy arises from the fact that discourse particles are poly-functional in that many members of this class also belong to other lexical classes, such as focus particles, adverbials, and discourse markers. In particular, the relation of the unstressed discourse-particles *ja* and *wohl* with their stressed, discourse-structuring counterparts in German has raised some interest, see section 1.3. While some authors hold the *maximalist* position that the meanings of the two kinds of expressions are synchronically unrelated, others subscribe to a *minimalist* position on which one interpretation can be derived from the other, see Abraham (1991b) for relevant discussion.

### 1.3. Discourse markers

The term *discourse particle* or *discourser marker* is often used to refer to a wider class of discourse-structuring expressions that act as '*discourse glue*' (Fraser 1990: 385). Discourse markers in this general sense establish discourse coherence (cf. article 74 (Kehler) *Cohesion and coherence*) in a variety of ways: Some are used to express acceptance or rejection of a previous utterance (2a,b); some indicate turn-taking (3a), or a change of topic (3b); and some can be used to conclude a discourse sequence (4).

- (2) a. A: Peter has gone home.  
       B: *Uhuh.* → *acceptance*  
       b. A: Peter didn't go home.  
       B: *Yes, he did.* → *rejection*

- (3) a. *By the way*, Peter has won.  
 b. A: What a funny game!  
 B: Let's go on all night long!  
 C: *Well*, I am tired.
- (4) A: I can't stand Herman  
 B: He's *just* an idiot.

Cross-linguistically, such discourse-structuring particles are more widespread than discourse particles in the narrow sense, as all languages seem to exhibit the former, but not the latter. In addition, some discourse-structuring expressions in German, such as accented *já* and *wóhl*, are the stressed counterparts of otherwise identical discourse particles, suggesting that the two classes of elements may have a common origin (Abraham 1991). Finally, the existence of discourse-structuring elements raises interesting issues concerning the link(s) between sentence meaning and discourse meaning, and about the cognitive nature of linguistic meaning in general, cf. Blakemore (2002) for an overview. Nonetheless, we will ignore discourse-structuring elements in what follows, as our main interest lies in giving a good analysis of the narrower class of discourse particles defined in 1.1.

## 2. The meaning of discourse particles

German has a particularly rich inventory of some 20 or more discourse particles; see Hartmann (1998) for a comprehensive list. As mentioned above, many of these elements belong to more than one lexical class. The present discussion of the meaning of discourse particles focuses on three core cases, namely on the particles *ja*, *doch*, and *wohl*. Capturing the meanings of these particles in more formal terms than we did below (1), these elements will be analysed (i.) as indicating the existence of (potential) mutual knowledge in the *Common Ground* (Stalnaker 1978) (= *ja*); (ii.) as indicating an adversative attitude to certain background assumptions (= *doch*); and (iii.) as indicating a weakened commitment to the descriptive content of an utterance (= *wohl*), respectively; see section 2.1. Given that such functions are associated with discourse particles cross-linguistically (see section 6), the semantic behaviour of the three German particles is taken as representative of the phenomenon of discourse particles at large even though this assumption should be corroborated by more cross-linguistic study.

Section 2.2 presents two empirical arguments to the effect that discourse particles contribute exclusively to the expressive meaning component. This property would set them aside from epistemic adverbs and modal auxiliaries (cf. article 58 (Hacquard) *Modality*), which are shown to contribute to the propositional descriptive content in section 2.3, supporting analyses by Kratzer (1977, 1981), Papafragou (2006) and von Stechow & Gillies (2007), among others, pace Lyons (1977). Section 2.4 shows that different discourse particles contribute to the expressive meaning of an utterance in different ways. While some discourse particles add extra meaning to the descriptive content in form of a presupposition or conventional implicature (cf. articles 91 (Beaver & Geurts) *Presupposition* and 95 (Potts) *Conventional implicature*), others operate more directly on the

descriptive and illocutionary meaning, e.g. by changing the strength of speaker or hearer commitment towards the proposition expressed.

## 2.1. Characteristics and basic meaning

*The meaning of ja*: The particle *ja* is presumably the best researched of all German discourse particles, with formal treatments found in Doherty (1985), König & Requardt (1991), Jacobs (1991), Lindner (1991), Kratzer (1999), Karagjosova (2003, 2004a), and Kaufmann (2004). Informally, there is agreement on the basic semantic function of *ja*, which consists in establishing or reconfirming a proposition *p* as part of the Common Ground, often based on perceivable contextual evidence: By adding *ja* to an utterance with propositional content *p*, a speaker indicates that he thinks *p* to be uncontroversial at the time of utterance  $t_u$ , i.e. that there is no proposition *q* activated at  $t_u$  that would contradict *p* (Lindner 1991: 173):

- (5)  $\llbracket ja \rrbracket(p) = p$  is true and speaker believes *p* uncontroversial.

A proposition *p* will be uncontroversial if a speaker assumes its content to be shared by the addressee, i.e. to be part of the Common Ground, or if the speaker considers the addressee to be in the possession of sufficient evidence for judging *p* to be true. The latter condition brings out the intimate connection between *ja* and evidentials in other languages, and gets us close to the felicity conditions on the use of *ja* in Kratzer (1999). Kratzer combines the descriptive and the expressive content of utterances containing *ja* to a *meaning*<sup>+</sup> (Kaplan 1997) by introducing the respective meaning components in form of appropriateness conditions on possible utterance situations. According to (6), *ja* takes a proposition *p* as argument and maps it to the set of situations in which *p* is true and in which *p* might – for all the speaker knows – already be known to the addressee (Kratzer 1999: 4):

- (6)  $\llbracket ja \rrbracket = \lambda p. \lambda s. (p(w_s) \ \& \ \text{might}(s)(\lambda s'(\text{know}(s')(p)(\text{tx}(\text{addressee}(s)(x))))))$

Kratzer's formal treatment is the first step in an attempt to formally integrate the expressive meaning with the descriptive meaning. This program is taken up in Potts (2005), who treats the meaning of expressive elements in terms of partially defined identity functions. Such functions give a sentence its ordinary semantic value if and only if the contextual restrictions introduced by the expressive element are satisfied, thus mimicking the semantic effects of presuppositions (cf. article 91 (Beaver & Geurts) *Presupposition*) or conventional implicatures (cf. article 95 (Potts) *Conventional implicature*).

The semantics of *ja* in (5) and (6) correctly predict the particle to be felicitous in contexts where the speaker can safely assume the addressee to be aware of the truth of the proposition expressed:

- (7) *First brother to second brother:*  
 Morgen wird Mama ja siebzig.  
 Tomorrow turns mum PRT seventy  
 'Mum turns 70 tomorrow, y'know.'

In contrast, *ja* is illicit whenever the truth of the propositional content of an utterance is not known to be shared by the addressee, or even known to be controversial. This is typically the case in breaking news (8a); in answers to questions, which denote a set of controversial alternatives to be resolved by the addressee (8b); or in corrections of previous assertions (8c):

- (8) a. *Happy young dad to passer-by:*  
 #Ich habe *ja* eine Tochter.  
 I have PRT a daughter  
 ‘I’ve got a daughter, y’know.’
- b. Q: Who won?  
 A: #Peter hat *ja* gewonnen.  
 Peter has PRT won  
 ‘Peter has won, y’know.’
- c. A: That’s a rabbit.  
 B: #Nein, das ist *ja* ein Hase.  
 No that is PRT a hare  
 ‘No, it’s a hare, y’know.’

While the contextual restrictions on *ja* brought about by the expressive addition in (5) and (6) are quite clear, the formal status of this additional meaning component is debated. For Jacobs (1991) and Lindner (1991), *ja* operates on the illocutionary operator *ASSERT*, forming a new illocutionary operator *J-ASSERT*. This operation introduces the expressive meaning component as a meaning postulate. For Doherty (1985), the insertion of *ja* triggers a conventional implicature. And for Kratzer (1999), *ja* restricts the set of appropriate utterance situations at the integrated semantic level *meaning+*. We will return to this problem in 2.4.

*The meaning of doch:* The particle *doch* adds expressive meaning to the descriptive content, too. Its presence in utterances with descriptive content *p* indicates that *p* is not under discussion or entertained at the time of utterance (Lindner 1991):

- (9)  $\llbracket \text{doch} \rrbracket(p) = p$  is true & speaker assumes *p* not to be activated at the current stage in the discourse.

In the typical case, an utterance of *doch*  $\alpha$  with propositional content *p* is used in order to express the speaker’s assumption that the addressee is not aware of *p* (Karagjosova 2003). For instance, the addressee may have (temporarily) forgotten about *p* (10), or she may think *p* false (11):

- (10) Du gehst? Es gibt *doch* Bier!  
 You go there.is PRT beer  
 ‘You’re off? But there’s beer.’



- (11) A: Mary went to the club.  
 B: Nein, Maria ist *doch* zu Hause.  
 No Mary is PRT at home  
 ‘But Mary is at home.’

The fact that *doch* indicates non-activation of the proposition expressed, typically with the addressee, also explains its affinity to concessive clauses with adversative interpretations, such as (12); cf. Lerner (1987):

- (12) Er fährt, und *doch* trinkt er.  
 He drives and PRT drinks he  
 ‘He drives, but he drinks.’

The first clause in (12) implicates pragmatically that  $\neg p$ , where  $p = \lambda s. drink'(x)(s)$ . The non-activation of  $p$  in (12) is correctly indicated by the presence of *doch* in the second clause. Notice that *doch* in (11) and (12) is felicitous even though the sentences can be taken to convey information that is new to the addressee. This is in line with claims in Karagjosova (2004b) that frequently observed givenness effects with *doch* do not follow from its lexical meaning per se, but from independent information-structural factors that interact with the basic meaning of *doch* (indicating a contrast in the activation status of  $p$ ).

The analysis of *doch* in (9) also makes a prediction concerning illicit contexts of use: *doch* is illicit whenever the context states or implies that the addressee actively entertains  $p$ . Compare (10), (11), and (12) with their infelicitous counterparts in (13) to (15), respectively:

- (13) A: I'm off, even if there's beer.  
 B: #Du gehst? Es gibt *doch* Bier.  
 you go there.is PRT beer

- (14) A: Mary is at home.  
 B: #Nein, Maria ist *doch* zu Hause.  
 no Mary is PRT at home

- (15) #Er fährt, *doch* er trinkt nicht.  
 he drives, PRT he drinks not  
 ‘He drives, but he doesn't drink.’

*The meaning of wohl*: The presence of *wohl* effects a weakened commitment towards the truth of the proposition expressed, such that the descriptive content of the clause is not presented as secure knowledge, but rather as an assumption or a conjecture (Doherty 1985, Abraham 1991b, Green 2000, Zimmermann 2008):

- (16)  $\llbracket wohl_x \rrbracket(p) = ASSUME(x, p)$

The right-hand side of (16) can be read as ‘ $x$  is weakly committed to the truth of  $p$ ’, where  $x$ 's weakened commitment towards  $p$  is expressed by the operator *ASSUME*. The



variable nature of  $x$  indicates that the uncertainty can be on the side of the speaker (in declaratives), the addressee (in interrogatives), or both, see 3.1. It follows that *wohl* in declaratives will be infelicitous in contexts where the speaker is strongly committed to the propositional content of a declarative clause:

- (17) A: I know for sure:  
       #Hein ist *wohl* auf See.  
       Hein is PRT at sea

In contrast, *wohl* in declaratives is felicitous whenever the context suggests that the speaker is not 100% sure about  $p$ :

- (18) A: I can't see Hein.  
       Er ist *wohl* auf See.  
       'He may be at sea.'

An alternative analysis, based on ideas in Davis, Potts & Speas (2007) would establish a more direct link between discourse particles like *wohl* and evidentials. On this analysis, the semantic contribution of *wohl* lies solely in its context-change potential. In an utterance with descriptive content  $p$ , *wohl* temporarily lowers the quality threshold ( $C_T$ ), i.e. the degree of epistemic certainty required for a felicitous utterance of  $p$ , as indicated in (19):

- (19)  $C + \llbracket \text{wohl} \rrbracket(p) = C' + \llbracket p \rrbracket$   
       where  $C' = C$ , except  $C_T > C'_T$

## 2.2. Evidence for the expressive nature of discourse particles

We have argued that discourse particles do not contribute to the descriptive, or propositional, content of an utterance, but rather to its expressive content. This difference is hard to detect in simple declarative clauses, for which it is difficult to decide empirically if discourse particles contribute to their descriptive content, e.g. by mapping propositions to more complex propositions, or to an integrated meaning<sup>+</sup> (Kratzer 1999). Alternatively, they could form part of the expressive content, e.g. by modifying illocutionary operators like *ASSERT* (Jacobs 1991) or sentence-type operators, such as *DECL* and *INT* (Zimmermann 2008).

Zimmermann (2008) discusses two kinds of empirical evidence supporting the claim that discourse particles do not contribute to the descriptive content. The first is based on their behaviour in sentence types other than declaratives. The second involves their interaction with the focus-background structure of a clause (cf. article 71 (Hinterwimmer) *Information structure*). See also Jacobs (1991).

In imperative and interrogative clauses (cf. articles 66 (Krifka) *Questions* and 67 (Han) *Imperatives*), the meaning of discourse particles does not contribute to the proposition expressed: Discourse particles are invisible to the sentence-type operators *IMP* and *INT*, which take propositions as arguments and map them to semanto-pragmatic objects with a particular illocutionary force. That is, the meaning of *doch* in (20) does not enter the content of the command itself, unlike all propositional material.

- (20) Gib mir *doch* das Buch!  
 give me PRT the book  
 ‘Give me the book, do!’

If the meaning of *doch* formed part of the proposition, we would expect the imperative in (20) to express the speaker’s desire that the addressee have the proposition of her giving the book to the speaker deactivated, contrary to fact. Instead, (20) expresses the speaker’s wish that the addressee bring about the state of affairs described by the proposition  $p = \lambda s. \textit{give}'(\textit{addressee}, \textit{speaker}, \lambda x. \textit{book}(x), s)$ , and in addition the speaker expresses her assumption that the addressee does not have this proposition  $p$  ( $\approx \lambda s. \textit{addressee gives speaker the book in } s$ ) activated in the sense that  $p$  is, or will be made true. This holds, for instance, when the addressee does not intend to make  $p$  true. Imperatives like (20) are thus commonly used when the speaker has reason to suspect that the addressee is unwilling to obey the command, or that she has forgotten about it altogether.

In parallel fashion, the meaning of *wohl* in (21) does not find its way into the alternative propositions formed by the interrogative operator *INT*, which operates on the basic proposition of the clause (Hamblin 1973, Karttunen 1977) (cf. articles 66 (Krifka *Questions*):

- (21) Hat Hans *wohl* Maria eingeladen?  
 has Hans PRT Mary invited  
 ‘What do you reckon: Has Hans invited Mary?’

The question in (21) is not about whether or not the addressee is lacking in commitment towards the proposition  $p = \lambda s. \textit{invite}'(\textit{Hans}, \textit{Mary}, s)$ . Rather, the question is about whether or not Hans has invited Mary, but by using *wohl* the speaker indicates her awareness that the addressee may not be fully committed to her answer. Crucially, the semantic contribution of *wohl* takes scope over the alternative answers invoked by the interrogative operator. Adopting an analysis in Truckenbrodt (2004, 2006) of interrogative questions as expressing a hidden command for the addressee to contribute to the Common Ground by giving an answer, the meaning of (21) can be roughly represented as in (22), where *S* and *A* stand for speaker and addressee respectively:

- (22) WANT (S, A, know (S&A, ASSUME {Hans invited Mary, Hans did not invite Mary}))

What *S* wants *A* to do in case of *wohl*-interrogatives is to contribute to the Common Ground (= A&S’s mutual knowledge) by speculating on the questioned proposition. This can be stated more informally as ‘Tell me your best guess concerning the following set of alternatives: Hans invited Mary, or he didn’t.’ The meaning contribution of *wohl* in (22) is indicated by the operator *ASSUME*, which operates on the set of propositions that are created by the interrogative operator *INT*, and which jointly constitute the set of possible answers. The operator lowers the degree of epistemic certainty required for uttering any of these propositions as a felicitous answer; see the end of section 2.1 for a possible technical implementation of this weakening effect. Interrogative questions with *wohl*, then, function as requests for best guesses, or plausible assumptions, rather than for absolute certainties on the side of the addressee (Asbach-Schnittger 1977, Zimmermann 2008). This aside, they do not differ in meaning from their *wohl*-less counterparts.

Turning to the interaction of discourse particles with the focus-background structure of the clause (cf. article 71 (Hinterwimmer) *Information structure*), it shows that the semantic contribution of discourse particles affects only the meaning of the focus constituent, rather than the entire proposition. The meaning of (23ab) differs depending on which constituent is in focus:

- (23) a. MAX<sub>F</sub> fährt *wohl* nach Ulm.  
 b. Max fährt *wohl* nach ULM<sub>F</sub>.  
 Max goes PRT to Ulm

In (23a), with focus accent on *Max*, the speaker presupposes that somebody is going to Ulm and adds the assumption that this somebody is Max. In (23b), with focus accent on *Ulm*, the speaker presupposes that Max is going somewhere and adds the assumption that this somewhere is Ulm. Parallel effects – modulo the meaning contribution of the particle – can be observed when the particle *wohl* in (23ab) is replaced by *ja* or *doch*. Crucially, the semantic contribution of the discourse particles in (23ab) is not mapped to the background of the clause, as is typical of unfocused propositional material. This can be seen from the fact that it is impossible to cast doubt on, let alone cancel the non-focused part of (23a) in the sub-sequent discourse. One would expect such a discourse move to be licit if the presence of *wohl* turned the background presupposition into an assumption (Zimmermann 2008):

- (24) #MAX<sub>F</sub> fährt *wohl* nach Ulm,  
 vielleicht fährt aber auch niemand dorthin.  
 #‘I assume it is Max that is going to Ulm, but maybe nobody is going there.’

Discourse particles thus scope over the entire focus-background structure of the clause (Jacobs 1991), which shows once again that they do not contribute to the descriptive, propositional content of the clause.

### 2.3. Modal auxiliaries and adverbs

At first sight, the meaning of at least some discourse particles, e.g. *wohl*, seems very close to the meaning of epistemic modal auxiliaries or modal adverbs, such as *must* and *presumably/probably* (cf. article 58 (Hacquard) *Modality*):

- (25) a. Max *must* be at sea now.  
 b. Max is *presumably* at sea now.

On closer inspection, though, these expressions behave differently in the contexts discussed in section 2.2, as do their German counterparts *muss* and *vielleicht/vermutlich*. First, modal auxiliaries and adverbs are visible to the interrogative operator INT, as shown in (26ab):

- (26) a.  $\llbracket \text{Must Max be at sea ?} \rrbracket = \{ \text{Max must be at sea}, \neg(\text{Max must be at sea}) \}$   
 b.  $\llbracket \text{Is Max presumably at sea?} \rrbracket = \{ \text{ASSUME}(x, \text{Max at sea}), \neg\text{ASSUME}(x, \text{Max at sea}) \}$

The question (26a) asks whether or not Max must necessarily be at sea (NEG > *must*). The slightly odd (26b) asks whether or not there is reason to suspect that Max is at sea (NEG > *presumably*). Since the meaning of these modal elements forms part of the alternatives under discussion, we take them to contribute to the propositional content.

In a similar vein, the meaning of modal auxiliaries and modal adverbs is mapped to the background when not in focus. (27) presupposes that someone presumably went to Ulm, and that this someone is Max. Crucially, it does not presuppose that someone went to Ulm for sure, cf. Zimmermann (2008):

- (27) MAX<sub>F</sub> presumably went to Ulm.  
 < $\lambda x.x$  presumably went to Ulm, MAX>

For additional differences between discourse particles and modal auxiliaries and adverbials see Zimmermann (2008). More generally, the behaviour of modal auxiliaries and modal adverbs in questions and focus structures supports their analysis as contributing, at least in part, to the propositional content; see, e.g., Kratzer (1977, 1981), Papafragou (2006), and von Stechow & Gillies (2007) for analyses along these lines; Lyons (1977) and Groenendijk, Stokhof & Veltman (1996) for non-propositional analyses of modal expressions; and Portner (2009) for an overview of the different proposals.

#### 2.4. Semantic differences

In spite of their semantic similarities, discourse particles also differ in two important respects.

First, some discourse particles do not *add* information on top of the descriptive meaning of a clause, e.g. by adding a presupposition or a conventional implicature. This becomes clear by looking again at the sentence triple *Max ist ja / doch / wohl auf See* ‘Max is <sub>PRT</sub> at sea’ from (1a–c). Here, the particles *ja* and *doch* do not affect the basic assertion of the clause, namely that Max is at sea. Moreover, they add information to the effect that the addressee is taken to entertain this proposition as well (*ja*), or not (*doch*). (1c) with *wohl* differs in that it does not assert that Max is at sea. In fact, the presence of *wohl* weakens the degree of commitment to the asserted proposition from strong to only relatively certain. As a result, (1c), but not (1a) or (1b), is consistent with Max’s not being at sea at all:

- (28) A: Max ist wohl auf See. (= (1c))  
 Oder er ist zuhause.  
 ‘Or he is at home.’

Rather than adding to the descriptive meaning of the declarative, *wohl* thus weakens it, similar to the effects observed with certain evidentials; see 2.1 and 6.4.

The second difference between different kinds of discourse particles concerns their embeddability. Kratzer (1999) argues, based on examples like (29), that the particle *ja* cannot occur in embedded contexts when it intervenes between a quantifier (here: *jeder*) and a bound pronoun:

- (29) *Jeder*<sub>1</sub> von den Arbeitern hat seinen<sub>1</sub> Job verloren, weil *er*<sub>1</sub>  
 each of the workers has his job lost since he  
 (\*ja) in der Gewerkschaft war.  
 PRT in the union was  
 ‘Each of the workers lost his job because he was in the union.’

According to Kaufmann (2004), however, *ja* in (29) will be felicitous ‘if it is common knowledge that all workers were in the union’. At the same time, *ja* is generally impossible in complement clauses (30a), except under *verba dicendi* (often with subjunctive mood, cf. article 50 (Portner) *Verbal mood*) (30b). Notice that the embedding of *ja* in (30a) is blocked in the absence of any binding relation:

- (30) a. Tom bedauert/glaubt, dass es (\*ja) Erdbeeren gibt  
 Tom regrets/thinks that it PRT strawberries give  
 ‘Tom regrets/thinks that there will be strawberries.’  
 b. Tom erinnerte Ulf, dass es *ja* Erdbeeren gäbe  
 Tom reminded Ulf that it PRT Strawberries give.subj  
 ‘Tom reminded Ulf that there would be strawberries.’

Importantly, (30a) is bad even though there is a sensible interpretation, according to which Tom regrets or believes something that is common knowledge either to the participants of the situation described, or else to speaker and addressee of (30a). The particles *doch* and *wohl*, in contrast, can occur embedded under appropriate matrix predicates:

- (31) a. Tom hat vergessen, dass es *doch* Erdbeeren gibt.  
 Tom has forgotten that it PRT strawberries gives  
 ‘Tom forgot that there will be strawberries after all.’  
 b. Tom bedauert/glaubt, dass es *wohl* Erdbeeren gibt.  
 Tom regrets/thinks that it PRT strawberries gives  
 ‘Tom regrets/thinks that presumably there will be strawberries.’

Notice that *doch* and *wohl* in (31ab) are interpreted in embedded position as they refer to the information state of the matrix subject, not to that of speaker or addressee. In contrast, *ja* is always evaluated with respect to the utterance context. Hence, it cannot be embedded, unless it forms part of a reported speech act under a *verb of saying* (Kratzer 1999). In sum, these findings argue for an analysis of *ja* as a modifier on illocutionary operators, as proposed in Jacobs (1991). As such operators are typically restricted to matrix clauses and reported speech acts, the distribution and interpretation of *ja* will fall out immediately. By the same token, *wohl* and *doch* do not function as modifiers on illocutionary operators, as these elements are interpretable in embedded position. In fact, the embeddability of *wohl* has been taken as an additional argument for its analysis as a modifier on sentence-types in Zimmermann (2008); see Döring (2007) for a more extensive survey of the embeddability of German discourse particles.

The semantic differences observed thus cut across the three particles in different ways: First, both *ja* and *doch* add to the descriptive meaning of a clause, to the exclusion of *wohl*, which does not add extra meaning, but weakens the speaker's/addressee's commitment to a given proposition by modifying the sentence-type operator. Second, *doch* and *wohl* can be syntactically and semantically embedded, to the exclusion of *ja*, which cannot.

These findings suggest that the quest for a unified semantic analysis of all discourse particles, or even for a set of necessary properties apart from the general characteristics discussed in section 1, may be in vain. Rather, it seems that although the three discourse particles discussed all contribute to the expressive content of an utterance, they do so in different ways.

### 3. Interaction with sentence types

Discourse particles interact with sentence types in two different ways. First, the identification of the epistemic reference point of some discourse particles may depend on the sentence type (section 3.1). Second, discourse particles often display an incompatibility with, or a specific affinity to particular sentence types (section 3.2).

#### 3.1. Identification of reference point

As shown in section 2, the semantic effect of a discourse particle always depends on a particular *epistemic reference point* (speaker, addressee, both), also known as *epistemic judge* (Lasersohn 2005, Stephenson 2007), relative to whose knowledge base the whole utterance is evaluated.

The effects of sentence type on a discourse particle's epistemic reference point are particularly apparent with *wohl*. Section 2.1 showed that *wohl* in declaratives is always evaluated with respect to the knowledge base of the speaker, making utterances of *wohl*  $\alpha$  infelicitous in contexts where the speaker knows for sure that  $\alpha$ , cf. (17). With interrogatives, however, the epistemic reference point of *wohl* is shifted to the addressee. As shown in section 2.2, interrogative questions containing *wohl* indicate that the addressee may not know the answer for sure (cf. Asbach-Schnitker 1977). This conclusion gets further support from the fact that *wohl* is infelicitous in interrogatives whenever the addressee can be taken to know the answer for sure. This typically happens in so-called *expert contexts*, where the addressee is considered an expert concerning the question under discussion, and which license rising declarative questions (Gunlogson 2003). Consider the infelicity of the rising declarative with *wohl* in the airport context from Gunlogson (2003) in (32):

- (32) *A to an airline official:*  
 Geht der Flug (#wohl) um 7.00h?  
 leaves the flight PRT at 7am  
 'Does the plain leave at 7am?'

In contrast to (32), interrogatives with *wohl* are felicitous whenever the addressee is likely not to know the answer for sure, for instance, in the school test situation in (33):

(33) *Teacher to student:*

Was ist *wohl* die Wurzel aus 9?  
 What is PRT the square root of 9  
 ‘What’d be the square root of 9?’

The felicity of (33) is in line with the analysis of *wohl* in (22). By using *wohl*, the teacher asks the student for what she *assumes* to be the correct answer, rather than for what she knows the correct answer to be. This triggers a conversational implicature (cf. article 92 (Simons) *Implicature*) to the effect that the student does not know the full answer, thus adding a touch of rudeness to the question, see section 4 for more discussion of conversational implicatures.

As for what determines the choice of the reference point of *wohl*, we assume that the particle inherits it from the sentence type, such that it is the speaker in the case of declaratives, and the hearer in the case of interrogative and rising declarative questions (Doherty 1985; Gunlogson 2003).

Finally, the following examples with *doch* demonstrate that *wohl* is not alone in displaying sentence-type sensitivity when choosing its epistemic reference point. In the declarative (34a), *doch* signals that it is the addressee that has not activated the proposition expressed. In contrast, in the interrogative (34b), *doch* signals that it is the speaker that does not actively entertain the propositional core of the question (notice that *doch* is accented in this case):

- (34) a. Es gibt *doch* Bier.  
 There is PRT beer  
 ‘But there will be beer! (Have you forgotten about it?)’
- b. Gibt es *DOCH* Bier?  
 Is there PRT beer  
 ‘Is there beer, after all? (I didn’t know!)’

*Doch* thus differs from *wohl* in requiring an epistemic reference point that is opposite to the one of its clause, which is again reminiscent of evidentials.

### 3.2. Incompatibilities and affinities

The second kind of sentence-type sensitivity shows up in form of an incompatibility between certain particles and particular sentence-types, or alternatively in form of an affinity of certain particles to particular sentence-types. The literature makes repeated mention of this phenomenon (e.g. Doherty 1985). An in-depth discussion of which particles can occur in interrogative clauses, and which ones cannot, is found in König (1977). A well-known observation in this connection is that *ja* cannot occur in interrogative questions, cf. (35). Further incompatibilities are observed between *wohl* and rising declarative questions (36) and imperatives (37ab), respectively.

- (35) \*Ist Peter *ja* gekommen?  
 Is Peter PRT come  
 ‘Has Peter PRT come?’



(36) \*Geht der Flug wohl um 9 Uhr/?  
 Goes the flight PRT at 9am  
 ‘The plane leaves PRT at 9am?’

(37) a. \*Gib mir wohl das Buch!  
 give me PRT the book  
 ‘Give me (wohl) the book!’

b. \*Nimm wohl Platz!  
 take PRT seat  
 ‘Take PRT a seat!’

As for affinities, the particle *wohl* shows a strong tendency to occur in verb-final questions introduced by the complementizer *ob* ‘if’:

(38) Ob Peter wohl kommt?  
 If Peter PRT comes  
 ‘Do you think Peter will come?’

In most cases, the observed incompatibilities seem to follow from an incompatibility between the meaning of the particle and the meaning of the sentence type, see Lindner (1991). Concerning the ill-formedness of (35), we have seen that the presence of the particle *ja* marks the proposition expressed by (35) as uncontroversial. This is in direct conflict with the semantic contribution of the interrogative clause, which denotes a set of alternative, and hence potentially controversial propositions that qualify as possible answers (cf. articles 66 (Krifka) *Questions*). That is, the very semantic nature of the interrogative in (35) as opening up a set of alternatives counteracts the semantic nature of *ja* as indicating unanimity.

In a similar vein, the particle *wohl* is banned from occurring in the rising declarative question in (36). The semantic function of this question type consists in singling out the addressee, which also functions as its epistemic reference point, as being in the possession of the required expert knowledge for answering the question (Gunlogson 2003). It is precisely this meaning component of rising declaratives that clashes with the meaning of *wohl*, which expresses a degree of uncertainty on the side of the addressee when used in questions. The result is the uninterpretability of (36).

Finally, consider the impossibility of *wohl* in the imperative sentences in (37a,b). Unlike declaratives and interrogatives, imperatives are not proposals or requests for enlarging the Common Ground, i.e. the set of mutually known propositions, but they express a command or permission to *bring about* a state of affairs described by the propositional content *p*. Unlike with epistemic attitudes, which can come with a greater or lesser degree of certainty, it would make no sense for the speaker to put herself in a relation of weakened commitment to the propositional content *p* that she wants (or permits) the addressee to bring about if she is serious about the command or permission in question. In other words, unlike (requests for) information about the world, the speaker’s commitment to the propositional content of the speech-acts *COMMAND* and *PERMISSION* must be absolute for these to succeed, and thus cannot be weakened by *wohl*.

As for the affinity of the particle *wohl* to verb-final questions with *ob*, Thurmair (1989: 63) and Truckenbrodt (2004: 334) show that this specific subtype of question is restricted to contexts in which the speaker has reason to believe that the addressee does not know the answer with certainty. Obviously, this particular contextual requirement of verb-final questions is in line with the semantic contribution of *wohl* in questions, which likewise indicates a degree of uncertainty on the part of the addressee.

#### 4. Secondary interpretive effects

In addition to their basic meaning, most discourse particles serve a couple of additional interpretive functions: (i.) they support the expression of paralinguistic categories, such as emotion and politeness (Gussenhoven 2004); (ii.) in certain linguistic environments, they trigger indirect speech acts. These additional interpretive effects do not follow from a lexical ambiguity, but are best analysed as secondary effects that arise from a combination of a discourse particle's basic meaning and general semantic properties of the embedding utterance, sometimes accompanied by some Gricean pragmatic reasoning (cf. also article 92 (Simons) *Implicature*).

##### 4.1. Expressing emotion and politeness

Discourse particles play a role in the expression of emotion and politeness in (39) to (41):

(39) Du bist ja wieder zurück!  
 you are PRT again back  
 'You're back!'

(40) Gib mir doch (mal) das Buch!  
 give me PRT (time) the book  
 'Give me the book, will you?'

(41) Haben Sie wohl etwas Kleingeld?  
 Have you PRT some change  
 'Could you spare some change?'

In (39), the particle *ja* seems to add a moment of surprise to the declarative utterance. In (40), the presence of *doch* seems to add a moment of exasperation, at least in certain contexts. Due to this fact some authors (e.g. Helbig & Kötz 1981) have treated the respective particles as polysemous. This is problematic, however, given that the same interpretive effect can be achieved by the use of different particles: *ja* and *doch* are often found in utterances with a surprise interpretation, while the particles *doch* and *halt* are frequently found with exasperation. Notice, too, that the expression of emotions in (39) and (40) is contingent on particular intonational patterns of the respective clauses, which will trigger the respective emotive readings even in the absence of the particles (cf. article 77 (Truckenbrodt) *Semantics of intonation*): (39) must be realized with an exclamative intonation, for the surprise reading to arise, cf. Lindner (1991); and (40) must be realized with heavy stress on the initial verb for the exasperation reading to arise.

We can thus conclude that the presence of the particles in (39) and (40) only assists in the derivation of the relevant paralinguistic meaning, instead of triggering it by virtue of its lexical meaning. For instance, as was shown in connection with (20), the imperative *doch(p)!* encodes the assumption that *p* is not activated (with the addressee) as part of its linguistic meaning. As a result, such structures lend themselves to being used in contexts in which the speaker is exasperated at the addressee's (repeated) unwillingness to obey the command and therefore to activate *p* by bringing its content about and thus making *p* true.

The politeness effect observed with *wohl* in (41) follows directly from its basic interpretation in interrogative clauses. As pointed out repeatedly, the use of *wohl* in interrogatives allows the addressee a certain degree of uncertainty concerning the correct answer. Uttering (41) thus puts the addressee in a position, where he is not required to answer with a blunt *yes* or *no*, where a *yes* would portray the speaker as presumptuous, while a *no* would portray the addressee as tight-fisted. Rather, the presence of *wohl* in the question presents the addressee with the opportunity of giving a less direct answer, which leaves her with enough room to handle this potentially awkward social situation without losing face. Crucially, there is no need for postulating a specific meaning component of politeness for *wohl*, in particular as the politeness effects arise only in few, well-defined contexts.

#### 4.2. Indirect speech-acts

In certain cases, the presence of a discourse particle, e.g. *wohl*, will facilitate the secondary interpretation of an utterance by means of an indirect speech-act. This happens when the direct interpretation of an utterance makes no sense, because the respective meanings of the particle and the rest of the clause clash, as in the interrogative command in (42a). Or it can happen when the presence of the particle leads to an unusually weak statement, as in the falling declarative question in (42b):

- (42) a. Bist Du *wohl* still!  
           are you PRT quiet  
           ‘Will you be quiet!’
- b. Das ist *wohl* deine Mutter?  
           that is PRT your mother  
           ‘That would be your mother?’

On its direct interpretation, the interrogative clause in (42a) asks for the addressee's assumption concerning her own being quiet or not. As one is normally perfectly aware of one's being quiet or not, it would have been more economical for the speaker to leave out the particle. From the fact that he did not, the cooperative addressee can deduce – by way of a Gricean conversational implicature – that the speaker had another reason for uttering (42a). This will lead the addressee to reconstruct the secondary speech-act of an interrogative command. Of course, this only works when the direct question meaning is such that the addressee can be safely assumed to know the answer with certainty, as e.g. in questions about the immediate physical or personal circumstances of the addressee.

(42b) can get a secondary question interpretation, i.e. as a request for information, in contexts where the addressee is taken to have an information advantage over the speaker, such that she knows that the person accompanying her is her mother. In such circumstances, interpreting the declarative in (42b) as a weakened assertion will be of no informative value to the addressee whatsoever, and thus violate the Gricean maxim of quantity. When the speaker signals her uncertainty by using *wohl*, the cooperative addressee can rescue (42b) by assigning it the secondary meaning of a question; see Zimmermann (2008) for more detailed discussion.

## 5. Syntax and compositionality

This section investigates to what extent the expressive nature of discourse particles has an effect on their syntactic distribution, and whether their relative ordering with respect to one another follows from a compositionality requirement on semantic interpretation (cf. articles 6 (Pagin & Westerstahl) *Compositionality* and 82 (von Stechow) *Syntax and semantics*).

### 5.1. Syntactic distribution

The syntactic distribution of German discourse particles can be captured in terms of the following generalizations: (i.) they must not occur sentence-initially in the pre-field, as they cannot be stressed; (ii.) in the middle-field, they occupy a position typical of adverbial elements, namely at the left edge of VP (Jacobs 1991); (iii.) being located at the edge of vP/VP, they precede all focused material and follow all background material that has scrambled out off the VP, cf. (43) (Diesing 1992):

- (43) ..., weil wir die Kinder<sub>1</sub> ja/wohl/ doch [<sub>VP</sub> in Hamburg t<sub>1</sub> treffen].  
 since we the children PRT PRT PRT in Hamburg meet  
 ‘since we will JA/WOHL/DOCH meet the children in Hamburg.’

Crucially, discourse particles are generated in a higher position than the constituent denoting the propositional core of the clause, namely the verbal projection containing the verb and all its arguments (VP or vP). This syntactic finding matches with the fact that all discourse particles take semantic scope over the (structured) proposition denoted by the clause. However, the surface position of discourse particles is not in line with the assumption that at least some of them function as modifiers on speech-act operators (*ja*) or sentence-types (*wohl*), at least if surface compositionality (cf. articles 6 (Pagin & Westerstahl) *Compositionality* and 82 (von Stechow) *Syntax and semantics*) is assumed to hold. On common assumptions, sentence type and speech act are coded (if at all) in the C-system of the clause in the left periphery (Rizzi 1997), but German discourse particles are blocked from occurring there because of their inability to take stress. The non-occurrence of German discourse particles in the left periphery is thus unexpected from the perspective of surface compositional semantics. It also sets them apart from discourse particles in many other languages, which do occur as overt functional heads in the left periphery; see section 6. A promising way of dealing with the two-fold task of meeting the semantic needs of compositionality, on the one hand, and ensuring a

uniform cross-linguistic treatment of discourse particles, on the other, would therefore be to assume that German discourse particles raise into the left periphery at LF. In this structurally high position, they can associate with sentence-type and speech act operators; see Zimmermann (2008).

## 5.2. Particle combinations

Surface compositionality seems to play a more direct role when it comes to the relative ordering of several co-occurring discourse particles. This can be seen in (44) with combinations of two particles, and in (45) with three particles (attempts at paraphrases can be found in the discussion below (47)):

(44) Kathrina hat *ja doch/ ja wohl/doch wohl* St. Louis verschont.  
 Kathrina has PRT PRT PRT PRT PRT PRT St. Louis spared  
 ‘Kathrina has JA WOHL/ JA DOCH/ DOCH WOHL spared St. Louis.’

(45) K. hat *ja doch wohl* SL verschont.  
 K. has PRT PRT PRT SL spared  
 ‘K. has JA DOCH WOHL spared S.’

As shown by the ungrammaticality of (46), the linear order of the particles is subject to strict licensing conditions. Both *ja* and *doch* must precede *wohl*, and *ja* must precede *doch*. This yields the relative ordering in (47) (Doherty 1985: 83):

(46) \*Kathrina hat *doch ja/ wohl ja/ PRT wohl doch* St. Louis verschont.  
 Kathrina has PRT PRT PRT PRT PRT St. Louis spared

(47) *ja > doch > wohl*

Abstracting away from discussions of particle combinations in more traditional terms (see, e.g., Thurmair 1989; Rinas 2006), there are few formal semantic analyses of particle combinations. Noteworthy exceptions are Doherty (1985) and Lindner’s (1991) discussion of the interpretation of the combination of *ja* and *doch*. As neither particle seems to take semantic scope over the other, Lindner (1991: 196) tentatively concludes that their linear order is conditioned by phonological factors, and that the meaning of both particles applies simultaneously. For instance, (44) with *ja doch* expresses the two (speaker) assumptions that (i.) it is uncontroversial that the storm spared St. Louis, but that (ii.) this proposition is currently not activated with the addressee. However, the assumption of simultaneous interpretation is problematic in view of the fact that the combinations *ja wohl* and *doch wohl* in (44) do receive compositional interpretations, as shown in (48) and (49), respectively:

(48) JA( WOHL(Kathrina spared S.)) =  
 Speaker assumes the weakened proposition that it is relatively certain that St. Louis was spared to be uncontroversial, cf. (5).

(49) DOCH (WOHL(Kathrina spared S.))=

Speaker assumes the weakened proposition that it is relatively certain that St. Louis was spared not to be activated at the current discourse stage, cf. (9).

While the compositional procedure yields correct results for the combinations *ja wohl* and *doch wohl*, it fails to rule out the non-attested inverse combinations in (46), which would give to meaningful compositional interpretations as well, as the reader may verify for herself. A possible way out of this dilemma would be to view the observable surface orders between particles as reflecting their attachment at different syntactic and semantic levels. On this view, *ja* would come first in the linear sequence because it operates on illocutionary operators and takes a speech act as its semantic argument, see section 2.4. In contrast, *wohl* would come last because it functions as a sentence-type modifier and takes a proposition (or a set of propositions) as its semantic complement.

Obviously, such an approach is itself not without problems, not the least of them being the identification of the proper attachment site of *doch*, which sometimes patterns with *ja* and sometimes with *wohl*. Another problem arises from the assumption put forward in 5.1 that German discourse particles raise covertly at LF. Given this, their surface order would be of only limited interest for semantic purposes anyway. In order to account for the observable sequencing effects, we would be forced to assume an isomorphism requirement between the surface order of particles and their order at LF. Whatever the reason behind such an isomorphism (e.g. intervention effects), let us note that the alternative of interpreting the particles *in situ*, e.g. as partially defined identity functions (Potts 2005) or as adding secondary speech acts, gives no satisfactory account for the observable restrictions on linear order either. Clearly, this issue is in need of more research. This notwithstanding, the sketched approach offers a promising line of research into the combinatorial possibilities of discourse particles: It is backed up by independent evidence, discussed in section 2.4, and similar sequencing effects are found with the focus particles *even*, *also*, and *only* (see section 7).

## 6. Cross-linguistic survey

Cross-linguistically, the realm of discourse particles is subject to two kinds of variation. First, discourse particles are realized in different structural positions in different languages (section 6.1). Second, the meaning contribution of discourse particles can be realized by alternative grammatical means in languages such as English, which do not have them (section 6.2). The empirical findings of sections 6.1 and 6.2 will lead to the formulation of a tentative universal concerning the grammatical realization of discourse particles in section 6.3. Section 6.4 adds some tentative comments on similarities and differences between discourse particles and evidential markers.

### 6.1. Discourse particles in other languages

Discourse particles are not restricted to German, but are found in a range of historically and typologically unrelated languages. Perhaps not surprisingly, they are attested in the closely related West Germanic languages Dutch (Zeevat 2000, 2005), and Afrikaans. The particle *immers* in the Dutch example (50) corresponds to German *ja*:

- (50) Hij is *immers* in Paris.  
 He is PRT in Paris  
 ‘Uncontroversial: He is in Paris’

Even though the lexical source of the particles may differ from case to case, their range of interpretation and syntactic distribution appears to be by and large the same.

Ancient and Modern Greek are other Indo-European languages that are known for their inventory of discourse particles or adverbs, which ‘express[es] the speaker’s evaluation of the meaning of the whole clause or sentence’ (Holton, Mackridge & Philippaki-Warbuton 1997: 363). The following example from Modern Greek features the particles *vévea* and *málon*, respectively (Skopeteas, p.c.):

- (51) o jánis ine *vévea* / *málon* s-ti thálasa.  
 the John is PRT PRT at-the sea  
 ‘Janis is PRT at sea.’

Using *vévea*, the speaker takes the hearer to be aware of the fact that Janis is at sea ( $\approx ja$ ). Using *málon*, the speaker expresses a degree of uncertainty concerning the truth of the proposition expressed ( $\approx wohl$ ).

Discourse particles are also attested in Slavic languages, such as Czech (Nekula 1996; Rinas 2006). According to Rinas (2006), the three Czech particles *přece*, *vždyt*, and *však* span a semantic continuum that covers the meanings of the German particles *doch* and *ja*, where *přece* is associated more closely with *doch*, *však* corresponds more closely to *ja*, and *vždyt* is somewhere in between. Syntactically, the three particles are restricted to occur either in sentence-initial position (*vždyt*, *však*) or in the Wackernagel position (*přece*); see Gast (2008).

The Finno-Ugric languages Finnish and Hungarian feature several counterparts to German-style discourse particles, too. The Finnish counterparts occur as free forms and as bound suffixes (*-han/-hän*, *-pa/-pä*) in the highest functional projection of the clause. Depending on their clause-type, they give rise to different semantic effects (Karlsson 1999). The suffix *-han/-hän*, for instance, is more or less identical in meaning to German *wohl* in the question (51a), and to *ja* or *doch* in the assertive declarative in (51b) from Abraham & Wuite (1984):

- (52) a. On-ko-*han* Sylvi kotona?  
 is-Q-PRT Sylvi home  
 ‘Would Sylvi be at home?’  
 b. Olet-*han* sinä vielä nuori.  
 are2sg-PRT you still young  
 ‘You are still young after all.’

In Hungarian, the particle *ugye* behaves like the German particle *ja* in marking a proposition as (having the potential) to be in the Common Ground (Péteri 2002; Gyuris 2009):

- (53) Mary ugye elolvasta a könyvet.  
 Mary PRT VM.read.past the book  
 ‘Mary has read the book, as you know.’



Turning to non-European languages, discourse particles are found in the East Asian languages Mandarin Chinese (Li 2006) and Japanese (Hara 2006), as well as in Singapore English (Kim & Wee 2008). Mandarin Chinese has a number of sentence-final particles (*ne*, *ba*, *ma*), which are syntactically restricted to matrix clauses and which serve to express ‘the speaker’s attitude towards the propositional content of the clause’ (Li 2006: 12). The particles *ba* and *ma* in (54) express different degrees of speaker commitment to the proposition ‘Hongjian is at the office’. While *ba* marks a low degree of commitment, corresponding to German *wohl*, *ma* expresses a high degree of commitment (Li 2006: 32):

- (54) Hóngjiàn zài bàngōngshì Ø/*ba/ma*  
 Hongjian at office PRT PRT

In Japanese, the presence of the particle *darou* indicates that the speaker ‘has an epistemic bias for p derived from reasoning and not from observable (direct or indirect) evidence’ (Hara 2006: 9). Example (55) from Morimoto (1994) is felicitous in a context in which the speaker has broken up with his ex-girlfriend a long time ago.

- (55) kanojo-wa mou kekkon-shita *darou*  
 she-TOP already marriage-did PRT  
 ‘She will be married by now.’

Furthermore, Hara (2006) shows that *darou* does not form part of the proposition by applying the question test from section 2.2.

As for Singapore English, Kim & Wee (2008) provide a detailed semantic analysis of the particle *hor* as a general marker of speaker-addressee asymmetry (Zeevat 2000) in the epistemic (knowledge) or deontic (authority) domain.

Even though detailed semantic descriptions are frequently lacking, discourse particles are attested in a range of African languages. For instance, the particle *ni* in the Central Chadic language Mandara marks a subsequent statement as unexpected relative to the Common Ground (Pohlig & Pohlig 1994: 217):

- (56) iya ya egzdere *ni* ka bela iya  
 1s 1sg child PRT 2s send 1s  
 ‘I, a child. You are sending me?’

Likewise, a particle *má* is used to reinforce speaker-hearer shared expectations or assumptions (Fluckiger & Whaley 1983: 281), somewhat comparable to German *ja*.

The above list is far from complete. Other languages, e.g. Papago (Uzo-Aztecán) have been reported to contain discourse particles in their inventory of formative elements (Kratzer 1999), and many more languages may be expected to do so. For instance, other plausible candidates for discourse particles may be presuppositional negations in Romance (Zanutini 1997). More comparative work is required in particular on plausible candidates for discourse particles in the semantically under-researched languages of Africa, Asia and the Americas.

## 6.2. Alternative ways of expressing the meaning of discourse particles

English is a good example of a language without a lexical inventory of discourse particles. In the absence of particles, English resorts to other grammatical means for expressing speaker and/or hearer attitudes towards a proposition (see also Waltireit (2001) for a discussion of alternative strategies in Romance languages). These alternative means comprise intonation (cf. article 77 (Truckenbrodt) *Semantics of intonation*), cf. (57) from Ward & Hirschberg (1985), and sentence-final tags, cf. (58).

(57) A: Harry's such a klutz.

B: He's a good BADMINTON player.

L\*+H      LH%

→ The proposition that H is good at playing badminton not activated with A ≈ *doch*

(58) Q: Where is John?

A: He's at home, *isn't he?*

→ weakened commitment ≈ *wohl*

It is interesting to note that both tags and intonation apply at the edge of the syntactic clause, which they modify semantically.

## 6.3. A tentative universal

The empirical survey in 6.1 and 6.2 has shown that – with the exception of some Indo-European languages (German, Dutch, Greek) and Hungarian - discourse particles and comparable grammatical formatives are frequently located in a sentence-peripheral position. Similarly, intonation and tags in English can be considered to be located in the periphery of their clause. Based on these findings, we can thus formulate the tentative universal in (58) concerning the structural realization of speaker or hearer knowledge in the grammatical system:

(59) The grammatical means used for relating to the knowledge states of discourse participants with respect to the proposition expressed by an utterance tend to be realised at the periphery of a clause.

This cross-linguistic tendency seems to be grounded in semantic considerations of compositionality: Discourse particles operate at least at the level of propositions, but in most cases on semantic categories (sentence-type operators, speech-act operators) that are structurally and semantically associated with the periphery of the clause (Rizzi 1997).

## 6.4. Discourse particles and evidentials

The discussion has made repeated mention of similarities between discourse particles and evidential markers. This gives rise to the question of whether *discourse particle* and *evidential* are but two different labels for the same phenomenon, or whether these notions refer to different semantic categories? If one assumes with Matthewson, Davis & Rullmann (2007) that evidentials contribute to the truth-conditional, i.e. descriptive,

content, they will be different from discourse particles, which do not, as was shown for modal auxiliaries in 2.3. However, even if one adopts the position that evidentials behave like discourse particles in contributing only to the expressive content of a sentence (Faller 2002; Davis, Potts & Speas 2007), the two kinds of objects should still be kept apart as they relate to the knowledge states of the interlocutors in different ways. While discourse particles register and sometimes compare these knowledge states as they are, evidential markers provide information concerning the *source* of this knowledge in form of particular kinds of evidence. Although in part related, these are quite different kinds of information, for which reason the two notions should be kept apart (see also Hara's discussion of the Japanese data above (55)).

This being said, it may of course be possible to achieve some of the typical interpretive effects of discourse particles by means of an evidential marker as well. For instance, if the evidence for the validity of a given proposition *p* is only indirect, say through hearsay, the speaker need not be fully committed to its truth ( $\approx$  *wohl*). In contrast, if a speaker uses an evidential marker for direct perceptual evidence, say for visual perception, and if the addressee is known to have the same visual input, the use of the evidential may come close to the use of the Common Ground marker *ja*. We may therefore expect languages with evidential markers to do just fine without an additional category of discourse particles in their lexical inventory. Does this mean that the two expression types form complementary sets from which a language may choose one over the other? Or are there also languages that allow for both expression types in their inventory of functional elements, as predicted by the assumption that discourse particles and evidential markers are semantically different? Further cross-linguistic study must show whether languages with both expression types are indeed attested.

## 7. Open issues

Even though our knowledge of the semantics of discourse particles has considerably increased over the past two decades, the following problems are left largely unresolved. First of all, it is still not completely clear in what sense discourse particles constitute a natural semantic class by themselves. As shown in section 2, different particles combine with different semantic constituents to different interpretive ends. At the same time, at least some discourse particles share important properties with other expressive elements (Potts 2007). This stresses the need for a list of reliable – albeit negative – criteria that would single out discourse particles from other expressives; see, for instance, the discussion of evidentials in 6.4.

A second, related question is whether the additional semantic contribution of the discourse particles *ja* and *doch* should be analysed as a presupposition or as a conventional implicature. Standard instances of semantic presuppositions enrich the descriptive content by giving additional information on the situation *described* by the clause. For instance, the uniqueness presupposition of the definite requires that there be one and only one individual with the relevant property. Discourse particles, in contrast, relate to epistemic attitudes of the discourse participants towards these descriptions. For this reason, it may be more adequate to analyse their semantic contribution as a conventional implicature in the sense of Potts (2005). Such implicatures leave the basic descriptive meaning unaffected and add information at an independent level of interpretation.

The final question concerns the relationship between discourse particles and focus particles (*only, also, even*), which are also focus-sensitive and sometimes double as discourse-particles. Most interestingly, focus particles also exhibit curious restrictions on their relative word order (*Peter even also only drank water* vs. *\*Peter only also even drank water*), which cannot be explained in terms of an implausible reading for the unattested order. It is possible, then, that different focus particles combine with different semantic constituents, too.

It is hoped that the foregoing remarks will open up new lines of research towards a better understanding of the semantic nature of discourse particles in the languages of the world.

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*Malte Zimmermann, Potsdam (Germany)*