

Discourse Particles in the Left Periphery*

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Abstract

This article analyses the German discourse particle *wohl* (roughly: ‘I suppose’, ‘presumably’) as a syntactic and semantic modifier of the sentence types declarative and interrogative. It is shown that *wohl* does not contribute to the propositional, i.e. descriptive content of an utterance. Nor does it trigger an implicature. The proposed analysis captures the semantic behaviour of *wohl* by assuming that it moves to SpecForceP at LF, from where it can modify the sentence type operators in Force⁰ in compositional fashion. Semantically, a modification with *wohl* results in a weaker commitment to the proposition expressed in declaratives and in a request for a weaker commitment concerning the questioned proposition in interrogatives. Cross-linguistic evidence for a left-peripheral position of *wohl* (at LF) comes from languages in which the counterpart of *wohl* occurs in the clausal periphery overtly. Overall, the analysis sheds more light on the semantic properties of the left periphery, in particular of the functional projection ForceP.

1 Introduction

This paper brings together the old problem of the syntactic, semantic and pragmatic analysis of discourse particles with formal approaches to the syntax and semantics of the left periphery. In particular, the German discourse particle *wohl* in (1b) is analysed as a modifier on force (or sentence type) operators, such as *declarative* and *interrogative*. As such, *wohl* must be located in the left periphery at LF.

- (1) a. Hein ist auf See.
 Hein is at sea
 ‘Hein ist at sea.’
 b. Hein ist *wohl* auf See.
 Hein is at sea
 = Speaker assumes that Hein is at sea

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The discussion is set in the context of formal semanticists' renewed interest in discourse particles. These are argued to be special in that they do not contribute to the descriptive, i.e. propositional or truth-functional, content of an utterance, but to its expressive content (see Kratzer 1999 and von Stechow 2002 for discussion). The present analysis of *wohl* argues that at least part of the linking between descriptive and expressive content takes place compositionally in the left periphery of the clause, more specifically in the domain of ForceP. The analysis thus sheds more light on the semantic properties of this functional domain that was postulated by Rizzi (1997) on independent syntactic and semantic grounds.

The paper is organized as follows: The remainder of this section gives a brief overview of the main characteristics of the discourse particle *wohl* as found in the literature (see e.g., Abraham 1991; Asbach-Schnitker 1977; Doherty 1979, 1985; Jacobs 1991; Molnár 2001; Weydt 1969). Sections 2 to 4 present a number of observations that are relevant for the analysis. Section 2 shows that the interpretation of *wohl* is sensitive to sentence types. Section 3 shows that *wohl* does not form part of the proposition. Section 4 shows that *wohl* does not trigger conventional implicatures. The syntactic and semantic analysis of the discourse particle *wohl* is presented in section 5. Section 6 briefly addresses a number of open issues. Section 7 concludes.

1.1 Surface Syntax

In surface syntax, *wohl* occupies positions that are typical for adverbial elements (cf. Jacobs 1991). In (2a), *wohl* occurs in the middle field at the left edge of VP, preceding all other adverbials. In (2b), it occurs as a DP-internal modifier.

- (2) a. dass Hein *wohl* [_{VP} heute [_{VP} hier [_{VP} ein Mädchen getroffen hat]]].
 that Hein today here a girl met has
 '...that Hein seems to have met a girl here today.'
- b. der *wohl* attraktiv-ste Matrose
 the attractive-superl sailor
 'the presumably most attractive sailor.'

The surface-syntactic distribution of *wohl* indicates that it has not lost its original categorial status as an adverb despite its special semantic status (cf. Molnár 2001). In its original adverbial use, still attested in cases such as (3ab), *wohl* seems to be cognate to English *well*.

- (3) a. Der König hat *wohl* geruht.
 the king has well rested
 'The king slept well.'
- b. der *wohl* erzogene Junge
 the well raised boy
 'the boy that was brought up well'

1.2 Semantic Contribution: A First Approximation

As a first approximation, *wohl* expresses a certain degree of epistemic uncertainty about the proposition of the clause it occurs in. It is used to express hypothetical statements rather than absolute certainties. It follows that an utterance containing *wohl* is infelicitous in contexts expressing absolute certainty, as shown in (4a). Nor can it be embedded under a verb expressing absolute certainty, as shown in (4b).

- (4) a. #Ich weiß genau, wo Hein ist. Er ist *wohl* auf See.
I know for sure where Hein is he is at sea
'I know for sure where Hein is. Presumably, he is at sea.'
- b. *Ich weiß genau, dass Hein *wohl* auf See ist.
I know for sure that Hein at sea is

1.3 Wohl must be Unstressed

Prosodically, *wohl* is peculiar in that it cannot be stressed. The ban on stress follows from the existence of a stressed variant *WOHL* with a different lexical meaning. Unlike *wohl*, stressed *WOHL* affirms the truth of the proposition of its clause. *WOHL* always occurs in corrections following a previous explicit negation of the proposition in question:

- (5) A: Hein ist *nicht* auf See. B: Hein ist *WOHL* auf See!
Hein is not at sea Hein is at sea
'Hein is not at sea.' '(But,) Hein IS at sea!'

In other words, *wohl* cannot be stressed because of lexical blocking.

Since *wohl* cannot be stressed, it cannot occur in contexts in which it would receive a main accent. Therefore, *wohl* cannot stand alone in clause-initial position before the finite verb in V2 (6a). Neither can it be contrastively focused (6b).

- (6) a. **Wohl* ist Hein auf See.
is Hein at sea
(intended) 'Hein is presumably at sea.'
- b. *Peter hat nicht *wohl* Bier getrunken, sondern sicher.
Peter has not beerdrunk but certainly
(intended) 'Peter did not PRESUMABLY drink beer, but CERTAINLY.'

In section 3.3, we will see that — at first sight — semantically similar modal adverbials such as *vermutlich* 'presumably' and *wahrscheinlich* 'probably' can stand alone in clause-initial position and they can be contrastively focused. This different behavior sets them apart from the discourse particle *wohl*.

1.4 Distributional Restrictions

A final striking fact about *wohl* is that it is restricted to sentence types that are evaluated at epistemically accessible indices. Such sentences are about what can be known (see Lohnstein 2000). Consequently, *wohl* is found in declarative and

interrogative sentences, as in (7a, b).¹ In contrast, it cannot occur in imperative sentences, which are evaluated at factive indices, referring to what is or should be the case, as shown in (7c).

- (7) a. Hania hat wohl auch ihre Chefin eingeladen. *declarative*
 Hania has also her boss-fem invited
 ‘Presumably, Hania has invited her boss, too.’
- b. Hat Hania wohl auch ihre Chefin eingeladen? *interrogative*
 Has Hania also her boss-fem invited
 ≈ ‘What is your guess: Did she or didn’t she invite her boss?’
- c. *Sei wohl still! *imperative*
 be quiet

The ungrammaticality of (7c) suggests that *wohl* operates on another modal base than the modes of imperative clauses, namely on the epistemic base (what can be known). This conclusion is consistent with the observation that *wohl* expresses epistemic uncertainty from section 1.2.

In the next three sections, I will introduce three more properties of *wohl* that will come to play a crucial role in the analysis.

2 Sentence Type Sensitivity

Apart from a restriction to certain sentence types, *wohl* exhibits a second kind of sentence type sensitivity. The ‘epistemic reference point’ for the evaluation of *wohl* depends directly on the type of sentence that *wohl* occurs in. The term ‘epistemic reference point’ here refers to that discourse participant (speaker, addressee, or both) whose epistemic state or knowledge is under discussion.

¹ Doherty (1985: 80) incorrectly denies the grammaticality of *wohl* in y(es)/n(o)-interrogatives such as (7b). While it is true that *wohl* in y/n-interrogatives is sometimes marked or deviating, the marked status seems to follow from the fact that *wohl* cannot be stressed (section 1.3). *Wohl* in y/n-interrogatives is only deviating in sentence-final position, in which it would be the carrier of the question accent (ia). As an alternative, a free-standing subordinate structure with the complementizer *ob* ‘if’ and a verb in final position is frequently employed: In (ib), the question accent is assigned to the sentence-final verb:

- (i) a. *Kommt Hein /wohl\?
 comes Hein
- b. Ob Hein wohl /kommt\?
 whether Hein comes

Leaving open the question of whether the *ob*-question in (ib) is truly unembedded or the result of eliding the matrix performative structure *ich frage mich* ... ‘I wonder ...’, I conclude that such structures are used in order to ensure the prosodic well-formedness of y/n-interrogatives with *wohl*. In general, though, y/n-interrogatives with *wohl* are grammatical as long as there is a potential accent-bearing unit following *wohl* (cf. 7b).

First, we find that the epistemic reference point of *wohl* in declarative clauses is the speaker (cf. Abraham 1991). This means that *wohl* in declaratives expresses uncertainty on the part of the speaker. We have seen in (4) that *wohl* is infelicitous in a declarative utterance if the speaker is absolutely certain about the proposition expressed by the utterance. In addition, (8) shows that for licensing *wohl* in declaratives it is insufficient that one of the discourse participants (here the addressee A) is uncertain about the proposition under discussion if it is not the speaker.

(8) SPEAKER (B) CERTAIN, ADDRESSEE (A) UNCERTAIN:

A: Where is Hein? I have a suspicion where he is, but I am not sure.

B: #Ich weiß, wo Hein ist. Er ist *wohl* auf See.

I know where Hein is he is at sea.

The picture changes with interrogatives. Here, the epistemic reference point of *wohl* is undetermined as long as it is not the speaker alone. Rather, an interrogative clause containing *wohl* indicates that the addressee does not know the answer for sure (cf. Asbach-Schnitker 1977). Given this, there are two possible ways to make a question with *wohl* felicitous. In the first case, both addressee and speaker of the question are uncertain about the answer. This is illustrated in (9a), uttered in a context where speaker and addressee are lost and wonder about the right way out. In the second case, only the addressee of the question is uncertain about the answer. This is illustrated in the school test situation in (9b), where the teacher can be safely assumed to know the answer to his question.

(9) a. BOTH ADDRESSEE (B) AND SPEAKER (A) UNCERTAIN:

A to B: Ist dies *wohl* der richtige Weg?

Is this the right way

≈‘Would /could this be the right way?’

b. ONLY ADDRESSEE UNCERTAIN:

Teacher to student: Was ist *wohl* die Hauptstadt von Tansania?

what is the capital of T.

≈‘What would be the capital of Tansania?’

In contrast, *wohl* is infelicitous in an interrogative clause whenever the addressee can be assumed to know the answer for sure. Typical contexts for this are so-called ‘expert contexts’, where the addressee is taken to be an expert concerning the question under discussion. A typical example is the airline context from Gunlogson 2001 in (10).

(10) A to an airline official: # Geht der Flug *wohl* um 17.10 Uhr?

leaves the flight at 5.10 pm

Interestingly, the epistemic reference points in (8) to (10) are identical to those of sentences not containing *wohl*. Doherty (1985:19) observes that the epistemic reference point of declaratives is the speaker, whereas the epistemic reference point of interrogatives is undetermined as long as it is not the speaker alone. If so, *wohl* simply inherits its epistemic reference point from the sentence type. In order to capture this dependency, one can assume that *wohl* stands in a tight structural relation to wherever the sentence type is structurally encoded. Following Rizzi

(1997), we might say that a candidate for the structural encoding of sentence types is the force projection in the left periphery (see section 5).

3 Wohl Does Not Form Part of the Proposition

This section shows that the meaning of *wohl* does not contribute to the proposition expressed by an utterance, where proposition is to be understood as the truth-conditional, descriptive aspect of the meaning of the utterance. In this, *wohl* differs from (epistemic) modal auxiliary verbs and modal adverbials such as *wahrscheinlich* ‘probably’ and *vermutlich* ‘presumably’. There are two kinds of evidence that *wohl* does not form part of the proposition. Section 3.1 shows that *wohl* takes semantic scope over question formation. Section 3.2 shows that the semantic contribution of *wohl* is not mapped onto the presupposition induced by focus, unlike what typically happens with backgrounded propositional material. Section 3.3 sums up the reasons for treating *wohl* differently from modal auxiliaries and adverbials.

3.1 Wohl Takes Scope Over Question Formation

This section discusses the semantic behaviour of *wohl* in y/n-interrogatives. It is shown that *wohl* obligatorily scopes over question formation, which in turn takes as its input the proposition expressed by the question. It follows that — at least at the level of semantic representation — *wohl* must be located in a position higher than the level of propositions.

With the noteworthy exception of Asbach-Schnitker (1977), most existing accounts of the discourse particle *wohl* have concentrated on declarative clauses (with sentence focus). The focus on *wohl* in such all-new declaratives is unfortunate because they are inconclusive regarding the semantic location of *wohl*. This is because the result of applying *wohl* to a proposition *can* in principle be expressed as another proposition. Consider, for instance, the propositional paraphrase of (11).

- (11) Peter ist *wohl* zuhause.
Peter is at.home
‘The speaker assumes that Peter is at home.’

Things are different in questions, however. Semantically, questions can be modelled as sets of alternative propositions that are built on the basis of the proposition expressed by the question (Hamblin 1973; von Stechow 1991). For instance, the meaning of the y/n-interrogative in (12a) can be represented as in (12b) (after proto-question formation; see Karttunen 1977) and (12c) (after adding the illocutionary question operator ‘?’)

- (12) a. Does it rain?
b. \Rightarrow {it rains, it does not rain}
c. \Rightarrow ? {it rains, it does not rain}
 \approx ‘Tell me which of the alternatives is correct: It rains or it doesn’t.’

The input for the formation of the proto-question in (12b) is the propositional content of the question in (12a): namely, the proposition *it rains*.

The semantics of yes/no questions allow for the following prediction concerning the semantic interpretation of *wohl*:

- (13) If *wohl* made up part of the propositional meaning of an utterance, a proposition containing *wohl* should behave just like other propositions under question formation.

In particular, the semantic contribution of *wohl* should be part of the input for question formation. This prediction is not borne out, as shown by the following argument. If the prediction in (13) were correct, we would expect (14a) to have the semantic representation in (14b). In particular, we would expect the semantic contribution of *wohl*, i.e. the epistemic attitude ASSUME, to take scope under question formation, and hence under negation (the relevant elements are shown in bold face).

- (14) a. Ist Hein *wohl* aufSee?
 Is Hein at sea
- b. ?{assume(addressee,Hein at sea),¬assume(addressee,Hein at sea)}
 ≈ ‘Tell me whether you assume that H. is at sea,or whether you don’t assume that H. is at sea’

As the paraphrase shows, (14b) represents a question about the epistemic state of the addressee, rather than about Hein’s whereabouts. It simply asks for the addressee’s assumptions concerning Hein’s being at sea. Therefore, (15) (or rather its German equivalent) should be a felicitous answer to (14a), contrary to fact.

- (15) No, I don’t assume that Hein is at sea (# as an answer to (14a))

The answer in (15) is compatible with the addressee having no assumptions whatsoever about Hein’s whereabouts, but this is not what somebody who asks (14a) is interested in.

Rather, he or she is interested in the whereabouts of Hein, at the same time allowing for a certain degree of uncertainty on the part of the addressee. This is captured by the semantic representation in (16), with *wohl* scoping over question formation and negation.

- (16) ? ASSUME {Hein is at sea, ¬ Hein is at sea}
 ≈ ‘Tell me (granted a degree of uncertainty) whether Hein is at sea or not.’

The representation in (16) correctly predicts that the following are felicitous answers to (14a) (see Asbach-Schnitker 1977: 50):

- (17) *vermutlich* (ja/nein) ‘presumably yes/no’, *wahrscheinlich* (ja/nein) ‘probably yes/no’, *Ich denke* (ja/nein) ‘I think/guess so/not’ ...

Summing up, it was shown that structures such as (14b) with *wohl* scoping under question formation cannot be the correct semantic representation of yes/no questions containing *wohl*. The correct representation is given in (16), with *wohl* scoping over question formation. Now, if question formation takes scope over propositions (mapping them onto sets of propositions), and if *wohl* takes scope over question

formation, it follows that *wohl* cannot form part of the proposition, but must be located in a higher position semantically.

Notice finally that the semantic behavior of *wohl* in questions differs from that of (epistemic) modal auxiliaries and modal adverbials. Unlike *wohl*, these take scope under negation, and hence under question formation in interrogatives. This is illustrated for the epistemic modal auxiliary *müssen* ‘must’ in (18a), paraphrased as (18b), and for the modal adverbials *vermutlich* ‘presumably’ and *wahrscheinlich* ‘probably’ in (19a), paraphrased as (19b):

- (18) a. Muss Hein in das Unwetter geraten?
must Hein in the thunderstorm get
 ‘Must Hein get into the thunderstorm?’
- b. Is it necessarily so that Hein gets into the thunderstorm, or is it *not necessarily* so that Hein gets into the thunderstorm? NEG >> MUST
- (19) a. Wird Hein ?vermutlich / wahrscheinlich in das Unwetter geraten?
will Hein presumably probably in the thunderstorm get
 ‘Will Hein presumably / probably get into the thunderstorm?’
- b. Is it presumably/ probably the case that Hein will get into the thunderstorm, or is *not presumably/ probably* the case that Hein will get into the thunderstorm? NEG >> PRESUMABLY, PROBABLY

The different semantic behaviour of *vermutlich* ‘presumably’, at first sight a close paraphrase of *wohl*, gives rise to the following prediction: Since *vermutlich* forms part of the proposition, questions containing *vermutlich* are about the truth of an assumption of the hearer (concerning a proposition) rather than about the truth of the proposition itself. Hence, they should be infelicitous in contexts where it is unlikely that the hearer’s assumption is of any interest to the speaker, as in (20).²

- (20) I need to know all African capitals by tomorrow!
- Ist Dar-es-salaam #*vermutlich* / *wohl* die Hauptstadt von Tansania?
is Dar-es-Salaam presumably the capital of Tansania
 ‘Is Dar-es-Salaam presumably the capital of Europe?’

The corresponding question with *wohl* is fine. Since *wohl* does not contribute to the proposition, the question is about the proposition without *wohl* (with a certain degree of uncertainty) rather than about the assumptions of the speaker. The difference in acceptability of *wohl* and *vermutlich* ‘presumably’ in (20) shows once more that the two expressions differ despite initial appearances to the contrary.

Summing up, the data in (18) to (20) clearly show that modal expressions form part of the proposition, clearly setting these apart from the discourse particle *wohl*. Only *wohl* (and possibly other discourse particles) does not form part of the proposition, something that any analysis of such expressions must account for.

² This fact may also be responsible for the slight markedness of *vermutlich* in (19a). What seems most relevant there is whether Hein’s life is at risk or not.

3.2 *Wohl* Scopes over Structured Propositions

This section argues that *wohl* interacts with the focus-background structure of a sentence in a particular manner: *Wohl* obligatorily scopes over structured propositions that represent the focus-background structure. Given that structured propositions are formed on the base of simple propositions, it follows that — at least at the level of semantic representation — *wohl* must be located in a position higher than the level of propositions.³

Following von Stechow (1982, 1991), the effect of focus on the semantic representation of a sentence can be captured in form of structured propositions: The proposition of the sentence is split up into two parts, a background and a focus. For instance, (21a, b), which share the same proposition, but differ in their focus-background structure, have the structured propositions in (22a, b) respectively.

(21) a. PETER ist gestern nach Hamburg gefahren.

b. Peter ist GESTERN nach Hamburg gefahren.

Peter is yesterday to Hamburg driven

‘Peter went to Hamburg yesterday.’

(22) a. <x went to Hamburg yesterday, PETER>

b. <Peter went to Hamburg at t, YESTERDAY>

background focus

In (22a, b), the new or highlighted part of the proposition is mapped onto the focus part of the structured proposition, while the rest is backgrounded. The background corresponds to old or given information that is presupposed to be shared with the hearer. This allows for the following prediction concerning the semantic interpretation of *wohl* relative to the focus-background structure of a clause.

(23) If *wohl* made up part of the proposition, it should be mapped onto the background as presupposed material (given that it cannot be focused).

In particular, the semantic contribution of *wohl* to the proposition should have the effect that the presupposition is an assumption rather than an actual state of affairs.

The following observations show that *wohl* is not mapped onto the background of a structured proposition. This in turn shows that *wohl* does not form part of the proposition. Both (24) and (25) contain a sequence of two clauses: The *a*-clause contains an instance of *wohl*. The subsequent *b*-clause makes an assertion that is in

³ The argument will have a slightly different form if focus is treated in terms of alternative semantics (Rooth 1985). Here, focus on constituents is computed simultaneously with the ordinary meaning by assigning them a focus value, which consists of a set of alternatives. Focus values are thus assigned to constituents below the propositional level. However, in order to access the amount of information expressed by structured propositions, one needs to consider the level of alternative propositions. Only at this level is it possible to determine which parts of the proposition are focused, and therefore variant across alternatives, and which parts of the proposition are presupposed, and therefore identical across alternatives. It follows that the semantic impact of *wohl* as contributing to the presupposition of a clause or not can only be evaluated after the semantic computation has reached the level of propositions.

conflict with the presupposition of the *a*-clause without *wohl* (cf. 21a, b). Crucially, the sequences in (24) and (25) are infelicitous.

- (24) a. PETER ist *wohl* gestern nach Hamburg gefahren, ...
 Peter is yesterday to Hamburg driven
 b. # ... auch wenn ich nicht ganz sicher bin, dass überhaupt jemand nach
 Hamburg gefahren ist.
 ‘even though I am not sure that anybody went to Hamburg at all.’
- (25) a. Peter ist *wohl* GESTERN nach Hamburg gefahren, ...
 Peter is yesterday to Hamburg driven
 b. # ... vielleicht fährt er aber auch erst MORGEN.
 ‘...but maybe he will only go TOMORROW.’

We cannot account for the observed infelicity by assuming that *wohl* contributes to the presupposition, thereby turning it into an assumption. The assumption that somebody went to Hamburg yesterday should be fully compatible with the subsequent assertion that perhaps nobody went in the case of (24). Likewise, the assumption that Peter has left for Hamburg at some point should be fully compatible with the subsequent assertion that Peter may not leave before tomorrow (25).

In contrast, the infelicity of (24b) and (25b) falls out directly if the meaning of *wohl* is not part of the presupposition. On this analysis, the presuppositions of the *a*-clauses are identical to those of their *wohl*-less counterparts (21a, b) in (22a, b). In other words, (24a) presupposes that somebody went to Hamburg yesterday, and (25a) presupposes that Peter has left for Hamburg in the past (he therefore cannot leave in the future). Like all presuppositions, these presuppositions cannot be cancelled by the meaning of the subsequent *b*-clauses, resulting in infelicity. Further support for this analysis comes from the fact that the *a*-clauses in (24) and (25) can be questioned as long as their presupposition is not cancelled. For instance, (25’b) is a felicitous follow-up for (25a), with which it shares the presupposition that Peter has left.

- (25’) b. ... vielleicht ist er aber auch schon VORGESTERN gefahren.
 ‘...but maybe he has already left THE DAY BEFORE YESTERDAY.’

Summing up so far, *wohl* does not contribute to focus presuppositions by turning them into assumptions. Given that such presuppositions follow from the background of structured propositions, and given that structured propositions are formed on the base of simple propositions, it follows that *wohl* cannot form part of the proposition, but must be located in a higher position semantically. As a result, sentences with *wohl* have the same strong presuppositions as their *wohl*-less counterparts (with focus merely indicating which part of the proposition is still uncertain).⁴

⁴ Despite this apparent focus-sensitivity, *wohl* differs from true focus-sensitive particles such as *auch* ‘also’ and *sogar* ‘even’ in that it does not operate on the domain of focus alternatives directly. For instance, the felicity of (24a) is completely unaffected by what other focus alternatives the speaker may hold for certain or uncertain: an utterance of (24a) does not implicate that the speaker is certain (or uncertain) about other propositions in which the focus constituent *Peter* has been replaced with alternative candidates. Section 4 shows in

Interestingly, the sequences in (24) and (25) become felicitous if *wohl* is replaced by the modal adverbials *wahrscheinlich* ‘probably’, and *vermutlich* ‘presumably’.

- (26) a. PETER ist *vermutlich/wahrscheinlich* gestern nach Hamburg gefahren
Peter is presumably/probably yesterday to Hamburg driven
 ‘PETER presumably / probably went to Hamburg yesterday.
- b. ... auch wenn ich nicht ganz sicher bin, dass überhaupt jemand nach Hamburg gefahren ist.
 ‘even though I am not sure that anybody went to Hamburg at all.’
- (27) a. Peter ist *vermutlich/wahrscheinlich* GESTERN nach Hamburg gefahren
Peter is presumably/probably yesterday to Hamburg driven
- b. ... vielleicht fährt er aber auch erst MORGEN.
 ‘...but maybe he will only go TOMORROW.’

The different behaviour of the discourse particle *wohl* and the modal adverbials *wahrscheinlich* and *vermutlich* with respect to focus presuppositions shows, once again, that the two kinds of expressions differ in nature. Unlike *wohl*, modal adverbials form part of the proposition and are mapped onto the background. In the case of (26a) and (27a), the resulting presupposition is an assumption rather than a state of affairs, and therefore not in conflict with the *b*-clauses.

3.3 *Wohl* and Modal Adverbials

Let us conclude this section by summing up the main differences between the discourse particle *wohl* on the one hand, and modal auxiliaries and modal adverbials such as *vermutlich* and *wahrscheinlich* on the other.

First, *wohl* takes scope over question formation, whereas question formation takes scope over modal auxiliaries and modal adverbials (section 3.1). Second, *wohl* is not mapped onto the focus presupposition, whereas modal adverbials are (section 3.2). Third, *wohl* cannot stand alone before the finite verb in V2 (section 1.3), whereas modal adverbials can:

- (28) Vermutlich / Wahrscheinlich / Vielleicht / **Wohl* ist Hein auf See.
presumably probably perhaps is Hein at sea
 ‘Presumably/ probably/ perhaps, Hein is at sea.’

Fourth and last, *wohl* cannot be contrastively focused (section 1.3), whereas modal adverbials (and modal auxiliaries) can:

- (29) Peter hat nicht VERMUTLICH/WAHRSCHEINLICH Bier gekauft, sondern SICHER
Peter has not presumably/probably beer bought but certainly
 ‘Peter did not PRESUMABLY / PROBABLY buy beer, but CERTAINLY.’

more detail that *wohl* does not add such conventional implicatures to the semantic interpretation.

The last two differences follow from a lexical property of *wohl*:⁵ It must be unstressed, and therefore cannot carry the main accent of an accent domain, nor a contrastive focus accent. In contrast, the first two differences follow from a general semantic difference between the two classes of elements: Modal adverbials (and modal auxiliaries) form part of the proposition. They therefore add to the truth-conditional content of an utterance before the meaning of questions and structured propositions (which rely on the truth-conditional content) is computed.⁶

The discourse particle *wohl* does not form part of the proposition. It does not add to the truth-conditional content of an utterance, and it takes semantic scope over the formation of both questions and structured propositions. Since the formation of questions and structured propositions takes place in a very high position, it follows that *wohl* must be located in an even higher position – at least semantically. In section 5, it will be argued that the locus of structured-proposition formation, question formation, and the interpretation of *wohl* is the left periphery of the clause.

4 *Wohl* Triggers No Conventional Implicatures

In the preceding section, it was shown that the semantic scope of *wohl* is very high, with *wohl* outscoping even question formation and the formation of structured propositions. This makes it, at first sight, look similar to another class of expressions that also outscope question formation. The class in question is the class of expressions that trigger conventional implicatures, e.g. expressives such as *verdammt* ‘damned’, parentheticals such as *wie du behauptest* ‘as you claim’, and particles triggering implicatures such as *auch* ‘also’. Following Karttunen & Peters (1979), these elements can be analysed as contributing to an independent semantic level of implicature that stands next to the level of asserted meaning: <ASS, IMPL>.

Looking at how expressions that trigger implicatures behave in interrogatives, (30a) shows that the expressive *verdammt* scopes over question formation. This is expected if the meaning of *verdammt* is processed at a semantic level different from that of question formation, as sketched in (30b).

- (30) a. Hast du den *verdammt*en Hund gesehen?
 Have you the damned dog seen
 ‘Have you seen that damned dog?’

⁵ It would be tempting to derive these difference from a more general difference between *wohl* and modal adverbials, e.g. by postulating that elements outside the proposition, which do not contribute to its truth-conditions, cannot be stressed and therefore be focused. Unfortunately, this claim is easily falsified by the existence of stressed *WOHL* (see section 1.3) and the fact that focus particles such as *auch* ‘also’ can be focused (cf.i). Both elements do not contribute to the truth-conditions of a clause as part of its proposition either:

- (i) Peter hat nicht NUR, sondern AUCH GERAUCHT.
 Peter has not only but also smoked
 ‘Peter did not ONLY smoke, he ALSO smoked.’

⁶ See e.g. Hamblin (1959) for a truth-conditional analysis of *probably*.

- b. <[[Have you seen that dog z?]], speaker does not like z>
questioned *implicated* *meaning*

Given the similar behaviour of *wohl* and implicature-triggering expressions in questions, one could falsely assume that *wohl*, too, contributes its meaning to an independent semantic level. On this line of reasoning, it would do so by triggering a conventional implicature to the effect that the addressee of the question is not absolutely sure about his or her answer. This is illustrated in (31).

- (31) Potential semantic analysis of questions with *wohl* (to be rejected!)
 [[wohl p?]] = < ?p,
 questioned *implicated* *meaning*
 addressee is not sure concerning p>

This section argues that, despite first appearances, the discourse particle *wohl* should not be treated on a par with expressions that trigger implicatures. Consequently, it should not be taken to contribute to an independent semantic level of implicature. The argument proceeds by showing that *wohl* differs from elements triggering implicatures in two important respects.

4.1 Scopal Behaviour

The first difference concerns the scopal behaviour in embedded contexts. As the following examples show, expressives (e.g. (32)), parentheticals (e.g. (33)), and particles that trigger implicatures (e.g. (34)) can or must scope out of embedded clauses (see, e.g., Karttunen & Peters 1979; Potts 2002a, b).

- (32) a. Bush sagt, dass die *verdammt*en Republikaner Hilfe verdienen.
Bush says that the damned Republicans support deserve
- b. <B. says that the __ Rep.s deserve support; *Speaker dislikes the Rep.s*>
- (33) a. Wenn der Smutje, *wie ich meine*, betrunken ist, gibt es kein Essen.
if the cook as I think drunk is there is no food
- b. <If the cook __ is drunk, there will be no food; *I think the cook is drunk*>
- (34) a. Der Kapitän weiß, dass der Smutje *auch* betrunken war.
the captain knows that the smutje also drunk was
- b. <The capt. knows that the cook__was drunk; *somebody else was drunk*>

Since the semantic contribution of all these expressions is processed at an independent semantic level of implicature, such insensitivity towards embedding does not come as a surprise.

Unlike the above expressions, though, *wohl* never scopes out of embedding contexts. This is shown in examples (35)-(37). (35a) does not say that the speaker is uncertain as to whether the SPD deserves support. Likewise, (36a) does not say that the speaker has any assumptions about the cook's being or not being drunk. And in (37a), *wohl* has to be interpreted with respect to the epistemic state of the matrix subject, leading to incompatibility with the matrix verb *wissen* 'to know'.

- (35) a. Schröder sagt, dass die SPD *wohl* Hilfe verdient.
 Schröder says that the SPD support deserves

- b. \neq <S. says that the SPD__deserves support; *speaker unsure if the SPD deserves support*>
- (36) a. *?Wenn der Smutje wohlbetrunken ist, gibt es kein Essen.
if the cook drunk is there is no food
- b. \neq <If the cook__is drunk, there will be no food; *speaker unsure if the cook is drunk*>
- (37) a. *Die Deern weiß, dass Hein wohl auf See ist. (cf.4b)
the girl knows that Hein at sea is
- b. \neq <The girl knows that Hein__is at sea; *speaker unsure if Hein is at sea*>

4.2 Wohl Does Not Introduce a Surplus Meaning

$$(38) \quad [[\text{p} \dots \alpha \dots]] = \langle [[\text{p} - \alpha]], \quad [[\alpha]]\rangle$$

asserted *implicated meaning*

The same does not hold for *wohl*. Crucially, a sentence containing *wohl* does not say that the state of affairs described by the sentence without *wohl* holds. Rather, the presence of *wohl* has the effect that the state of affairs described by the sentence is still unresolved. To give an example, a felicitous use of (1b), repeated as (39a), does not allow for the conclusion that Hein is indeed at sea, whatever the precise meaning of *wohl*:

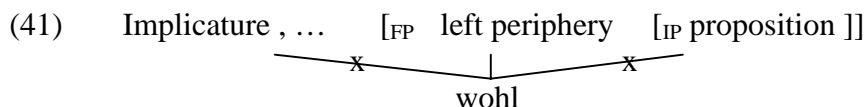
Summing up this section, it was shown that there are good reasons not to treat *wohl* as an expression that triggers conventional implicatures. First, the scopal behaviour of *wohl* is not as free as that of typical implicature-triggering expressions. This argues against processing the meaning of *wohl* at an independent semantic level of implicatures. Second, unlike implicature-triggering expressions, *wohl* does not add meaning to the descriptive content of an utterance. Rather, the presence of *wohl* seems to change the kind of propositional commitment towards this descriptive content (Green 2000). It is this latter intuition that underlies the semantic analysis to be put forward in the following section.

5 *Wohl* as a Modifier on Sentence Type Operators

This section presents the syntactic and semantic analysis of *wohl*. It is argued that *wohl* semantically modifies sentence types, or rather those elements that encode the sentence type structurally. As indicated at the end of the previous section, its semantic contribution consists in expressing a particular kind of propositional commitment. I further assume for declarative and interrogative clauses that their sentence type is encoded in the form of the privative features *decl(arative)* and *int(errogative)*. Since these features are located in the head of a functional projection in the left periphery of the clause, *wohl* has to move there covertly if it is to modify them. Somewhat anticipating the discussion to follow, the two main ideas behind the analysis are given in (40):

- (40) a. Semantically, *wohl* indicates a particular kind of propositional commitment. (Green 2000)
 b. Syntactically, *wohl* moves to the specifier of the functional projection ForceP at LF. (Rizzi 1997)

The assumption that *wohl* is interpreted in a high peripheral position explains its — at first sight contradictory — scopal behaviour. On one hand, we have seen that *wohl* does not form part of the proposition and must be interpreted above question formation and structured propositions (see section 3). This observation is accounted for if *wohl* is interpreted in a high functional projection above the sentence type feature. On the other hand, we have seen that its scopal behaviour is not as free as that of expressions that trigger conventional implicatures. Again, this observation is accounted for if *wohl* is interpreted in a high functional projection but still inside the clause. This state of affairs is summarized in (41):



5.1 Semantic Assumptions

In section 4.2, it was already mentioned that sentences containing *wohl* are weaker in their assertive force than sentences without *wohl*. From *wohl p* it does not follow that *p*, but only that *p* is not implausible. In other words, the presence of *wohl* in an utterance *U* prevents a ‘strong commitment’ to the proposition *p* expressed by *U*, where ‘strong commitment’ here roughly corresponds to Stalnaker’s (1978) notion of ‘assertion’.

Following Stalnaker, an assertion normally introduces a proposition *p* into the Common Ground (CG), where CG is the set of assumptions mutually accepted by the discourse participants. By way of example, an utterance of (42a) adds the proposition *p* in (42b) to the CG_i in (42c), yielding the new or updated CG_j in (42d).

- (42) a. Hein ist auf See.
 Hein is at sea
 b. *p* = [[Hein is at sea]]

c. $CG_i = \{ \dots, p_1, p_2, p_3, \dots \}$ (CG before utterance of (42a))

d. $CG_j = \{ \dots, p_1, p_2, \mathbf{p}, p_3, \dots \}$ (CG after utterance of (42b))

The introduction of p into the CG is informative because it reduces the number of possible worlds that are compatible with the CG. Before an utterance of (42a), the CG is compatible with worlds in which Hein is at sea as well as with worlds in which he is not. After the utterance of (42a), the CG is only compatible with the former.

An utterance of *wohl p*, on the other hand, is not informative in the same sense. Unlike in the case of normal assertion (or: strong commitment), it does not lead to an introduction of p into the CG. Rather it leads to the introduction of a different object, namely a speaker's x hypothetical commitment to p , here abbreviated as $ASSUME_x(p)$.⁷

(43) a. Hein ist *wohl* auf See.
 Hein is at sea

b. $p = [[\text{Hein is at sea}]]$

c. $CG_i = \{ \dots, p_1, p_2, p_3, \dots \}$ (CG before utterance of (43a))

d. $CG_j = \{ \dots, p_1, p_2, ASSUME_x(\mathbf{p}), p_3, \dots \}$ (CG after utterance of (43b))

As in (42), the CG before an utterance of (43a) is compatible with worlds in which Hein is at sea and with worlds in which he is not. Unlike in (42), however, the CG after the utterance of (43a) is still compatible with both types of worlds. The utterance of (43a) is informative only in so far as the CG is incompatible with worlds in which the speaker x does not profess a hypothetical commitment to p .

In brief, an utterance of *wohl p* differs from ordinary assertion in that it does not express a strict commitment towards p . It only expresses a weaker commitment towards p , namely an idiosyncratic commitment on the side of the speaker that p is likely to be the case. This result ties in with Doherty's (1979) analysis of *wohl* as a 'hypothesis functor'. (44) is a first approximation of the meaning of *wohl*:

(44) $[[\text{wohl } p]] = ASSUME_x(p)$ (with x = speaker, hearer, or both)

⁷ Attributing a different ontological status to objects like $ASSUME_x(p)$ requires a generalization of the notion 'common ground'. Ultimately, it may be more appropriate to perceive of CGs as containing not only propositions, but also social commitments that come in form of illocutionary acts such as assertions, questions, directives etc. According to Vanderveken (1990:11), illocutionary acts are the primary meanings of natural language sentences, while the proposition of a sentence forms the content of the illocutionary act performed by that sentence. A 'generalized common ground' (GCG) should therefore contain all illocutionary acts that the discourse participants mutually accept as successful and still valid at any given stage of the discourse. In addition, it should contain any illocutionary acts and/or propositions that are illocutionarily or logically inferable from these acts.

On this view, a successful (and uncontested) assertion of a proposition p' , $ASSERT(p')$, would be directly introduced into the GCG, while its content p' would only be included because its truth can be inferred from the successful performance of $ASSERT(p)$. Likewise, the object $ASSUME_x(p)$ in (43d) would be directly introduced as a successful hypothetical commitment to p . A successful hypothetical commitment to a proposition does not imply the truth of the proposition, though, and therefore p is not included in the GCG in (43d).

More generally, the present analysis implies that there are different kinds of declarative sentences. Adopting an idea from Green (2000), we can say that declaratives can be used to make assertions with different strength regarding their degree of commitment towards the proposition expressed:

[...] it is insufficient merely to describe speakers as committed to propositions and other semantic contents [e.g. sets of propositions, MZ]; accuracy requires also tracking the mode of that commitment by adverting to the force of the speech acts that engendered it. (Green 2000: 444)

Here, I assume that a commitment is strict in the default case (corresponding to Stalnaker's (1978) assertion), but it can also come in the weaker forms of assumption (e.g. with *wohl*), mere speculation, conjecture, etc.

Extending this idea to interrogatives, these too come in different kinds. On their basic use, they make a request for an assertion by the hearer, but the requested assertion can have different degrees of propositional commitment. It can be strict, or it can be an assumption, a speculation etc.

Let us finally come back to the question of what the communicative gain is of using an utterance *wohl p* if it does not lead to the inclusion of *p* in the CG, but only to the inclusion of an idiosyncratic commitment to *p* on the side of the speaker. Again, the answer is found in Green (2000: 467):⁸

⁸ The quote sheds light on the question of why it is sometimes possible to contest utterances of the form *wohl(p)* with *not(p)* as in (i). Notice that the same seems to hold for the English paraphrase with *I suppose*:

- | | | |
|-----|-----------------------------|----------------------------------|
| (i) | A: Hein ist wohl auf See. | B: Nein, Hein ist nicht auf See! |
| | Hein is at sea | No Hein is not at sea |
| | 'I suppose Hein is at sea.' | 'No, Hein is not at sea.' |

Speaker A's profession of a hypothetical commitment to *p* by using *wohl* or *I suppose* licenses the inference that A is likely to accept *p* as true and considers it a candidate for inclusion in the CG. The subsequent utterance of *not(p)* by B blocks such an inclusion (whether *not(p)* is included into the CG instead depends on whether or not A accepts B's correction). Notice that the same pattern obtains with *all* kinds of assertion. An assertion of *p* always puts forward *p* as a candidate for inclusion into the CG, but inclusion of *p* will only take place if the assertion is accepted by the other discourse participants. In case they disagree, inclusion of *p* can be blocked by the contradicting statement *not(p)*.

Manifesting one's idiosyncratic commitments will facilitate communication in part by making clear an interlocutor's dialectical status, that is, it will help make clear to other interlocutors what sorts of utterance an interlocutor is likely to accept or, on the other hand, to challenge. Similarly, it will make clear what sorts of questions an interlocutor is apt to reject or, alternatively, to endorse and attempt to answer.

5.2 Syntactic Assumptions

The syntactic part of the analysis rests on two assumptions. Following Rizzi (1997), I assume that the specification of a sentence type, e.g. as declarative or interrogative, takes place in the highest position in the expanded left periphery, namely in ForceP:

- (45) [_{ForceP} Force⁰ ... [_{TopP} Top⁰ [_{FocP} Foc⁰ [_{FinP} Fin⁰ [...
decl / int

The expanded left periphery is the result of splitting up the traditional complementizer projection (CP) into several sub-projections, the so-called 'split CP-hypothesis' (Rizzi 1997). The existence of these sub-projections is motivated on conceptual (semantic) and empirical (syntactic) grounds. Direct empirical arguments in favour of a split CP come from languages with multiple complementizers and from languages with overt discourse-driven movement operations, such as topic or focus left-dislocation (e.g. Hungarian, Italian).⁹ Semantically, elements in the left periphery link the propositional content of a clause with its superstructure (in case of embedded clauses) or with the discourse structure (in case of root clauses) (Rizzi 1997:285). FinP is an obligatory projection that encodes information pertaining to the tense specification of the embedded structure as [+/- finite]. In FocP, the information expressed is divided into focus and background/presupposition (see section 3.2): The Foc-head takes any focus constituents (including *wh*-phrases, which are inherently focused) as its specifier and the presupposition as its complement. In case, focus movement is not overt, the focus constituent(s) will move to Spec,FocP covertly at LF. In a similar vein, TopP separates the information in topic and comment, with the Top-head taking the topic of the clause as its specifier and the comment as its complement. The 'discourse-projections' FocP and TopP are only present when a constituent bears topic or focus features.

The highest projection ForceP is an obligatory projection that encodes another kind of information traditionally associated with the C-system: It determines the type of the clause, or its force. The Force-head can host the features *decl* and *int* (among others). Their main semantic function is to determine the sentence type of an utterance by creating objects of a particular semantic type (*decl*: propositions, *int*: sets of propositions). In addition, these features also determine the epistemic reference point against which the utterance is evaluated (see section 2). With *decl*,

⁹ This drastically simplifies the argumentation in Rizzi: See Rizzi (1997: 300ff.) for much more intricate additional arguments in favour of a split CP. More recently, Frey (2004) argues for a split Cs in German on the base of syntactic evidence. But see also Newmayer (this volume) and Sobin (this volume) for arguments against split CPs.

the epistemic reference point is the speaker. With *int*, the epistemic reference point is the addressee or addressee and speaker together (Doherty 1985).

Turning back to the semantic contribution of *wohl*, extending Rizzi's analysis, I would like to argue that the functional projection ForceP is not only the locus of clausal typing. In addition, I assume that ForceP also encodes the strength of the propositional commitment, as outlined in the preceding section. This modification in the strength of commitment can be brought about by modifying expressions in the specifier of ForceP. In particular, I would like to argue that the discourse particle *wohl* is just such a modifier on sentence types.

5.3 The Semantics of the Left Periphery

Before we turn to the interpretation of *wohl* in Spec,ForceP, a few more comments on the semantics of the left periphery are in order. As stated above, the left periphery of root clauses is assumed to establish the semantic link between the descriptive or propositional content of a clause and the expressive aspects of its meaning such as speaker attitudes, discourse structure, and so forth. The semantic contribution of Foc⁰ consists in identifying the presuppositions induced by constituent focus, namely what is old or known in the discourse. For our purposes, it does not matter whether these presuppositions are captured in terms of structured propositions (as in section 3.2), or in terms of partially defined identity functions (see also fn.13), as long as they are determined in FocP. If TopP is also present, another presupposition pertaining to what the sentence is about is added in analogous fashion.

Finally, the feature content of Force⁰ (*decl* or *int*) determines the semantic type of the clause: declaratives denote propositions; y/n-interrogatives and *wh*-interrogatives denote sets of propositions. These semantic objects can be modified by *wohl*, but their primary function is to determine the illocutionary force of the sentence. The illocutionary force is semantically encoded in form of illocutionary operators such as ASSERT and ?, which take the denotation of (root) ForceP as their semantic argument.¹⁰ The dependency of the illocutionary force on the meaning of the sentence type can be captured by means of felicity conditions on the illocutionary operators: The operator ASSERT requires a proposition for a successful assertion; the operator ? requires a set of propositions for a successful question.

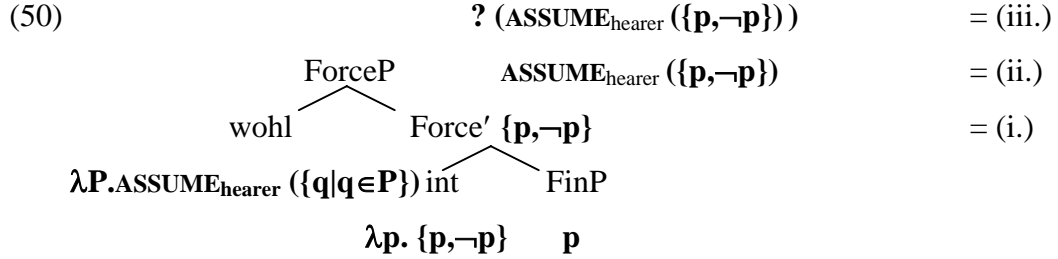
The different functional projections in the left periphery and their semantic contribution are summarized in (46):

- (46) a. FinP → determines the tense of the clause as [+/- finite]
- b. FocP → identifies the focus presupposition (given/old information)
- c. TopP → identifies the topic presupposition (aboutness)
- d. ForceP → determines the sentence type, serves as semantic argument to illocutionary operators.

¹⁰ The concept of illocutionary operators and the idea that the meaning of a sentence type determines the illocutionary force of a sentence goes back at least to Frege (1891), see Vanderveken (1990:67ff.) for discussion.

Int takes a proposition as its argument and maps it onto a set of alternative propositions. *Wohl* takes a set P of propositions as argument and maps it onto a set of propositions P such that the hearer entertains a hypothetical commitment towards the

individual elements of P.¹¹ The entire semantic derivation proceeds in parallel with the structural build-up and is sketched in (50). The semantic values of all nodes and terminal elements are given in bold face.



The meaning of declarative clauses containing *wohl*, such as (47), can be derived in analogous fashion. The only difference stems from the fact that in declaratives *wohl* modifies a proposition, not a set of propositions. One therefore has to assume a certain flexibility in the selectional requirements of *wohl*.¹²

Summing up, the semantic derivation in (50), based on the syntactic derivation in (48), accounts for the scopal behaviour of *wohl* observed in section 3. In particular, the high structural position of *wohl* in Spec,ForceP explains why it scopes over question formation, which takes place in Force⁰, and why it takes scope over the formation of focus-background structures, which takes place in FocP. At the same time, the meaning of *wohl* is processed at the same semantic level as the rest of the clause. This explains the scopal differences between *wohl* and the expressions that trigger conventional implicatures that were pointed out in section 4.¹³

5.5 Cross-Linguistic Evidence

The analysis of the discourse particle *wohl* as occupying a position in the left periphery at LF is largely motivated by semantic considerations of scope. However, there is some cross-linguistic evidence to support it. In some languages, the

¹¹ Like other modifying expressions, *wohl* does not change the semantic type of the expressions it modifies. The output of functional application in (49b), represented as $\text{ASSUME}_{\text{hearer}} (\{\mathbf{q} | \mathbf{q} \in \mathbf{P}\})$, should therefore be read as ‘the set of propositions P such that the hearer only entertains a hypothetical commitment towards the individual members of P’. This formulation captures the underlying intuition that the hearer is unable to choose the right answer from a range of possible answers with absolute certainty.

¹² This kind of type flexibility is not uncommon with modifying expressions. It is also found with attributive adjectives, which modify a property when combining with singular NPs (*blue shoe*), but a set of properties when combining with plural NPs (*blue shoes*).

¹³ Potts (2002b) shows a way to integrate the denotation of implicature-triggering expressions into a one-dimensional semantic representation. He does so by treating implicature-triggering expressions as partially defined identity functions that only give a value when their implicature is met, and no semantic value otherwise. If correct, the difference between *wohl* and implicature-triggering expressions is not so much a difference of the level of semantic representation, but rather a difference in denotation. Unlike expressions triggering conventional implicatures, *wohl* does not denote partially defined identity functions, giving rise to the observable scope restrictions.

counterpart of *wohl* occurs in the periphery of the clause in overt syntax, either in the highest functional projection or adjoined to the entire clause.

The Finnish counterpart to *wohl* in y/n-interrogatives is realized as a suffix in the highest functional head.

- (51) a. On-ko-*han* Pentti kotona?
 is- Q- wohl Pentti at home
 ‘Would Pennti be at home?’
- b. Sa- isin- ko-*han* laskun? ,
 got- subj1SG- Q- wohl billACC
 ‘Could I get the bill?’

Swedish has the expressions *kanske* ‘maybe’ and *månne* (according to Holmberg (1986:98) a ‘main clause complementizer’!), which also express uncertainty towards a (set of) proposition(s) in declaratives and y/n-interrogatives.¹⁴ These expressions can occur in the left periphery, namely in V2- (declaratives) or V1- (y/n-interrogatives) position, where they take over the clause-typing function from the finite verb, which is typically found in this position (see Holmberg & Platzack 1995).

- (52) a. Sara *kanske*(har) varit här.
 Sara wohl have been here
 ≈ ‘Sara has maybe been here.’
- b. *Kanske* han snart (har) skrivit sin bok?
 wohl he soon have writtenhis book
 ≈ ‘Will he maybe soon have written his book?’
- c. *Månne* Sara (har) varit här?
 wohl Sara have been here
 ≈ ‘Has Sara been here?’

English declaratives make use of sentence-final tags (possibly adjoined to ForceP) in order to express the weaker propositional commitment of assumption that is associated with *wohl*.

- (53) A: Where is Peter?
 B: [He is at home], *isn’t he?*

Similar peripheral tags are employed in the German dialects as an alternative to *wohl*:

- (54) *oder?* ‘or’, *wa?* ‘what’ (Berlin), *ne?* ‘not’ (Rhineland), *gell/gelt?* ‘valid’
 (Upper German), *ge?* (Palatine), ...

Looking beyond *wohl*, other expressions that contribute to the expressive rather than to the descriptive content of a clause are expected to occur in a peripheral position as well. Confirming this expectation, Munaro & Poletto (this volume) show that various

¹⁴ The form *månne* is restricted to y/n-interrogatives.

Northern Italian dialects exhibit a number of particles with expressive content that indeed occupy a peripheral position in overt syntax.¹⁵

5.6 Accounting for the Properties of *wohl*

Apart from explaining the scopal properties of *wohl*, the analysis also accounts for the remaining properties of *wohl* that were observed in sections 1-4. First, the impossibility of embedding *wohl* under the verb *wissen* 'to know' (see (4b) in section 1.2) follows from selectional restrictions between the matrix verb *wissen* and the ForceP that it selects for. *Wissen* can as little select for a ForceP that is modified by *wohl*, as in (55a), as the verb *sich fragen* can select for a ForceP containing the feature *declarative*, as shown in (55b).

- (55) a. *ich weiß, wohl-decl
I know
b. *ich frage mich, dass-decl
I wonder that

Second, the restriction to declarative and interrogative clauses (see section 1.4) follows from the fact that a weak propositional commitment such as *ASSUME* can only be evaluated with respect to what can be known, i.e. at epistemically accessible indices (encoded by and only by the features *decl* and *int*).

Third, the fact that the epistemic reference point of *wohl* depends directly on that of the sentence type (see section 2) is accounted for, since *wohl* can inherit it from the sentence type feature in Force⁰ under Spec-head-agreement.

Finally, the analysis can account for illocutionary effects showing up with *wohl* in declarative and interrogative clauses. In certain contexts, declaratives with *wohl* can be used as questions, as in (56a). Interrogatives with *wohl* can sometimes be used as directives, as in (56b).

- (56) a. Das ist *wohl* dein Freund? → *Question*
 that is your boyfriend
 ‘That is your boyfriend, isn’t it?’
 b. Bist du *wohl* still? → *Directive*
 are you quiet
 ‘Will you be quiet!’

Since the illocutionary effects in (56) are restricted to particular contexts, they cannot be directly attributed to the meaning of *wohl*. Below, it is shown that the illocutionary effects in (56a, b) are conversational implicatures that arise whenever the literal meaning of a clause containing *wohl* is infelicitous in the context of utterance. Instead of assuming that the speaker has made an infelicitous or irrelevant

¹⁵ This last observation has to be treated with care, though. It may well turn out that the syntactic and the semantic properties of what at first sight look like similar particles differ even though all of them occur in the left periphery. See the discussion of the differences between the German discourse particles *ja* and *wohl* at the end of section 6, in particular fn.17, and Zimmermann 2004 for further discussion.

utterance, the hearer will apply some reasoning in order to save the utterance, in line with Grice's (1975) 'Principle of Cooperativity'. The following is a brief sketch of how such a line of reasoning could look for the examples in (56a, b).

A possible context that would give rise for a question use of (56a) is a situation in which speaker A encounters an old friend B coming down the street and holding hands with a man. On meeting, A utters (56a), thus triggering the following line of thought on hearer B's side (with p = the proposition 'this is the hearer's boyfriend'):

- (57) a. A has chosen *ASSERT* (*ASSUME* (*speaker*, p)) instead of the stronger (since more informative) *ASSERT* (\emptyset (*speaker*, p)).
- b. If A knew that p , A would have chosen *ASSERT* (\emptyset (*speaker*, p)). (maxim of quantity).
- c. A is not sure whether or not p .
- d. A can safely assume that I know whether or not p .
- e. Therefore, A's utterance is uninformative, hence irrelevant.
- f. A did not intend to make an irrelevant utterance.
(principle of cooperativity)
- \Rightarrow A would like me to tell her whether or not p . (question)

A similar line of reasoning on the hearer B's side, given in (58), accounts for the directive use of the interrogative clause in (56b).

- (58) a. Speaker A literally asks me to answer his question whether or not I am quiet and indicates that I am uncertain about my currently being quiet.
- b. It is impossible that I am not certain about a property that I myself can control, and A also knows this.
- c. Besides, A has available to her all the necessary information to answer his question.
- d. A's utterance is inappropriate and irrelevant.
- e. A did not intend to make an irrelevant utterance.
(principle of cooperativity)
- \Rightarrow A tells me to be quiet. (directive)

As pointed out by Asbach-Schnitker (1977), interrogative directives such as (56b) have to meet two conditions: First, the question must make direct reference to a property of the hearer, i.e. they must contain a verb in 2nd person. Second, the property of the hearer must be under his or her control. Only the satisfaction of both conditions makes such sentences infelicitous or inappropriate on their literal reading, thus triggering a pragmatic reinterpretation by way of conversational implicature. Finally, it should be noted that this kind of explanation directly carries over to other

pragmatic effects that are observable with *wohl*, e.g. certain effects of politeness and irony (see Zimmermann 2004 for details).

I conclude that the analysis of *wohl* as a sentence-type modifier in Spec,ForceP accounts not only for its scopal properties, but also for its other characteristic properties, including certain illocutionary effects.

6 Open Issues

This section briefly addresses a number of open issues. In the interest of space, I will restrict myself to merely pointing out the relevant problems and possible ways to approach them. For a more detailed discussion of these issues, the reader is referred to Zimmermann 2004.

6.1 *Wohl* inside DP

The first open issue concerns DP-internal occurrences of *wohl*. As shown in section 1.1 and illustrated again in (59), *wohl* can occur DP-internally.

- (59) Peter ist in [_{DP} das *wohl* beste [_{NP} Restaurant von Berlin]] gegangen.
Peter is in the best restaurant of Berlin gone
 ‘Peter went to a restaurant that is arguably the best in Berlin.’

The paraphrase makes clear that *wohl* here does not take scope over the entire proposition, but only over the DP. The fact that Peter went to some restaurant is not in doubt in (59). This shows that *wohl* is not interpreted in Spec,ForceP of the matrix clause in (59), giving rise to the question in which position *wohl* is interpreted. A possible solution would be to assume that the functional architecture of at least some DPs contains a Force projection as well. This would be feasible if these DPs could be analysed as propositional expressions or phases (see Chomsky 2001), an assumption not altogether implausible given the often stressed structural parallels between CPs and DPs (see, e.g., Abney 1987). On this view, DP-internal *wohl* would be interpreted on the completion of the DP-phase (see also Heck & Zimmermann 2004 for arguments that DPs are phases).¹⁶

6.2 *Wohl* in *wh*-Interrogatives

The second open issue concerns the co-occurrence of *wohl* and *wh*-expressions. Since the highest position, Spec,ForceP is reserved for sentence-type modifiers such as *wohl* at LF, the *wh*-expression in (60) cannot be located in the highest functional projection, but must be located in a lower position.

- (60) Wen hat Peter *wohl* eingeladen?
who hasPeter invited

¹⁶ An alternative would be to allow for constituents of any syntactic and semantic type to be associated with an evaluation function. On this view, the restriction of *wohl* to VP and DP in the overt syntax would follow from its categorial status as adverb alone (see section 1.1).

As already mentioned in section 5.2, *wh*-expressions are inherently focused and therefore must move to Spec,FocP of Rizzi's (1997) expanded left periphery, like all other focus constituents. I will therefore assume that *wen* has moved overtly to Spec,FocP in (60) (see also Frey 2004:33). Notice that, on such an analysis, the finite verb in questions cannot be assumed to be in Force⁰ like the interrogative complementizer *ob* 'if' in embedded questions. Rather, the finite verb in (60) must be in a lower position, e.g. in the head of FinP (see Grewendorf 2002: 241). A tentative LF-structure for (60) is given in (61).

(61) [_{ForceP} wohl_i int [_{FocP} wen_j Foc [_{FinP} hat Peter t_i t_j eingeladen]]]

6.3 *Wohl* and other Discourse Particles

A final point to be made concerns the question of whether the analysis proposed for *wohl* should be extended to other discourse particles such as *ja*. There is some evidence that it should not. First, unlike *wohl*, the particle *ja* (discussed by Jacobs 1991, and Kratzer 1999, among others) does not modify the strength of the commitment to the proposition expressed. Rather, it adds a surplus meaning to a clause. By using *ja*, speakers indicate that they have good reasons to believe that the hearer is aware of the state-of-affairs described by the proposition. In short, the particle *ja* seems to behave more like elements that trigger conventional implicatures (see section 4). Second, the distribution of *ja* in subordinate clauses is more restricted than that of *wohl*. Unlike *wohl*, *ja* is ungrammatical in restrictive relative clauses (62a) and in the antecedent of temporal *if*-clauses (62b).¹⁷

- (62) a. Die Frau heiratete den Mann, der wohl/ *ja am reichsten war.
 the woman married the man who at-the richest was
 'The woman married that man that seemed to be the richest.'
- b. Immer wenn Peter wohl/ *ja eine Prüfung bestanden hat, geht er saufen.
 Always if Peter an exam passed has goes he drinking
 'Always, if Peter is likely to have passed an exam, he goes out boozing.'

Closer inspection shows that *ja*, unlike *wohl*, is generally illicit in semantically embedded contexts with the exception of assertive *verba dicendi* such as *sagen* 'say', *bemerken* 'remark', etc.

¹⁷ Kratzer (1999) attributes the ungrammaticality of (62ab) with *ja* to an intervention effect on semantic binding. *Ja* intervenes between the relative pronoun and its trace in (62a), and between *immer* (*wenn*), a universal quantifier over events, and the event variable of the temporal *if*-clause in (62b). According to Kratzer, the intervention effects with the discourse particle *ja* arise because *ja* expresses an epistemic attitude, and because epistemic attitudes cannot operate on open propositions, i.e. propositions containing unbound variables as in (62a, b). The fact that the variants with *wohl* in (62a, b) are grammatical shows that the discourse particles *wohl* and *ja* do not form a semantically uniform class (and that the intervention effects with *ja* follow from something else). In the main text below, I will tentatively suggest that *ja* should better be analysed as a modifier on the illocutionary operator *ASSERT*. In this case, the intervention effects would follow from the fact that illocutionary operators need fully specified propositions as their content in order for the performed speech act to be successful.

- (63) Fischer bemerkte, dass Deutschland den Krieg *ja* verloren hätte.
Fischer remarked that Germany the war lost had
 ‘Fischer remarked that Germany had lost the war after all.’

Finally, the different status of *ja* is confirmed by the fact that *ja* obligatorily takes syntactic and semantic scope over *wohl* when the two particles co-occur.

- (63) Heute ist *ja wohl* / **wohl ja* Müllers letzter Arbeitstag.
today is Müller’s last day.at.work
 ‘As you know, today is presumably Müller’s last day at work.’

By uttering (63), speakers express their assumption that today is Müller’s last day at work and in addition they express their belief that the hearers should entertain the same assumption on the base of evidence available to them. Crucially, (63) cannot be used by a speaker in order to express the assumption that the hearer is aware of the fact that today is Müller’s last day at work. This shows that *ja* must be interpreted in a position higher than *wohl*, and therefore also higher than ForceP. At least from a semantic point of view, then, *ja* should not be treated on a par with sentence-type modifiers such as *wohl*, but rather as an expression modifying the illocutionary operator ASSERT, as already suggested in Jacobs (1991). The latter analysis would also account for why *ja* can be embedded under assertive *verba dicendi*.

In sum, this section has presented a number of good reasons to doubt that *wohl* and *ja* have the same syntactic and semantic status, in spite of superficial similarities, and in spite of their traditional classification as belonging to the same class of discourse particles.

7 Conclusion

In this article, I have presented an analysis of the discourse particle *wohl* as a modifier of sentence-type operators. Since the information pertaining to the sentence type is encoded in a high functional projection in the left periphery of the clause, namely in ForceP, *wohl* must covertly move to SpecForceP. Semantically, *wohl* indicates a weakened commitment to the proposition expressed by the clause.

The analysis presented captures the semantic contribution of *wohl* in declaratives and interrogatives. It accounts for the observable distributional restrictions on *wohl* and captures the peculiar scopal behaviour of *wohl* by means of a fully compositional interpretation procedure. Furthermore, it paves the way for a unified analysis of *wohl* and its counterparts in other languages where these occur in a peripheral position in overt syntax. Finally, the analysis spells out in more detail the semantic content of ForceP, a functional projection normally motivated on purely syntactic grounds.

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