

Discourse Particle *denn* in the Antecedent of Conditionals

Eva Csipak • Sarah Zobel

Abstract In this paper, we discuss the semantic contribution and discourse effect of “conditional *denn*,” the occurrence of the German discourse particle *denn* in the antecedent of a conditional. We show that its presence signals that the speaker calls into question the validity of the antecedent proposition. For the use of conditional *denn* to be acceptable, this proposition must have been in the set of public commitments of a discourse participant as well as be in a particular relation with a previously uttered proposition.

Keywords discourse particle · German · *denn* · conditionals · pragmatics

E. Csipak, University of Konstanz, <http://wwwuser.gwdg.de/~ecsipak/>

S. Zobel, University of Tübingen, <https://homepages.uni-tuebingen.de/sarah-magdalena.zobel/>

In Christopher Piñón (ed.), *Empirical Issues in Syntax and Semantics 11*, 31–60. Paris: CSSP.

<http://www.cssp.cnrs.fr/eiss11/>

© 2016 Eva Csipak & Sarah Zobel

1 Introduction

The German word *denn* has many uses—for example, as a causal conjunction, as in (1a), as an archaic comparative particle, as in (1b), and as a discourse particle.¹ In its discourse particle use, it is most frequently found in questions, as seen in (1c). And indeed the literature on discourse particle *denn* almost exclusively discusses its use in questions (e.g., Thurmair 1989, 1991, Bayer 2012, but see Brauße 1994, Kwon 2005, Coniglio 2011, Häussler 2015).

- (1) a. Maria ist froh, **denn** Peter kommt zur Party.
 Maria is happy because Peter comes to.the party
 ‘Maria is happy because Peter is coming to the party.’
 b. Maria mag Peter mehr **denn** je.
 Maria likes Peter more than ever

¹Note that we only investigate the unstressed variant of discourse particle *denn*. Stressed *denn* cannot occur in the antecedents of conditionals, only in questions.

- c. Mag Peter **denn** Maria?
 likes Peter DENN Maria
 ‘Does Peter DENN like Maria?’

The present paper focuses on the use of discourse particle *denn* in the antecedent of a conditional (henceforth: conditional *denn*), as in (2).²

- (2) Sein Auto habe ich nicht gesehen, wenn er **denn** eines hat.
 His car have I not seen if he DENN one has
 ‘I didn’t see his car if he DENN owns one.’

We observe that conditional *denn* serves a particular function: it emphasizes the fact that the speaker is not committed to the truth of the antecedent proposition, while also signaling that accepting a previous discourse move requires accepting the antecedent proposition. Note that the source of this previous discourse move may be a timeslice of the speaker herself, as is the case in (2). By introducing the discourse referent *his car* in the consequent, the speaker presupposes that “he” owns a car. The antecedent containing *denn* emphasizes that this presupposition is not intended.

In this paper, we propose a semantics for conditional *denn*. We also discuss its distribution and properties and suggest why a unified analysis of conditional *denn* and question *denn* is not feasible. Furthermore, we address how antecedents containing *denn* differ from other expressions with a similar function. The rest of the paper is structured as follows. In section 2, we present the relevant data needed to give a better overview over the distribution of conditional *denn*. Section 3 discusses existing formal proposals for discourse particle *denn* and shows how conditional *denn* differs from question *denn*. Section 4 contains our proposal for conditional *denn* spelled out in the discourse model proposed in Farkas & Bruce 2010. In section 5, we compare antecedents containing *denn* to antecedents con-

²To get a picture of the relative frequency of the two uses, we utilized the corpus of Spoken German (“Gesprochene Sprache,” ≈ 2.5 million tokens), which is part of the DWDS online platform (<http://dwds.de/>): compared to *denn* in questions, conditional *denn* is rare making up just about 3–5% of all particle uses. This estimate is based on a random sample of 200 tokens of *denn* (exported: 2016/01/30). For reasons of space, the details of this study cannot be presented here.

taining *überhaupt*, another German discourse particle with a similar function. Section 6 concludes.

Note that stressing the subordinator *wenn* of an antecedent seems to have its own pragmatic effect. Because pragmatic effects based on prosody are beyond the scope of this paper, all judgments regarding the (un)acceptability of conditional *denn* are made for antecedents with unstressed *wenn*. We leave the—undoubtedly necessary—work on the interaction of the contribution of conditional *denn* with prosody and information structure for future work.

2 Data

2.1 Conditional *denn* and Types of Conditionals

Semantically, there are different varieties of conditionals—for instance, hypothetical indicative and subjunctive, temporal, factual, and biscuit conditionals.³ Conditional *denn* can only occur in some of these varieties. As we stated in the introduction, conditional *denn* at once emphasizes that the speaker is not committed to the proposition *p* expressed by the antecedent it occurs in as well as signaling that accepting *p* is a prerequisite for accepting a previous discourse move. Thus the speaker does not believe *p* to hold in the actual world w_0 . This characterization immediately restricts the use of conditional *denn* and excludes it from occurring in the antecedents of factual or temporal conditionals.⁴

For reasons of space, most observations in this and the following subsection are illustrated only by *protest cases* in dialogue form as in (3), but all observations also hold for *self-qualification cases* like (2).

The incompatibility of conditional *denn* with factual conditionals is illustrated in the following example:⁵

³German *wenn* is an all-purpose conditional subordinator. It can introduce the antecedent of any of these varieties (see Fabricius-Hansen & Sæbø 1983, Breindl et al. 2014), as well as other types of conditionals not mentioned here.

⁴Importantly, we do not claim that the proposition *p* expressed by the antecedent of a temporal conditional holds in w_0 . We claim that if a speaker uses a temporal conditional, she believes that *p* will hold at some point in w_0 (see Fabricius-Hansen & Sæbø 1983).

⁵For reasons of space, whenever we provide contextual clues such as an utterance preceding the target utterance containing *denn*, we will give them in English only.

A's utterance and B's uptake establish that Peter will arrive some time later today, which disambiguates B's utterance towards a temporal interpretation. B's utterance without *denn* is perfectly acceptable in this interpretation: it is not known exactly when Peter will arrive, but when he does, the group can go swimming. However, with *denn* the utterance can only be interpreted as a hypothetical conditional, which clashes with the given context.

Other types of conditionals are compatible with conditional *denn* as long as the speaker is not committed to the truth of the proposition expressed by their antecedents. Hence, biscuit conditionals and subjunctive conditionals can host conditional *denn*, as in (6) and (7), respectively. For reasons of space, we will only focus on indicative hypothetical conditionals here.

(6) Da drüben sind Kekse, wenn du denn welche willst.
 there there are cookies if you DENN some want
 'Over there are biscuits if you DENN want some.'

(7) Der Film würde Alex gefallen, wenn er denn käme.
 the movie would Alex please if he DENN come.SUBJ
 'Alex would like the movie if he DENN came.'

The upshot of this section is that conditional *denn* is only acceptable if the speaker is not committed to the truth of the antecedent proposition.

2.2 Connection to the Previous Discourse

Examples (3) and (5) also show that antecedents containing *denn* cannot be used to call into question the at-issue content of a previous utterance. This observation is connected to a second condition on the acceptability of conditional *denn*, namely, the presence of a *previous tacit proposal* that *p* holds.

We will explore this notion in several steps. First, we address what we mean by "presence of a proposal": conditional *denn* is unacceptable in contexts in which the antecedent proposition has not been "brought up" in any way. In the context of example (8), for instance, the proposition that Peter is coming is suggested neither by A's question, nor by the first sentence of B's utterance. In other words, neither A nor B proposed to

establish that Peter is coming—that is, to update the common ground with this proposition. Therefore, conditional *denn* is bad.

- (8) A: By the way, do we have any plans for the weekend?
 B: Das hängt von Peter ab. Wenn er (#denn) kommt,
 that depends from Peter PRT if he DENN comes
 gehen wir mit ihm schwimmen.
 go we with him swimming
 ‘That depends on Peter. If he is (#DENN) coming, we’ll go swim-
 ming with him.’

Second, the requirement that the proposal needs to be *tacit* has in some sense also been illustrated with (3) and (5): if speaker A utters *p*, that is, explicitly proposes *p*, speaker B cannot then express that she holds *p* to be unlikely using an antecedent containing conditional *denn*. Example (9) shows that this is also the case even if the antecedent cannot be interpreted as part of a temporal or factual conditional.

- (9) A: Peter will come to my birthday.
 B: #Wenn er denn kommt.
 if he DENN comes
 ‘If he DENN comes.’

In short, the antecedent proposition *p* needs to have been tacitly proposed (i.e., non-explicitly proposed) by an utterance in the discourse.⁶ In example (10), this is the case: speaker A asserts a proposition *q* (‘that Peter may bring his girlfriend’), which presupposes another proposition *p* (here: ‘that Peter has a girlfriend’). In case it has not been previously established that Peter has a girlfriend, speaker A tacitly proposes to establish *p* in connection with his utterance. In this case, speaker B can use an antecedent containing conditional *denn* to question the validity of *p*.

⁶Conditional *denn* may be marginally acceptable in contexts where the tacit proposal was made nonverbally. We ignore such cases here.

- (10) A: Peter may bring his girlfriend.
 B: Wenn er denn eine hat.
 if he DENN one has
 ‘If he DENN has one.’

One final refinement has to be made: the antecedent proposition *p* does not only have to be tacitly proposed, but has to be a *necessary precondition* of the uttered proposition *q* for conditional *denn* to be acceptable. The term “necessary precondition” includes presuppositions, as well as necessary premises of defeasible inferences based on world knowledge regularities, and is not meant in a logical sense. The latter case is illustrated in (11): world knowledge suggests that A will only want to have a picnic if it is sunny.

- (11) A: We will have a picnic tomorrow.
 B: Wenn denn die Sonne scheint.
 if DENN the sun shines
 ‘If it is DENN sunny.’

Since the tacit proposal in (11) is based on a world knowledge regularity, it has a different origin than the tacit proposal in (9). Speaker A again asserts a proposition *q* (‘that we will have a picnic tomorrow’). After hearing A’s utterance, B considers what needs to be the case for A to be willing to have a picnic; one of the world knowledge based “necessary preconditions” for a successful picnic that B considers is sunny weather. Assuming that A and B did not talk about the weather for the next day yet, A’s utterance—at least for B in this context—is tacitly proposing the necessary precondition that it will be sunny tomorrow. B’s utterance not only makes the world knowledge regularity visible, but it also signals that B holds it being sunny the next day to be unlikely.

In sum, an interlocutor can treat any non-established proposition *p* as tacitly proposed if it can be reasonably assumed to be a precondition for another proposition *q* when *q* is uttered. Their validity can be questioned by conditional *denn*.

Regarding the placement of an antecedent containing *denn*, we observe that it occurs as close as possible to the lexical source material that gives

rise to the tacit proposal (Zobel & Csipak to appear). For instance, in the self-qualification cases, the antecedent typically occurs parenthetically, as illustrated in (12), or after the consequent, as in (2).

- (12) Sein Auto, wenn er denn eines hat, habe ich nicht gesehen.
 his car if he DENN has one have I not seen
 ‘His car, if he DENN has one, I didn’t see.’

When the speaker is questioning the validity of a precondition connected to a previous utterance (by herself or another participant), the antecedent either occurs before another consequent, as illustrated in (13), or bare, as in (10).

- (13) [Context: It should go without saying that people from different countries can visit each other without problems.]
 Und wenn es denn doch nicht so selbstverständlich sei,
 and if it DENN DOCH not so evident is.SUBJ
 so verlange sie so schnell wie möglich Auskunft.
 then requests she as fast as possible information
 ‘And if it DENN does not go without saying, she demands information as fast as possible.’
 (*Die Zeit*, 1992/12/25)

Tacit proposals can take various forms in addition to the presupposition and world knowledge regularity examples that are discussed in this paper. We find, for example, relativizations of word choice, choice of modal flavour, and others. For details on the corpus study on which these results are based, see Zobel & Csipak to appear.

2.3 The Effect of Adding Conditional *denn* to an Antecedent

The previous sections have illustrated what the discourse context has to look like for conditional *denn* to be acceptable. Now we turn to the contribution of *denn* itself. We do this by comparing the difference between antecedents containing *denn* and those without.

- (14) Wir machen morgen ein Picknick, wenn die Sonne scheint.
 we make tomorrow a picnic if the sun shines
 ‘We are having a picnic tomorrow if it is sunny.’

In a discourse-initial context, the speaker of (14) is suggesting to have a picnic tomorrow on the condition that it will be sunny, and there are no clues in the context about how likely the speaker believes that it will actually be sunny. In fact, the speaker can coherently follow up her utterance of (14) with . . . *which is likely, given the weather report*, as well as with *but I think it is unlikely*.

In contrast, an utterance containing conditional *denn* can only be followed up by the latter.

(15) Wir machen morgen ein Picknick, wenn denn die Sonne
 We make tomorrow a picnic if DENN the sun
 scheint.
 shines

‘We are having a picnic tomorrow if it is DENN sunny.’

By using conditional *denn*, the speaker of (15) crucially signals that she does *not* think it is likely to be sunny tomorrow. Rather, she conveys that she believes it is *unlikely* to be sunny.

Thus we predict conditional *denn* to be unacceptable in any context where the speaker either believes the antecedent is likely to be true in the actual world, or where she is completely ignorant about its probability. This is borne out. Consider a context in which the speaker lives in Florida, but her parents live in Canada. She does not regularly check up on the weather reports for her parents’ location, but she knows that when the weather allows, they always have a picnic on April 15. In this case, it would be misleading to use conditional *denn* since its contribution is in conflict with the speaker’s attitudes.

(16) Meine Eltern machen morgen ein Picknick, wenn (#denn)
 my parents make tomorrow a picnic if DENN
 die Sonne scheint.
 the sun shines

‘My parents are having a picnic tomorrow if it is (#DENN) sunny.’

3 Literature and *denn* in Conditionals vs. Questions

3.1 Preliminaries on Discourse Particles

According to Zimmermann (2011), the function of discourse particles is to fit the current utterance to the previous discourse. This results in discourse particles acting as “discourse-navigating devices,” see McCready 2006, Eckardt 2013, Rojas-Esponda 2014 among others. Since discourse particles do not contribute to the truth conditions of the sentence they occur in, they supply not-at-issue material in the sense of Simons et al. (2010). We take these insights to also hold for conditional *denn*.

3.2 Analyses of Discourse Particle *denn*

With these background assumptions, we now turn to the proposals made for *denn* in the literature.

There are several descriptive proposals for the meaning of question *denn* (see König 1977, Thurmair 1989, Kwon 2005 among others). Some researchers assume that question *denn* contributes no discernible meaning but simply marks the utterance as a question (Thurmair 1991, Bayer 2012). Others do assign question *denn* a fixed contribution, but disagree on what this contribution is (e.g., Csipak & Zobel 2014, Rojas-Esponda 2015). The exact analysis of question *denn* is not relevant for the following point, though. Based on the discussion of the data in the previous section, we can already exclude that an analysis of question *denn* can be extended to account for the meaning of conditional *denn*, since conditional *denn*, but not question *denn* (pace Coniglio 2011, Häussler 2015), contributes a bias: the speaker believes it is unlikely that p holds in w_0 .

- (I7) A: We are having a picnic tomorrow!
 B₁: Scheint denn morgen die Sonne?
 shines DENN tomorrow the sun
 ‘Is it DENN sunny tomorrow?’
 B₂: Wenn denn die Sonne scheint.
 if DENN the sun shines
 ‘If it is DENN sunny.’

While (I7B₂) expresses that the speaker is reluctant to assume that it will be sunny, (I7B₁) is an unbiased information question.

In the literature, conditional *denn* is discussed in Brauße 1994 and more recently in Kwon 2005, Coniglio 2011, and Häussler 2015. None of these works propose a formal analysis. One source of disagreement is whether the meaning of conditional *denn* can be unified with the other uses. Brauße and Häussler are optimistic, whereas Kwon and Coniglio, like us, are less so.

Differing in the details, the authors cited above agree that the contribution of conditional *denn* seems to be to signal the speaker's doubt about the truth of the antecedent. While intuitively appealing, this leaves open the question as to how the contribution of *denn* differs from the contribution of the conditional itself (on a standard account of conditionals, the speaker would not be committed to the truth of the antecedent in the actual world even without *denn*).

Our goal for the following section is to present a formal account of the meaning of conditional *denn* both in self-qualifying and in protest contexts, and to describe its effect on the discourse.

4 Proposal

We couch our analysis in the discourse model put forth in Farkas & Bruce 2010. We specifically choose this model since it distinguishes between offering content for update and the actual update, and provides a natural place for interlocutors to take issue with a proposed update.⁷ In the following section, we first briefly present the model presented by Farkas & Bruce, and then discuss our analysis of conditional *denn*. For reasons of space, the model cannot be presented in full detail. We refer the interested reader to the original paper.

4.1 The Discourse Model

To differentiate shared commitments from the public commitments of each interlocutor, Farkas & Bruce (2010) differentiate between the common ground *cg* in the sense of Stalnaker (1978) and lists of public commitments DC_X for each individual discourse participant X . The common ground *cg* contains shared background knowledge in addition to all propo-

⁷This feature of the discourse model presented in Farkas & Bruce 2010 makes it more suitable for our purposes than the models put forth in AnderBois et al. 2010 and Murray 2014, although they have a similar scope.

sitions that the discourse participants have agreed on in the course of the conversation up until the current moment; it is a set of propositions. The individual commitment sets DC_X contain those propositions that the discourse participants committed to publicly in a previous discourse move, but which have not become part of the *cg* (yet).

The special feature of Farkas & Bruce’s model is that speech acts do not directly modify the common ground. Instead, their form and (at-issue) content are first put “on the table” for negotiation. The *Table* is a stack of form-content-pairs that represent open issues that still need to be resolved among the discourse participants; in a sense, it tracks the current question under discussion (QUD, see Roberts 2012 among others).

The final component of Farkas & Bruce’s model is the projected set ps , which is a set of sets of propositions. Each set of propositions contained in ps is one possible future state s of the *cg*, given the form-content pairs that are currently on the *Table*.

The following example illustrates the make-up of a full *context state* K_2 in the model. K_2 is the state after discourse participant A asserted the declarative sentence *Sam is home* relative to an initial context state K_1 , in which the sets DC_A , DC_B , and the *Table* are empty.⁸

(18) K_2 : A asserted *Sam is home* relative to K_1

A	Table	B
p	$\langle \textit{Sam is home}[\textit{D}]:\{p\} \rangle$	
Common Ground		Projected Set
$s_2 = s_1$		$ps_2 = \{s_1 \cup \{p\}\}$

(Farkas & Bruce 2010:91)

In the context-state structure, the cells below the ones containing **A** and **B** make up the public commitments of A and B, that is, DC_A and DC_B , respectively. In K_2 above, we see that after uttering *Sam is home*, A is publicly committed to p (‘that Sam is home’). In addition, A’s assertion put the declarative sentence and its content p on the *Table* for negotiation. Since the projected set tracks possible future states of the *cg* given what is on the *Table*, ps_2 is the result of adding p to the previous *cg* state s_1 .

⁸[D] stands for the sentential feature that marks a sentence as a declarative sentence (Farkas & Bruce 2010:91).

Formally, this is done by forming the union of the set of propositions s_1 with the singleton set $\{p\}$. In contrast to ps_2 , the *cg* state s_2 does not differ from s_1 since no *cg* update has been performed by *A*'s assertion.

Importantly, *B*'s public commitments are still empty after *A*'s assertion. Only after discourse participant *B* accepts the content p of *A*'s assertion is p added to *B*'s set of public commitments. Once a content p is shared by all discourse participants, it is removed from their sets of public commitments and added to *cg*—that is, the set of propositions in the projected set that resulted from adding p to a previous *cg* state is reset as the current *cg* state. In case *B* rejects the content p of *A*'s assertion, *B* is publicly committed to $\neg p$, and the discourse is “in crisis” (Farkas & Bruce 2010:89). To resolve the crisis, one discourse participant either needs to retract her public commitment, or both participants need to agree to disagree.

Farkas & Bruce's empirical aim is to model the similarities and differences between standard assertions and polar questions with respect to their effects on the discourse, both regarding what they propose and how they are taken up by another discourse participant. That is, the paper only covers the effects of *explicit proposals*. Hence to capture the conditions of use, the contribution, and the effect of conditional *denn*, we need to extend the basic model.

The central point to be addressed is the effect of tacit (i.e., non-explicit) proposals as discussed in section 2.2. Farkas & Bruce suggest that explicit proposals (i) put a new issue on the *Table*, (ii) update the public commitments of the participant who made the proposal, and (iii) project all possible future states depending on the proposal. In short, explicit proposals are invitations from the speaker to the addressee to react. What we call *tacit proposals* in this paper is markedly different: they are proposals to update the *cg* that are not put up for discussion, for instance, presupposed new content or preconditions for what has been explicitly asserted based on world knowledge rules. In a sense, tacit proposals are not “proposed” at all; a speaker who utters a sentence to which a tacit proposal is connected presumes that his interlocutors will accept the tacitly proposed content.^{9,10}

⁹The process by which interlocutors accommodate presuppositions ‘quietly and without fuss’ is discussed in detail in von Stechow 2008.

¹⁰A notion similar to our tacit proposal spelled out above is explored by AnderBois et al.

We propose to implement tacit proposals as follows: assume that A utters, for instance, a declarative sentence $S[D]$ with (at-issue) content q to which a presupposition with novel content p is connected. In addition to the updates of the context state that are connected to the explicitly proposed content q , the presupposed content p is added to A's public commitments and included in the projection of ps . Example (19) illustrates the updated context state K_3 after A has asserted the declarative sentence *Sam's car is red* relative to the initial context state K_1 , in which the sets DC_A , DC_B , and the *Table* are empty. The at-issue content q of *Sam's car is red* is explicitly asserted, while the content of the presupposition p (Sam has a car) is tacitly proposed.¹¹

(19) K_3 : A asserted *Sam's car is red* relative to K_1

A	Table	B
q [p]	$\langle \text{Sam's car is red}[D]:\{q\} \rangle$	
Common Ground $s_3 = s_1$	Projected Set $ps_3 = \{(s_1 \cup \{p\}) \cup \{q\}\}$	

In line with previous work on presupposition accommodation (e.g., von Stechow 2008) and the treatment of updates with not-at-issue content (e.g., AnderBois et al. 2010, Murray 2014), we assume that tacitly proposed con-

(2010:332f) for appositive relative clauses. They call the type of update for contents of appositives an *imposition*. While the content of appositions is assumed to be non-explicitly proposed, it does not license conditional *denn*, as is illustrated in (i). For reasons of space, we leave this issue for future work.

- (i) A: Peter zahlt seiner Tochter, die ja in Wien studiert, die Wohnung.
Peter pays his daughter who JA in Vienna studies the flat
'Peter pays the rent for his daughter, who JA studies in Vienna.'
- B: #Wenn sie denn in Wien studiert.
if she DENN in Vienna studies
'If she DENN studies in Vienna.'

¹¹We use brackets to mark tacitly proposed material in the sets of public commitments. This is only notational sugar, since tacitly proposed content is always novel content—that is, content that does not follow from the set of public commitments of the relevant participant in the input state, and no entry on the *Table* corresponds to it.

tent is first added to the *cg* state before the corresponding at-issue content is added. This is reflected in the order in which p and q are added to the input *cg* state s_1 in ps_3 .¹² Crucially, we do not assume that tacitly proposed material is immediately and automatically added to *cg*. If that were the case, the other discourse participants would not be able to take issue with tacitly proposed content at all. This is, of course, not what we find—although it is harder to address this type of content (see von Stechow 2004). We propose that tacitly proposed content is added to the *cg* together with its corresponding explicitly proposed content. In other words: if a discourse participant accepts explicitly proposed content, she automatically accepts all tacitly proposed content connected to it.

4.2 Spelling out the Proposal

There are two conditions on the use of conditional *denn* that must be met for it to be acceptable. We first formulate these two conditions with a focus on the speaker using conditional *denn*, before reframing them in terms of the discourse model introduced in the previous section.

(20) Condition 1

The speaker c_s does not believe that p is true in the actual world w_0 , that is, he is uncommitted with respect to the truth of p in w_0 .

Conditional *denn* can only felicitously occur in the antecedent p of a conditional if the speaker does not believe that p is true in w_0 . This condition is trivially satisfied when *denn* occurs in the antecedent of a hypothetical conditional, but crucially *not* satisfied when *denn* occurs in the antecedent of a temporal or factual conditional (see section 2.1).

(21) Condition 2

The proposition p is tacitly proposed or can reasonably be inferred to be tacitly proposed by a participant α , where p is a *necessary precondition* for the validity of the content of a previous utterance by α (or a part of that utterance).

¹²One slight complication that arises here is that set union is associative and symmetric. Therefore, $(X \cup Y) \cup Z = (X \cup Z) \cup Y$. For our purposes, we would require an update function that is sensitive to the order in which propositions are added. We leave this issue for further work.

The concept of tacit proposal that we use here is as discussed in the previous subsection, a generalization of the notion of presupposed new information. In short: in any such context, any content that is not explicitly proposed qualifies as a tacit proposal. We use the term *necessary precondition* to include presuppositions, but also necessary premises of defeasible inferences based on world knowledge regularities, and do not use it in a logical sense, as discussed in section 2.2.

Let us now reframe Conditions 1 and 2 in terms of the discourse model: Since antecedents containing conditional *denn* call into question the validity of previously tacitly proposed content, it is a type of *responding move* (Farkas & Bruce 2010:106). That is, uttering an antecedent containing *denn* reacts to a preceding speech act. Hence, conditions on the use of *denn* become *conditions on the input context state* K_i that the speaker using conditional *denn* reacts to.

(22) **Condition 1 (reframed)**

For a speaker A planning to use conditional *denn* in an antecedent denoting p to react to an input context K_i , the cg state s_i must not entail p .

(23) **Condition 2 (reframed)**

For a speaker A planning to use conditional *denn* in an antecedent denoting p to react to an input context K_i , there has to be a participant α such that $DC_{\alpha,i}$ entail p , but no content on the *Table* entails p (i.e., $[p] \in DC_{\alpha,i}$).

When these two conditions are met, conditional *denn* can be used felicitously in the antecedent of a conditional. It contributes the following (non-truth-conditional) meaning:

(24) **Contribution of conditional *denn***

$\llbracket denn \rrbracket(p) : \lambda w. \text{prob}(w, p) < T,$

where T is at or below the threshold for assertability.

In prose, the probability that p holds in w is below a given threshold of assertability T . We call this proposition *denn*(p). We assume that in case the probability for a proposition p is below a threshold T for the speaker in a world w , the speaker believes it to be sufficiently unlikely that p holds in w

as to be unwilling to assert it. Hence, the contrast between conditional antecedents with and without *denn* is as follows: antecedents without *denn* do not explicitly signal how likely or unlikely the speaker believes it is that p holds at w_0 ; antecedents with *denn* express the speaker's bias (see section 2.3).

To model the effect of uttering an antecedent containing conditional *denn*, we first have to address the effect of uttering a conditional. In traditional (dynamic) semantic treatments of conditionals (following Ramsey 1931), it is assumed that the effect of a conditional is that the addressee is invited to update her beliefs with the antecedent proposition p , and if the conditional is true, she will then find that the consequent q also holds. However, this kind of treatment does not capture the intuition we have for the discourse move expressed by antecedents containing conditional *denn*. Here, it is rather the case that q has already been proposed, and the speaker is merely pointing out that in order for q to be possible to hold, it is necessary to also accept that p holds. Conditional *denn* then signals that the speaker is reluctant to accept that p holds.

Regarding the effect of antecedents containing *denn*, two cases have to be distinguished depending on whether the participant α is also the one who utters the antecedent. We first address two *protest cases* illustrated in (25) and (28), in which the person who utters the antecedent, namely the speaker c_s (= B), and α (= A) are two different people.

- (25) A: Peter might bring his girlfriend.
 B: Wenn er denn eine hat.
 if he DENN one has
 ‘If he DENN has one.’

Since B's responding move made by uttering an antecedent containing *denn* reacts to an immediately preceding utterance by A, the corresponding form-content-pair is on the *Table* of the current context state K_i , and $DC_{A,i}$ contains all propositions that were explicitly or tacitly proposed by A's utterance. After (25A), K_i would look as follows (assuming unrealistically that in the previous context state K_{i-1} there were no open issues):

(26) K_i : A asserted *Peter might bring his girlfriend* (=: S)

A	Table	B
q [p]	$\langle S[D]:\{q\} \rangle$	
Common Ground $s_i = s_{i-1}$		Projected Set $ps_i = \{(s_{i-1} \cup \{p\}) \cup \{q\}\}$

We assume that B's response in (28B), a bare antecedent, is elliptical for a full conditional in which A's utterance forms the consequent: *Wenn er denn eine hat, Δ _{Peter might bring his girlfriend}*.¹³ The explicitly proposed content of B's response is, therefore, a proposition r , which is the result of forming a conditional with p as the antecedent and q as the consequent. In addition to the explicitly proposed content r , B's utterance also tacitly proposes the not-at-issue content contributed by conditional *denn*: $denn(p)$. The context state K_j after (25B) is as follows:

(27) K_j : B asserted *Wenn er denn eine hat, Δ* (=: S')

A	Table	B
q [p]	$\langle S[D]:\{q\} \rangle$	
	$\langle S'[D]:\{r\} \rangle$	r [$denn(p)$]
Common Ground $s_j = s_i$		Projected Set $ps_j = \{(((s_1 \cup \{p\}) \cup \{q\}) \cup \{denn(p)\}) \cup \{r\}\}$

The propositions p in $DC_{A,j}$ and $denn(p)$ in $DC_{B,j}$ produce a conflict: since A is publicly committed to p , we assume that he must believe that $\lambda w.\text{prob}(w, p_1) \geq T$. Speaker B, on the other hand, is publicly committed to $\lambda w.\text{prob}(w, p_1) < T$. This conflict needs to be resolved in the subsequent discourse—for instance, by A's acknowledging that Peter might not have a girlfriend, and thus sharing B's opinion. In this case, A and B would in the end agree to update the cg only with r and $denn(p)$.

An example for a protest case in which the tacitly proposed necessary precondition is world knowledge based is given in (28), repeated from

¹³See Hardt & Romero 2004 for details and locality constraints on ellipsis across sentence and utterance boundaries.

(10). As we stated in section 2.2: after hearing A's utterance, B considers what needs to be the case for A to be willing to have a picnic; one of the world knowledge based necessary preconditions for a successful picnic that B considers is sunny weather. B chooses to address this precondition.

- (28) A: We will have a picnic tomorrow.
 B: Wenn denn die Sonne scheint.
 if DENN the sun shines
 'If it is DENN sunny.'

Hence after (28A), K_i would look as follows (assuming unrealistically that in the previous context state K_{i-1} there were no open issues):

- (29) K_i : A asserted *We will have a picnic tomorrow* (=: S)

A	Table	B
q [p] _B	$\langle S[D]:\{q\} \rangle$	
Common Ground $s_i = s_{i-1}$	Projected Set $ps_i = \{(s_{i-1} \cup \{p\}) \cup \{q\}\}$	

From the point of view of B, A's assertion has the precondition p that it be sunny. Since Farkas & Bruce's model is designed to give an objective representation of the discourse, points of view cannot be represented well; we count this among the other desirable extensions of the model that we cannot address here. For the sake of presentation, we mark tacitly proposed content from the point of view of only one of the interlocutors by subscripting the name of that interlocutor, as in (29). In general, we assume that like the precondition p , preconditions based on other world knowledge regularities can also be treated as tacitly proposed— at least from an interlocutor's point of view who considers the world knowledge regularities connected to the utterance content.¹⁴

¹⁴We do not want to claim that a speaker or her interlocutors are always aware of the entirety of what the speaker's utterance tacitly proposes. It may even be the case that no one is aware of any of these proposals. This question is orthogonal to our story, but is explored in Biezma 2014. What is important for us is that by explicitly proposing a proposition q with preconditions $p_1 \dots p_n$, the speaker *acts as if* she believed $p_1 \dots p_n$ for the purpose of the discourse, and can be taken up on $p_1 \dots p_n$ by her interlocutors. In

As before, we assume that B's answer is elliptical for a full conditional with the content r . The context state K_j after (28B) is as follows:

(30) K_j : B asserted *Wenn denn die Sonne scheint*, $\Delta (= S')$

A	Table	B
q [p] _B	$\langle S[D]:\{q\} \rangle$	
	$\langle S'[D]:\{r\} \rangle$	r [<i>denn</i> (p)]
Common Ground $s_j = s_i$	Projected Set $ps_j = \{(((s_1 \cup \{p\}) \cup \{q\}) \cup \{denn(p)\}) \cup \{r\}\}$	

After B's utterance, A becomes aware that from B's point of view, his utterance tacitly proposed p . As in the case of (25), the discourse is now in crisis since $p \in DC_{A,j}$ and $denn(p) \in DC_{B,j}$ produce a conflict. This conflict could be resolved in the subsequent discourse by A stating that he does not care about the weather when it comes to picnics.¹⁵

Now, we turn to a self-qualification case, illustrated in (31) and repeated from (2), in which the speaker uses an antecedent containing *denn* to qualify her own utterance.

(31) Sein Auto habe ich nicht gesehen, wenn er denn eines hat.
 His car have I not seen if he DENN one has
 'I didn't see his car if he DENN OWNS one.'

In section 2, we showed that in cases of self-qualification the antecedent containing *denn* typically follows the expression that contributes the tacit proposal that the speaker wants to qualify. In (31), this is also the case. If the speaker had only uttered the consequent without the antecedent, the definite description *sein Auto* would presuppose that "he" owns a car—that is, the speaker would commit to the proposition p that "he" owns a car. By adding the antecedent, the presupposition is *filtered* (see Karttunen 1973), and conditional *denn* conveys that the speaker is reluctant to

connection to this issue, see Condoravdi & Lauer 2011 and subsequent work.

¹⁵Note that B needs to believe that A's opinions regarding picnics conform to the world knowledge regularity that she considers when she utters (28B). If she knew that A does not care about good weather, it would have been odd to utter (28B).

assume p .¹⁶ To capture this analysis in the present model, we would need to implement incremental updates of sub-clauses and their effects on the level of asserted and presupposed content. This is beyond the scope of this paper. However, we will illustrate the idea by providing the context state that would result from only uttering the consequent, given in (32), in comparison to the context state that results from the speaker's full utterance, given in (33)—assuming there were no open issues on the *Table* of $K_{\ell-1}$, the current context state at the time of utterance for either variant.

(32) K_{ℓ} : A asserted *Sein Auto habe ich nicht gesehen* (=: S)

A	Table	B
q [p]	$\langle S[D]:\{q\} \rangle$	
Common Ground $s_{\ell} = s_{\ell-1}$	Projected Set $ps_{\ell} = \{((s_{\ell-1} \cup \{p\}) \cup \{q\})\}$	

In (32), the speaker proposes q , with the presupposition p ('he has a car'). The addition of the antecedent containing *denn* changes both the explicitly proposed and the tacitly proposed content. In (33), the proposal is the full conditional content r , with the additional public commitment that the speaker believes it to be unlikely that p holds (i.e., *denn*(p)).

(33) K_{ℓ} : A asserted *Sein Auto habe ich nicht gesehen, wenn er denn eines hat* (=: S')

A	Table	B
r [<i>denn</i> (p)]	$\langle S'[D]:\{r\} \rangle$	
Common Ground $s_{\ell} = s_{\ell-1}$	Projected Set $ps_{\ell} = \{(s_{\ell-1} \cup \{denn(p)\}) \cup \{r\}\}$	

In (33), A is not publicly committed to the presupposed content p since the antecedent proposition, which was used to compute the proposition r denoted by the entire conditional, entails p . That is, p is filtered, and the entire conditional does not presuppose p .

¹⁶Presuppositions triggered by material in the consequent of a conditional are filtered in case the proposition denoted by the antecedent entails the presupposed content. For details, see Karttunen 1973.

More needs to be said on tacitly proposed necessary preconditions that are not presuppositions or based on world knowledge. For reasons of space, we have to leave these to future work. For a description, see Zobel & Csipak to appear.

5 A Particle with a Similar Function: *überhaupt*

Provided that our analysis of conditional *denn* as outlined above is correct, its discourse function is, broadly, to signal to which tacitly proposed propositions a speaker wishes to be publicly committed, and as a consequence, which updates to the common ground should be performed. The same kind of discourse move also seems to be performed by antecedents containing the discourse particle *überhaupt*. In this section, we sketch the similarities and differences between antecedents containing *denn* and *überhaupt*.

For a principled comparison with *denn*, two variants of *überhaupt* need to be distinguished: unstressed *überhaupt* and stressed *überHAUPT*.¹⁷ Like conditional *denn*, both variants can occur in conditionals with the subordinator *wenn*, and both resist occurring in factual and temporal conditionals. In the following discussion, we provide some observations regarding the contribution of *überhaupt* and *überHAUPT* in antecedents of conditionals; a detailed analysis has to be left for further work.¹⁸

At first glance, antecedents containing *denn* and unstressed *überhaupt* seem very similar. Examples of conditional *denn* seem to allow substitution with *überhaupt* without a change in discourse function, as illustrated in the following example:

- (34) A: I am looking forward to seeing Peter at the party tonight.
 B₁: Wenn er denn kommt.
 if he DENN comes

¹⁷*Überhaupt* can be stressed either on the first syllable (i.e., *ÜBERhaupt*) or on the second syllable (i.e., *überHAUPT*). In this paper, we will not distinguish between the two stress patterns and choose to represent stressed *überhaupt* by the latter.

¹⁸For a detailed look at the meaning of unembedded *überhaupt* and *überHAUPT*, we refer the reader to Rojas-Esponda 2014, 2015. Rojas-Esponda, however, explicitly puts aside embedded uses of the particle, hence *überhaupt* in conditional antecedents are not addressed in that work.

B₂: Wenn er überhaupt kommt.
 if he ÜBERHAUPT comes

In the replies of both B₁ and B₂, it becomes clear that A makes an assumption (that Peter will come to the party) which B₁ and B₂ are not willing to make. Both variants call into question that Peter will come to the party.

However, a more detailed look at the distribution and meaning of unstressed *überhaupt* shows a clear difference to conditional *denn*. While conditional *denn* can be used by the speaker to qualify her own statements with no special restrictions, *überhaupt* is pragmatically odd in case the content that is qualified originates with the speaker.

(35) [Context: B tells A about an old lady who knits abstract, three dimensional forms, and who she met at a local craft fair.]

A: Interesting! What kind of abstract forms?

B: Die Künstlerin, wenn sie denn / #überhaupt eine ist,
 the artist if she DENN / ÜBERHAUPT one is
 orientiert sich an den frühen Kubisten.
 orients herself on the early cubists

‘The artist, if she DENN / #ÜBERHAUPT is one, is inspired by the early cubists.’

In (35), B decides to use the noun *Künstlerin* ‘(female) artist’ to describe the old lady from the fair. Hence, B can be seen as the source of the tacit proposal that the old lady is an artist. In this case, conditional *denn* is fine. The use of *überhaupt* is pragmatically odd, though. It suggests that someone other than the speaker suggested that the old lady is an artist, which is in conflict with the given context.

Turning to stressed *überHAUPT*, we immediately observe that it differs from conditional *denn* in at least two respects: it can occur in shortened antecedents, and it interacts with a scalar structure.

ÜberHAUPT, unlike conditional *denn*, allows for antecedents of the form *wenn überhaupt*. These shortened antecedents are, as far as we can tell,

common both in spoken and written language, as in (36).^{19,20}

- (36) Viele Buchten und Fjorde sind im Winter, wenn überHAUPT,
 many bays and fjords are in.the winter if ÜBERHAUPT
 nur noch drei bis vier Wochen lang zugefroren.
 only still three to four weeks long frozen.solid
 ‘In winter, many bays and fjords are frozen solid only for three to
 four weeks, if that.’ (Die Zeit, 2010/10/29)

Contexts which fulfill the conditions of use of conditional *denn* and which also provide the right environment for ellipsis require stress on the subordinator *wenn*. And yet, even if all requirements for conditional *denn* are fulfilled, the shortened combination *wenn denn* is ungrammatical.²¹ For reasons of space, a detailed investigation of this observation is left for future work.

- (37) a. Peter kommt, WENN er denn kommt, nach 9 zur Party.
 Peter comes if he DENN comes after 9 to.the party
 ‘Peter will come, if he DENN comes, to the party after 9 p.m.’
 b. *Peter kommt, WENN denn, nach neun zur Party.
 Peter comes if DENN after nine to.the party

Note, however, that *denn* and *überHAUPT* can be combined in the right contexts (also in shortened antecedents)—that is, in case the context and the consequent provide material that *denn* and *überHAUPT* can comment on (separately).

¹⁹In this and other attested examples, stress on *überhaupt* was added based on our native speaker intuitions. Unstressed *überhaupt* would be ungrammatical in these cases.

²⁰The shortened antecedent seems to be elliptical for a longer version built from *wenn*, *überHAUPT*, and the backgrounded material from the consequent. For instance, the shortened antecedent in (36) plausibly stands for *wenn sie überHAUPT (für eine Zeit) zugefroren sind* ‘if they froze solid (for some time) at all’.

²¹In (37b), stressed *wenn* alone would be grammatical and felicitous; as in (i).

- (i) Peter kommt, WENN, nach neun zur Party.
 Peter comes if after 9 to.the party
 ‘Peter will come to the party, if he comes at all, after 9 p.m.’

- (38) Die Mehrzahl der Frauen mit akademischer Ausbildung wird
 the majority the women with academic education will
 Kinder, wenn denn überHAUPT, erst nach ihrem Studium
 children if DENN ÜBERHAUPT not.until after their studies
 und nach den ersten Berufserfahrungen bekommen.
 and after the first professional.experience get
 ‘The majority of women with higher education will not have chil-
 dren until after their studies and after they had their first profes-
 sional experience, if *denn* that.’ (Die Zeit, 2007/01/25)

The author does not want to presuppose that women with higher education will have children, hence the use of conditional *denn*. In addition, he wants to convey that the earliest expectable time for women with higher education to have children is after they finished their studies and they had worked for a time; this is conveyed by *überHAUPT*.

Using *überHAUPT* in a full or shortened antecedent of a conditional seems to highlight a quantitative or qualitative scalar structure in the consequent, or if there is none, it seems to induce one. The value selected by the consequent is signaled to be at once the highest value that can be said to hold, as well as a low value in absolute terms.

- (39) Er war mittelmäßig, wenn überHAUPT.
 He was mediocre if ÜBERHAUPT
 ‘He was mediocre, if that.’

In (39), the consequent is providing a scale: students are ranked in terms of their academic achievement. The consequent proposition states that the referent is mediocre. The presence of the antecedent serves to call into question the truth of the consequent in the actual world. It also signals both that being mediocre is on the low end of the scale of achievement, and that it is the highest possible value that could be said to hold of the referent. This predicts that if *überHAUPT* is used, the highest possible value that could be assigned to a given referent cannot be the highest absolute value. This is borne out.

(40) #Er war der Beste, wenn überHAUPT.
 He was the best if ÜBERHAUPT
 ‘He was the best, if that.’

In this example, the consequent states that the referent is the best in his class on the scale of academic achievement. The use of *überHAUPT* is odd since being the best means having the maximal value on the scale, which is incompatible with being on the low end of the scale.

In (41), *überHAUPT* induces a scale on the federal states of Germany, namely, the scale of states ordered with respect to the difficulty of running into people wearing traditional costumes.

(41) Trachten bekommt man, wenn überHAUPT, in
 traditional.costumes becomes one if ÜBERHAUPT in
 Bayern zu sehen.
 Bavaria to see
 ‘One can see traditional costumes in Bavaria, if at all.’

Example (41)²² conveys that Bavaria is the lowest on the induced scale. In other words, Bavaria is the most likely federal state in which to see traditional costumes given that the speaker takes running into people wearing them to be relatively improbable as it is.

In sum, we observe that while *denn* and *überhaupt* can both be used to emphasize that the speaker holds the content of a previous tacit proposal to be unlikely, they differ in several ways. Unlike *denn*, *überhaupt* has a stressed variant which requires access to a scalar structure in the consequent. The speaker’s doubts target which value can be considered the maximal value that holds in w_0 . The unstressed variant, in contrast to *denn*, requires that the issuer of the proposal that is qualified with the antecedent be someone other than the speaker.

6 Conclusion and Open Issues

In this paper, we have provided an analysis of the meaning of the German discourse particle *denn* as it occurs in the antecedent of a conditional, and

²²See http://www.t-online.de/reisen/reisemagazin/aktuelles/id_42379346/sid_40921024/si_0/- .html (accessed: 2016/03/08).

we have argued that its meaning in conditionals differs enough from that in questions that it warrants a separate lexical entry. We have shown that conditional *denn* is only acceptable in contexts where there is a previous tacit proposal of the antecedent proposition p , and that moreover p is a precondition for an explicitly uttered proposition q . We have shown that conditional *denn* signals that the speaker believes the probability for p to hold in the actual world to be below a threshold value T for assertions. Finally, we have used the discourse model introduced in Farkas & Bruce (2010) to illustrate the effect conditional *denn* has on the discourse.

One open issue, among others, is the interaction of conditional *denn* with verb-first conditionals. Conditional antecedents in German can be expressed without a conditional subordinator. In this case, the antecedent clause is marked by verb-first word order. While in English only subjunctive conditionals and antecedents containing the modal *should* can be formed with verb-first word order, German allows for a much greater spectrum, as seen in (42). Now, the puzzle concerning conditional *denn* is that it can occur in all types of verb-first conditionals except for those in which the fronted verb is in the indicative mood, as in (42).

- (42) a. Kommt Alex (#denn) in den nächsten Minuten, schaffen wir
comes Alex DENN in the next minutes manage we
es rechtzeitig ins Kino.
it on.time in.the cinema
'If Alex (#DENN) arrives in the next minutes, we will make it to
the cinema on time.'
- b. Würde Alex (denn) in den nächsten Minuten kommen,...
'If Alex (DENN) arrived in the next minutes...'
- c. Sollte Alex (denn) in den nächsten Minuten kommen,...
'Should Alex (DENN) arrive in the next minutes...'
- d. Wäre Alex (denn) in den nächsten Minuten gekommen,...
'Had Alex (DENN) arrived in the next minutes...'

The unacceptability of conditional *denn* in indicative verb-first conditionals is unexpected since they are restricted to hypothetical interpretations (Reis & Wöllstein 2010). Reis & Wöllstein note that verb-first conditionals show further restrictions in their distribution: the antecedents (i) cannot

be postposed with respect to the consequent, (43b), or (ii) occur parenthetically inside the consequent, as shown in (43c). However, we observe that these restrictions only seem to apply to indicative verb-first conditionals, as illustrated in (44).

- (43) ‘If Alex comes, Maria will go for a walk.’
- a. Kommt Alex, geht Maria spazieren.
 - b. ??Maria geht, kommt Alex, spazieren.
 - c. ??Maria geht spazieren, kommt Alex.
- (44) ‘If Alex came, Maria would go for a walk.’
- a. Käme Alex, würde Maria spazieren gehen.
 - b. Maria würde, käme Alex, spazieren gehen.
 - c. Maria würde spazieren gehen, käme Alex.

In sum, we observe two classes of verb-first conditionals: non-indicative and indicative ones. The non-indicative ones share several properties with conditionals containing the subjunctor *wenn*: they allow postposed or parenthetical antecedents, and they allow conditional *denn*. Indicative verb-first conditionals do not allow either of these features. It is to be hoped that an explanation for why indicative verb-first antecedents only allow preposed antecedents will at the same time explain why conditional *denn* is not acceptable in precisely those cases.

Acknowledgments We thank Edith Scheifele for bringing the use of the particle *denn* in conditionals to our attention. We also thank María Biezma, Ryan Bochnak, Kai von Fintel, Viola Schmitt, Frank Sode, Yvonne Viesel, Thomas Weskott, and the audiences at CSSP 2015, SinFonIJA 8, Questions in Discourse 7, and María Biezma’s course “Pragmatics 3,” Konstanz (Summer 2016) for helpful discussion. Lastly, we thank an anonymous reviewer and Chris Piñon for their suggestions and comments on our manuscript. All mistakes are our own.

References

- AnderBois, Scott, Adrian Brasoveanu & Robert Henderson. 2010. Crossing the appositive/at-issue meaning boundary. *Semantics and Linguistic Theory (SALT)* 20. 328–346.
- Bayer, Josef. 2012. From modal particle to interrogative marker: A study of Ger-

- man *denn*. In L. Brugé et al. (ed.), *Functional heads*, 13–26. Oxford University Press.
- Biezma, María. 2014. The grammar of discourse: The case of *then*. *Semantics and Linguistic Theory (SALT)* 24. 373–394.
- Brauße, Ursula. 1994. *Lexikalische Funktionen der Synsemantika*. Tübingen: Narr.
- Breindl, Eva, Anna Volodina & Ulrich Hermann Waßner. 2014. *Handbuch der deutschen Konnektoren Band 2: Semantik*. de Gruyter.
- Condoravdi, Cleo & Sven Lauer. 2011. Performative verbs and performative acts. *Sinn & Bedeutung (SuB)* 15. 1–15. <http://web.stanford.edu/~cleoc/SuB-paper.pdf>.
- Coniglio, Marco. 2011. *Die Syntax der deutschen Modalpartikeln* *Studia Grammatica* 73. Berlin: Akademie Verlag.
- Csipak, Eva & Sarah Zobel. 2014. A condition on the distribution of discourse particles across types of questions. *North East Linguistic Society (NELS)* 44. 83–94.
- Eckardt, Regine. 2013. Speaker commentary items. In *19th ICL papers, Geneva 20–27 July 2013*, http://www.cil19.org/uploads/documents/Speaker_commentary_items.pdf. Unedited online publication.
- Fabricius-Hansen, Cathrine & Kjell-Johan Sæbø. 1983. Über das Chamäleon *wenn* und seine Umwelt. *Linguistische Berichte* 83. 1–35.
- Farkas, Donka F. & Kim B. Bruce. 2010. On reacting to assertions and polar questions. *Journal of Semantics* 27. 81–118.
- von Fintel, Kai. 2004. Would you believe it? The king of France is back! In Anne Bezuidenhout & Marga Reimer (eds.), *Descriptions and beyond*, Oxford University Press.
- von Fintel, Kai. 2008. What is presupposition accommodation, again? *Philosophical Perspectives* 22. 137–170.
- Hardt, Daniel & Maribel Romero. 2004. Ellipsis and the structure of discourse. *Journal of Semantics* 21. 375–414.
- Häussler, Jana. 2015. Wenn *denn* denn lizenziert ist: The German discourse particle *denn* in conditionals. In Ellen Brandner, Anna Czypionka, Constantin Freitag & Andreas Trotzke (eds.), *Webschrift for Josef Bayer*, 83–88. Published online. <http://ling.uni-konstanz.de/pages/WebschriftBayer/2015/contents.html>.
- Karttunen, Lauri. 1973. Presuppositions and compound sentences. *Linguistic Inquiry* 4. 169–193.
- König, Ekkehard. 1977. Modalpartikeln in Fragesätzen. In H. Weydt (ed.), *Aspekte der Modalpartikeln*, 115–130. Tübingen: Niemeyer.

- Kwon, Ming-Jae. 2005. *Modalpartikeln und Satzmodus*. München: Ludwig Maximilian Universität dissertation.
- McCready, Eric. 2006. Japanese *yo*: Its semantics and pragmatics. *Sprache und Datenverarbeitung* 30. 25–34.
- Murray, Sarah E. 2014. Varieties of update. *Semantics & Pragmatics* 7(2). 1–53.
- Ramsey, Frank P. 1931. General propositions and causality. In R. B. Braithwaite (ed.), *The foundations of mathematics and other logical essays*, Kegan Paul, Trench, & Truber.
- Reis, Marga & Angelika Wöllstein. 2010. Zur Grammatik konditionaler *VI*-Gefüge im Deutschen. *Zeitschrift für Sprachwissenschaft* 29. 111–179.
- Roberts, Craige. 2012. Information structure: Towards an integrated formal theory of pragmatics. *Semantics & Pragmatics* 5(6). 1–69.
- Rojas-Esponda, Tania. 2014. A discourse model for *überhaupt*. *Semantics & Pragmatics* 7(1). 1–45.
- Rojas-Esponda, Tania. 2015. *Patterns and symmetries for discourse particles*. Stanford, CA: Stanford University dissertation.
- Simons, Mandy, Judith Tonhauser, David Beaver & Craige Roberts. 2010. What projects and why. *Semantics and Linguistic Theory (SALT)* 20. 309–327.
- Stalnaker, Robert. 1978. Assertion. In P. Cole (ed.), *Syntax and Semantics* 9, 315–332. New York: Academic Press.
- Thurmair, Maria. 1989. *Modalpartikeln und ihre Kombinationen*. Tübingen: Niemeyer.
- Thurmair, Maria. 1991. Zum Gebrauch der Modalpartikel *denn* in Fragesätzen. In *Linguistische Arbeiten* 260, 377–387. Tübingen: Niemeyer.
- Zimmermann, Malte. 2011. Discourse particles. In K. von Stechow, C. Maienborn & P. Portner (eds.), *HSK 33.2*, 2012–2038. Mouton de Gruyter.
- Zobel, Sarah & Eva Csipak. to appear. Antecedents containing the German discourse particle *denn*: A corpus study. *Linguistica*.