The Precondition Particle: A Unified Analysis of German *denn*

Abstract

This paper proposes felicity conditions for the German discourse particle *denn* that aim at accounting for the use of *denn* in polar questions, *wh*-questions and conditional antecedents. Novel data on the felicity of *denn* in polar questions are presented in support of this proposal and accounted for by treating *denn* as anaphoric to the previous discourse move and sensitive to the highlighted content of its containing clause.

1 Introduction

German has a rich system of discourse particles—expressions that help speakers with organizing and "navigating" a discourse, typically by linking an utterance to the epistemic states of the interlocutors (Zimmermann, 2011). With few exceptions (Rojas-Esponda, 2014; Csipak and Zobel, 2014a; Gutzmann, 2015), the formal semantic literature has focused on those discourse particles whose distribution is limited to declarative sentences. They are commonly treated as indicating something about the status of the information conveyed by the declarative (McCready, 2012). However, this perspective doesn't straightforwardly extend to particles that appear, either predominantly or exclusively, in interrogative clauses, since questions don't primarily convey information. *Denn* is one such particle. It is licensed both in polar interrogatives like (1) and in *wh*-interrogatives like (2) (König, 1977; Thurmair, 1989). Moreover, as exemplified by (3), it can appear in a conditional antecedent if the antecedent comes after the consequent and certain other conditions are met (Brauße, 1994; Csipak and Zobel, 2016).

(1) a. Kann Tim denn schwimmen?
    Does Tim DENN *know how to swim?*

b. Ist dir denn gar nicht kalt?
   Are you DENN *not cold at all?*

(2) a. Warum lachst du denn?
    Why are you DENN *laughing?*

b. Wie schaltet man dieses Ding denn aus?
   How do I DENN *switch off this thing?*

(3) a. Kritik ist willkommen, wenn sie denn konstruktiv ist.
    Criticism is welcome if it DENN *is constructive.*

b. Sie hätte gewinnen können, wenn sie es denn gewollt hätte.
   She could have won if she DENN *had wanted to.*

2 Previous work

2.1 *denn* in questions

There is little agreement, either in the descriptive or in the formal literature, about what exactly *denn* contributes to the meaning of a question. It has been suggested that (a) *denn* does not contribute anything at all (Thurmair, 1991), (b) it expresses the speaker's expectation that the hearer knows an answer to the question (Helbig, 1988), (c) it conveys that learning the true answer to the question is in some way "relevant" for the speaker (König, 1977; Thurmair, 1989; Grosz, 2005; Kwon, 2005; Bayer, 2012), and (d) it signals heightened interest of the speaker (Csipak and Zobel, 2014a). The problem with these proposals is that, insofar as they try to predict the distribution of *denn*, they overgenerate. This can be seen already from an observation reported by König (1977): if A wakes B in the middle of the night, it is infelicitous for A to follow this up by asking (4).

(4) [A wakes B in the middle of the night.]
    B/#A: Wie spät ist es denn?
    What is the time DENN*?*

By contrast, it is felicitous for B to react to being

woken up by asking (4). Notably, however, contrary to what above accounts would predict, (4) remains infelicitous if A expects B to know the time, if knowing the time is relevant for A, or if A is extremely interested in finding out the time.

König takes (4) to show that *denn* cannot appear in a totally out-of-the-blue context. However, it is important to realize that the described scenario is not a totally out-of-the-blue context. Rather, the waking action has taken place prior to the utterance of (4), and it can be considered as a discourse move. Below, we will propose that *denn* is anaphoric to the previous discourse move, broadly construed. On this view, A's question in (4) will come out as infelicitous not because *denn* appears discourse-initially, but rather because the given context provides only one previous discourse move to which *denn* can be anaphoric (namely A waking B), and this discourse move doesn't satisfy the felicity conditions that the *denn*-question introduces.

To my knowledge, the only formal analysis that takes the discourse anaphoricity of *denn* at face value is Gutzmann (2015), who accounts for examples like (4) by letting *denn* contribute the following condition: it is only felicitous for a speaker to utter a *denn*-question Q if the hearer knows the reason why the speaker is asking Q. While this correctly rules out (4-A) and many other cases, it still overgenerates. As we will see in Sec. 3, not just *any* reason for asking a question is sufficient for licensing *denn*, even when that reason is known to the hearer. Rather, speakers use *denn* when they are, in a sense, stuck: there is something that prevents them from proceeding with the discourse in the most straightforward way, and *denn*-questions are a way of letting the hearer know how they can help the speaker "get unstuck."

2.2 *denn* in conditional antecedents

The only formal account of *denn* in conditional antecedents is given by Csipak and Zobel (2016). They argue that a unified analysis of *denn* in questions and conditional antecedents is impossible, based on the assumption that the latter but not the former kind of *denn* conveys an epistemic bias: if a speaker uses a *denn*-antecedent, she considers the proposition expressed by the antecedent too unlikely to assert it. Csipak and Zobel (2016) implement this as a (not further specified) non-truth-conditional meaning contribution, directly encoded in the lexical entry of conditional *denn*:

(5) $[\![denn]\!](p) : \lambda w.\mathrm{prob}(w, p) < T,$ where T is at or below the threshold for assertability

This raises the question of what it is that conditional *denn* contributes under this analysis. Assuming a standard treatment of conditionals and using standard Gricean reasoning, if a speaker uses a conditional, then she conversationally implicates that she considers the antecedent proposition unassertible. Hence, the above meaning contribution of conditional *denn* would be vacuous.

Throughout much of their paper, though, Csipak and Zobel (2016) actually seem to regard *denn* as contributing something stronger, namely a *negative* epistemic bias (pp. 6f, 10, 21). That means, T would not be the threshold for assertability, but $T \leq 0.5$. However, this again seems too strong. It is indeed true that the typical situation in which a speaker uses a *denn*-antecedent is one in which she is negatively biased. However, the fact that the *typical* utterance situation for *denn*-antecedents is a negatively biased one doesn't mean that it is *denn* which contributes this bias. For instance, bare antecedents like the one in (6) function as *resistance moves* (Bledin and Rawlins, 2016): in (6), B is unwilling to accommodate the presupposition p that Tim is having a birthday party. Typically, the reason why B would refuse to do so is that he is epistemically biased against p. However, this isn't the only possible reason: B could also simply be very rigourous. Notably, B can continue with (7) without giving rise to inconsistency—which is unexpected if B was negatively biased. We hence observe that there is no obligatory epistemic bias conveyed by *denn*-antecedents and conclude that *denn* cannot contribute a negative bias as part of its conventional meaning. That is, if we construe T as the threshold for assertability, Csipak and Zobel's proposal is vacuous, and if we construe T as the threshold for a negative bias, it is too strong.

(6) A: Tim's Geburtstagsparty wird sicher super!
B: Wenn er denn feiert.
A: Tim's birthday party is gonna be great!
B: If he's DENN *having a birthday party.*

(7) B: Und das wissen wir ja noch gar nicht. Ja klar, *wahrscheinlich* feiert er, aber er hat halt einfach noch nichts darüber gesagt.
B: And that's something we don't know yet. Yeah, sure: he probably *is having a party, it's just that he hasn't said anything about it yet.*

3 Data: *denn* in polar questions

As discussed in Sec. 2.1, Gutzmann (2015) suggests that a speaker can felicitously use *denn* in a question Q if and only if the hearer knows the reason why the speaker is asking Q. However, this condition overgenerates. To see this, consider (8).

(8) [Peter is very fond of Maria: whenever she goes to a party, he goes as well. Peter's feelings aren't reciprocated by Maria, though. So, she won't necessarily go to a party just because Peter is there. All of this is commonly known. A and B are talking at a party.]
A: Maria is over there!
  a. B: #Ist denn Peter auch hier?
     Is Peter DENN *also here?*
  b. B: Ist dann Peter auch hier?
     Is Peter also here, then?

In (8), due to the discourse participants' common knowledge, A clearly knows why B would ask the question in (8-a). Hence, Gutzmann's account would predict (8-a) to be felicitous, contrary to what we find empirically. Notice, however, that *dann* 'then' is acceptable in the same question, as evidenced by (8-b). One possible explanation, which we will develop below, is the following. Both *dann* and *denn* (pace Csipak and Zobel, 2014b) are sensitive not only to the question as a whole, but to the proposition that gets *highlighted* by the question.[1] In (8), this is the proposition that Peter is at the party. While *dann* in (8-b) expresses a consequence relation between the information asserted by A and the highlighted proposition (roughly: Maria is at the party, hence Peter must be there)[2], *denn* in (8-a) conveys that the highlighted proposition is a *necessary precondition* for the information asserted by A.[3] Since it is commonly known, however, that Peter's being at a party is *not* a precondition for Maria's being there, the *denn*-question in (8-a) is infelicitous.

It is easy to find more examples in which *denn* is infelicitous because the highlighted proposition does not stand in a precondition relation to the contextual information. E.g., in both (9-a)

and (9-b), it is clear from the context why A is asking the question. Gutzmann's condition would thus predict both questions to be felicitous. However, we find that while (9-a) is indeed felicitous since low temperature is a precondition for frozen lakes, (9-b) is infelicitous because there is no salient contextual information for which the suggestion to go ice skating could reasonably be construed as a precondition.

(9) [A likes ice skating, and B knows this. A and B are walking together by a lake that usually doesn't freeze. A notices the lake is frozen.]
  a. A: Schau mal! War es denn diesen Winter kälter als normalerweise?
     A: Look! Was this winter DENN *colder than usual?*
  b. A: Schau mal! Sollen wir (#denn) Schlittschuh laufen gehen?
     *A: Look! Shall we (#*DENN*) go ice skating?*

Before we turn to the proposal, a brief aside. It might seem at first glance that what *denn* contributes to a polar question is a positive *evidential requirement*: there must be contextual evidence for the highlighted proposition. Both (8) and (9) show that this analysis is insufficient (there is positive evidence, yet (8-a) and (9-b) are infelicitous).

4 Proposal

I will first introduce a number of auxiliary notions, then spell out and motivate the proposal proper.

4.1 Auxiliary notions and felicity condition

Highlighting. The notion of *highlighting* is used to capture the semantic objects that a sentence brings into salience (see Roelofsen and Farkas, 2015). E.g., both the polar question in (10-a) and the declarative in (10-b) are taken to highlight the proposition that Ann watched Psycho, i.e., $\lambda w.W(p)(a)(w)$; the *wh*-question in (10-c) is taken to highlight the 1-place property $\lambda x.\lambda w.W(x)(a)(w)$.

(10) a. Did Ann watch Psycho?
    b. Ann watched Psycho.
    c. What did Ann watch?

To generalize over these different cases, we view propositions as 0-place properties. A sentence then highlights an n-place property, where $n \geq 0$ is the number of *wh*-elements in the sentence.

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[1] We use the term *highlighting* in the sense of Roelofsen and Farkas (2015). It will be defined in Sec. 4.1

[2] See Biezma (2014) for a related approach to English *then*.

[3] That *denn* establishes a "necessary precondition" relationship has also been suggested by Csipak and Zobel (2016), but only for conditional *denn*, not for *denn* in questions, and without exploring the predictions that this approach makes.

Discourse events. Essentially, the notion of a *discourse event* gives us a wider notion of a discourse move. A discourse event can be an utterance, i.e. an assertion, question or imperative, or any other event through which some piece of contextual evidence becomes salient (e.g., a discourse participant pointing at an object, thus making it salient; or a bus driving by, thus becoming salient).

Proceeding in discourse. Intuitively, for A to *proceed in discourse* is for A to act in line with (a) what the previous discourse event has indicated would be a preferred action or (b) with the plans that A is publicly entertaining. E.g., if the previous discourse move M was an imperative, A has to carry out the given instructions; if M was an assertion or the presentation of contextual evidence, A has to accept the new information; if M was a question, A has to answer it. Finally, if A announces or otherwise indicates that she wants to perform some action, then, to proceed in the above sense, she has to actually perform this action.

Felicity condition for *denn*. Let us now formulate a felicity condition that aims to account for the use of *denn* in polar questions, *wh*-questions and conditional antecedents.

> It is felicitous for a speaker c_S to use *denn* in a sentence with highlighted property f iff c_S considers learning an instantiation of f a necessary precondition for herself to proceed in the discourse.

This condition allows f to be one of several things: a presupposition of the previous assertion, as in (6); a precondition that is based on world knowledge, as in (9); a piece of information that is missing in order to even interpret the previous utterance, as in (13) below; and so on.

4.2 Predictions for polar questions.

For polar questions, the highlighted property f is a 0-place property, i.e., a proposition. Learning an instantiation of this proposition thus amounts to learning the proposition itself. E.g., in (11), f is the proposition that the door is open. B is conveying that she first has to learn that the door is open before she can follow A's instruction to go ahead.

(11) *A: You go ahead! I'm coming in a minute.*
　　B: Ist die Tür denn offen?
　　B: Is the door DENN *open?*

A further prediction arises in the context of con-

joined questions. We have seen that if a speaker uses *denn* in a polar question, she conveys that learning the highlighted proposition p is **necessary** for her to proceed. Given this, we would expect that she cannot offer p alongside other *denn*-marked polar questions whose highlighted propositions would supply "alternative" preconditions. This expectation is borne out, as illustrated by the disjunction in (12-a): intuitively, B offers two possible alternative preconditions, namely a lottery win and a large inheritance, and indicates that learning *either* of them would be satisfactory. This means, however, that neither of them can be necessary. Uttering just one of the *denn*-marked disjuncts individually, as in (12-b), on the other hand, would be acceptable. Moreover, the conjunction of two *denn*-marked polar questions in (12-c) is acceptable too. This is expected as well since there can of course be *several* necessary preconditions. In the paper, we will discuss a wider range of data and flesh out the intuitive explanation above in more formal terms.

(12) *A: Did you hear? Sarah is going on a world trip next week!*
　　a. B: #Hat sie denn im Lotto gewonnen oder hat sie denn reich geerbt?
　　　#Has she DENN *won the lottery or has she* DENN *come into a big inheritance?*
　　b. B: Hat sie denn im Lotto gewonnen?
　　　Has she DENN *won the lottery?*
　　c. B: Hat sie denn schon eine Route geplant und hat sie die Flüge denn schon gebucht?
　　　Has she DENN *planned the route yet and has she* DENN *booked the flights yet?*

4.3 Predictions for *wh*-questions

In the case of a single *wh*-question, the highlighted property f is a 1-place property; in the case of a multiple *wh*-question, it is an n-place property with $n \geq 2$. For example, in (13), $f = \lambda x.\lambda w.\text{anna}(x)(w) \wedge \text{intended-ref}(x)(w)$. B conveys that in order to be able to interpret (and thus ultimately to accept) A's assertion, she needs to learn which of the *Anna*s A intended as a referent.

(13) [A and B know two Anna's, one from Hamburg and one from Munich.]
　　A: Earlier today, Anna called!
　　B: Welche Anna meinst du denn?
　　B: Which Anna do you DENN *mean?*

Here we find a certain asymmetry between *wh*-questions and polar questions which the above felicity condition correctly captures: while it is acceptable for B to ask *which* Anna A was talking about, as in (13), it is not acceptable to inquire about a *specific* Anna using a *denn*-marked polar question, as in (14). This is because learning *some* instantiation of the property highlighted by (13) is indeed necessary for B to interpret A's utterance. On the other hand, it is not necessary for B to learn the proposition highlighted by (14) (that A was referring to Anna from Hamburg), since there are several possible referents.

(14) B: Meinst du (#denn) Anna aus Hamburg?
   *Do you (#*DENN*) mean Anna from Hamburg?*

A comment is in order here. Possibly for reasons having to do with the above asymmetry, it is rather difficult to find infelicitous examples of *wh*-questions containing *denn* (with the exception of very sparse, unambiguous contexts like (4) that allow for little accommodation). Speakers often ask *denn*-marked *wh*-questions out of the blue, and when they do, the hearer is usually able to accommodate that the speaker needs the inquired information to proceed with what she is trying to do. In (15), e.g., the speaker's appearance makes it obvious that he is traveling. Hence, although this is certainly stretching our felicity condition, we might say that learning the way to the station is a necessary precondition for the speaker to proceed with his publicly entertained plans. I believe the analysis is still on the right track, though, since the question in (15) becomes markedly worse if uttered, e.g., out of the blue on the phone.

(15) [Heavily loaded backpacker asks a passerby:]
   Wie komme ich denn von hier zum Bahnhof?
   How do I DENN *get to the station from here?*

4.4 Predictions for conditional *denn*

Let's turn to *denn* in conditional antecedents. I will not attempt to give a full analyis of this construction here, but only point out a number of predictions made by the above felicity condition. To begin with, if *denn* appears in a conditional antecedent, the highlighted property f is a proposition, namely the proposition expressed by the antecedent. Since, as mentioned in Sec. 1, *denn*-marked antecedents can only *follow* their consequents and not *precede* them, I will assume that the consequent acts as the previous discourse event.

Hence, our felicity condition predicts *denn* to be felicitous just in case the speaker considers the proposition expressed by the antecedent a necessary precondition for (accepting) the consequent. This is very much in the spirit of one of the felicity conditions that Csipak and Zobel (2016) give for conditional *denn*. However, there is a certain prediction following from this condition which they don't mention: since *denn* marks the antecedent as *necessary*, it turns its containing conditional into a *biconditional*. We find that this prediction is indeed borne out, as illustrated in (16) and (17).

(16) Kritik ist willkommen, wenn sie (#denn) konstruktiv ist—und auch wenn sie nicht konstruktiv ist.
   *Criticism is welcome if it (#*DENN*) is constructive—and also if it isn't constructive.*

(17) Wir gehen morgen Squash spielen, wenn (?denn) Court 1 frei ist oder wenn (#denn) Court 2 frei ist.
   *We'll play squash tomorrow if (?*DENN*) court 1 is free or if (#*DENN*) court 2 is free.*

Note that the biconditional interpretations of (16) and (17) stem from a non-truth-conditional meaning contribution, though. So, the infelicity of (16) and (17) is less pronounced than that of a corresponding truth-conditional biconditional like (18).

(18) Kritik ist (#nur) willkommen, wenn sie konstruktiv ist—und auch wenn sie nicht konstruktiv ist.
   Criticism is welcome (#only) if it is constructive—and also if it isn't constructive.

5 Causal conjunction *denn*

Finally, discourse particle *denn* is homonymous with a conjunction that expresses, roughly, a causal or precondition-like relationship between two sentences (Pasch et al., 2003):

(19) a. Die Straße ist nass, denn es hat geregnet.
   The street is wet because it rained.
   b. Das Streichholz ist angegangen, denn es war genügend Sauerstoff in der Luft.
   The match lit because there was enough oxygen in the air.

Since on the account presented here *denn* marks its "prejacent" as a precondition, we have already made some headway towards a unified account. The full paper will discuss what obstacles there are for such an account and how these might be overcome.

References

[Bayer2012] Josef Bayer. 2012. *From modal particle to interrogative marker: a study of German denn.* Bibliothek der Universität Konstanz.

[Biezma2014] María Biezma. 2014. The grammar of discourse: The case of *then*. In *Semantics and Linguistic Theory*, volume 24, pages 373–394.

[Bledin and Rawlins2016] Justin Bledin and Kyle Rawlins. 2016. Epistemic resistance moves. In Mary Moroney, Carol-Rose Little, Jacob Collard, and Dan Burgdorf, editors, *Semantics and Linguistic Theory (SALT) 26*, Ithaca, NY. LSA and CLC Publications.

[Brauße1994] Ursula Brauße. 1994. *Lexikalische Funktionen der Synsemantika.* Gunter Narr Verlag.

[Csipak and Zobel2014a] Eva Csipak and Sarah Zobel. 2014a. A condition on the distribution of discourse particles across types of questions. In *NELS 44: Proceedings of the 44th meeting of the North East Linguistic Society*, pages 83–94.

[Csipak and Zobel2014b] Eva Csipak and Sarah Zobel. 2014b. A condition on the distribution of discourse particles across types of questions. In *Proceedings of NELS 44*, pages 83–94.

[Csipak and Zobel2016] Eva Csipak and Sarah Zobel. 2016. Discourse particle *denn* in the antecedent of conditionals. In *Empirical Issues in Syntax and Semantics (CSSP 11).*

[Grosz2005] Patrick Grosz. 2005. dn in Viennese German: The syntax of a clitic version of the discourse particle denn. MA thesis.

[Gutzmann2015] Daniel Gutzmann. 2015. *Use-conditional meaning. Studies in multidimensional semantics.* Oxford University Press.

[Helbig1988] Gerhard Helbig. 1988. *Lexikon deutscher Partikeln.* Verlag Enzyklopädie.

[König1977] Ekkehard König, 1977. *Modalpartikeln in Fragesätzen*, pages 115–130. Tübingen: Niemeyer.

[Kwon2005] Min-Jae Kwon. 2005. *Modalpartikeln und Satzmodus. Untersuchungen zur Syntax, Semantik und Pragmatik der deutschen Modalpartikeln.* Ph.D. thesis, Ludwig-Maximilians-Universität München.

[McCready2012] Eric McCready. 2012. Formal approaches to particle meaning. *Language and Linguistics Compass*, 6(12):777–795.

[Pasch et al.2003] Renate Pasch, Ursula Brauße, Eva Breindl, and Ulrich Hermann Waßner. 2003. *Handbuch der deutschen Konnektoren.* Walter de Gruyter.

[Roelofsen and Farkas2015] Floris Roelofsen and Donka F. Farkas. 2015. Polarity particle responses as a window onto the interpretation of questions and assertions. *Language*, 91(2):359–414.

[Rojas-Esponda2014] Tania Rojas-Esponda. 2014. A discourse model for *überhaupt*. *Semantics and Pragmatics*, 7(1):1–45.

[Thurmair1989] Maria Thurmair. 1989. *Modalpartikeln und ihre Kombinationen*, volume 223. Walter de Gruyter.

[Thurmair1991] Maria Thurmair. 1991. Zum Gebrauch der Modalpartikel 'denn' in Fragesätzen. Eine korpusbasierte Untersuchung. *Linguistische Arbeiten*, 290:377–387.

[Zimmermann2011] Malte Zimmermann. 2011. Discourse particles. *Semantics: An international handbook of natural language meaning*, 2:2012–2038.