SYNTAX AND SEMANTICS OF CAUSAL *DENN* IN GERMAN

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This paper presents a new analysis of *denn* (*because*) in German. In addition to causal links between propositions, *denn* can express the causation of epistemically judged propositions or of speech acts. *Denn*'s behavior is explained by two properties: On the semantics side, I show that *denn* is a conventional implicature item. Syntactically, *denn* is a coordinating conjunction of CPs. These facts explain two things. (1) Why *denn* can be used to express a wider range of causal relations than the related *weil*: *denn* can target the coerced variables over assertions as an argument, while these variables are too high for *weil*. (2) At the same time, the restrictions on the use of *denn* also follow from *denn*'s status as a coordinating conjunction and conventional implicature.

1. Introduction

Weil and *denn* are two discourse connectives in German with a (roughly) causal meaning.[1] However, they are by no means interchangeable. It has been observed in the previous literature (see e.g., Pasch et al. 2003) that German *denn* can be used in a broader range of sentences than (subordinating) *weil*. In addition to causal links between events and propositions, *denn* can express the causation of epistemically judged propositions (1a) or of speech acts (2a).

(1) a. *Es hat geregnet, denn die Straße ist ganz naß.*
b. * *Es hat geregnet, weil die Straße ganz naß ist.*
It was raining, because the street is wet.

(2) a. *Ist vom Mittag noch etwas übrig? Denn ich habe schon wieder Hunger.*
b. *?? Ist vom Mittag noch etwas übrig? Weil ich schon wieder Hunger habe.*
Is there anything left over from lunch? – Because I'm already hungry again.

[1] There has been a lot of discussion about the question whether these and similar connectives are actually *causal* (see for example Ballweg 2004). Not all sentences containing *weil* in German actually talk about causes of events or situations (i). In this paper, I will be concerned exclusively with the differences in meaning and syntax between *weil* and *denn*.

(i) Ich stehe dann morgens immer um sechs Uhr auf, weil ich dann Durchzug mache, gell.
'And then I always get up at 6 in the morning, because I air the room at that time.' (LDC: HUB)

At the same time, *denn* is not allowed in causal clauses if (i) the because-clause precedes the main clause (see 3), (ii) a direct answer to a why-question is given (4), or (iii) the content of the because-clause is evident or has been previously mentioned (see e.g., Pasch 1997).

(3) a. * *Denn es hat geregnet, ist die Straße naß.*
b. *Weil es geregnet hat, ist die Straße naß.*
Because it rained, the street is wet.

(4) a. *Warum ist die Katze gesprungen? — * Denn sie sah eine Maus.*
b. *Warum ist die Katze gesprungen? — Weil sie eine Maus sah.*
Why did the cat jump? — Because it saw a mouse.

This paper shows that *denn* is a coordinating conjunction of CPs (section 2), and semantically, a conventional implicature item (section 3). Together, these properties explain the distribution facts mentioned above.

2. Syntactic Properties of *denn*

Denn's syntactic classification has been the subject of some discussion. While most studies mention it as a coordinating conjunction (e.g., Pasch 1997), the most recent and comprehensive study of German connectives has a different opinion. Pasch et al. 2003 treat *denn* as a special case: according to their criteria, *denn* does not subordinate (i.e., require verb-final word order in the second argument) nor embed (i.e., together with its second argument, build a constituent of the first argument). Nor, however, do they think it is coordinating.

Denn's special properties can be explained even under a coordinative conjunction analysis. Unlike the other coordinative conjunctions (*und*, *oder*, etc.), *denn* can only conjoin main clauses, i.e., CPs. This explains the requirement that the conjuncts be verb-initial or verb-second. Further peculiarities of *denn* are of semantic, not syntactic, nature – I will get back to them in the following two sections. For example, *denn*-clauses can't be embedded under other functors, and both clauses that *denn* combines have to be thematic.

3. *Denn*'s Semantics as Conventional Implicature

Semantically, *denn* connects two events or propositions causally. *Denn*'s semantics is two-fold. Truth-conditionally, *denn* has the semantics of the logical $\wedge$. The causal meaning of *denn* is located in its conventional implicature (see Grice 1989; Karttunen and Peters 1978):

(5) In a sentence "A, *denn* B", with $[\![A]\!] = \phi$ and $[\![B]\!] = \psi$, *denn* has the following semantics:
Assertion: $\phi \wedge \psi$
Conventional Implicature: $\mathrm{CAUSE}(\psi, \phi)$

In other words, *denn* conventionally implicates that the proposition denoted by one clausal argument is caused by the proposition denoted by the other clausal argument. For *weil*, on the other hand, the causal relationship is part of the assertion.

Since *denn*'s causal meaning is a conventional implicature, the causality can not be embedded in any other functors. Bonami and Godard 2005 show tests to prove the status of a conventional implicature, in the context of evaluative adverbs in French. Their tests, applied to German *denn*, clearly show that its causal component is contributed by a conventional implicature. This contrasts with *weil*, whose causal meaning is asserted. The following data from causal clauses embedded in questions and conditionals illustrates this. Further successful tests include negation, explicit denial, embedding in the antecedent of counterfactuals, and attributions.

Questions. If a conventional implicature is triggered within a question, the content that is implicated cannot be understood as being in the scope of the question's illocutionary act.

(6) a. *Wer kam zu spät, weil er den Bus verpaßt hat?*
b. ?? *Wer kam zu spät, denn er hat den Bus verpaßt?*
Who was late because he missed the bus?

Example (6a) can be asked in a situation when several people were late, for (potentially) different reasons. The question is asked to clarify who of these people was late because they missed the bus (instead of for some other reason). Example (6b) cannot be used in such a situation. In fact, it is quite hard to imagine a situation that would render this sentence entirely felicitous. It seems to be possible only when it has already been established that someone was late, and that this happened because he missed the bus. If I couldn't catch the name of the person who was late, I might use (6b) to inquire this information.

Conditionals. Conventional implicatures cannot be embedded in the antecedent of a conditional. The following examples show that while *weil* can be embedded in a conditional, sentences with *denn*-clauses are only grammatical when the *denn*-clause is understood as a parenthetical, which stands outside of the conditional itself.

(7) a. *Wenn Peter zu spät kam, weil er den Bus verpaßt hat, war es seine eigene Schuld und er sollte bestraft werden.*
b. ** Wenn Peter zu spät kam, denn er hat den Bus verpaßt, war es seine eigene Schuld und er sollte bestraft werden.*
If Peter was late because he missed the bus, it was his own fault and he should be punished.

(8) a. *Wenn Peter zu spät kam, weil er den Bus verpaßt hat, hat er den Anfang des Films nicht gesehen.*

b. *Wenn Peter zu spät kam, denn er hat den Bus verpaßt, hat er den Anfang des Films nicht gesehen.*
If Peter was late — he missed the bus (by the way) — he won't have seen the beginning of the movie.

In examples (7–8), the consequent clauses are chosen in order to support an integrated (7) and a parenthetical (8) reading of the causal clauses, respectively. It is obvious that *denn* cannot be understood to be in the scope of the conditional. The intended meaning in example (7b) is that someone should only be punished if they were late because of their own fault (not, for example, if they were late because their car broke on the way). The sentence simply does not support this meaning.

However, *denn* is possible in the antecedent of conditionals if it is understood as a parenthetical that contributes its meaning outside of the scope of the conditional, as in (8b). Here, it is unclear whether Peter was late for the movie, but he unquestionably missed the bus (he might have taken a cab to the theater and made it in time). The *denn*-clause has the flavor of additional information that could be explicitly marked with *by the way* in English.

4. Consequences: Distribution of *denn* vs. *weil*

This section shows how the two facts about *denn*'s syntax and semantics explain the differences between the uses of *denn* and *weil*.

4.1. Three Exceptions to the Use of *denn*

The fact that *denn*-clauses cannot precede the main clause (see 3) follows straightforwardly from our elaborations about *denn*'s syntax. All coordinating conjunctions must follow their first argument.

The second exception concerns direct answers to *why*-questions, which cannot be expressed with a *denn*-clause. Note that the causal relation between the proposition in the *denn*-clause and the other proposition (expressed in the question) is presented as a conventional implicature, and not asserted. Conventional implicatures can never function as the direct answer to a question. For example, *even x, y* in English conventionally implicates that there are alternatives to x that also do y, and that x ist the most unlikely of the alternatives to do y. However, a direct question cannot be answered by these conventional implicatures (9a).

(9) a. Who is most unlikely to play the lottery? — # Even Bill plays the lottery.
b. What does being small contrast with? — # Ants are small but strong.

The third exclusion for *denn*-clauses is when the proposition in the *denn*-clause has been previously mentioned. One should take into account that truth-conditionally, *denn* means the same as *and*. Sentences where an entire conjunct of *und* (*and*) is previously mentioned are infelicitous (10). For now, it is left as an open question whether the use of *denn* is rather more constrained in this way than that of *und*.

(10) *Es wird heute regnen. —*
a. ** Ja, ich muß zuhause bleiben, denn es wird heute regnen.*
b. *?? Ja, ich muß zuhause bleiben, und es wird heute regnen.*
It's going to rain today. — Yes, I'll have to stay home, because/and it's going to rain today.

4.2. *Denn* in Epistemic and Speech-Act Causal Sentences

The present analysis explains why *denn* can express causation of epistemically judged propositions and speech acts while *weil* cannot. For the speech act causation (2), I adopt a proposal made for relevance conditionals (see Siegel 2005), such as (11).

(11) If you're hungry, there's pizza in the fridge.

Following Siegel, I assume that variables for potential literal acts (assertions, questions, etc.) are introduced by a meaning-shift rule when interpretation of a sentence would otherwise be divergent. Variables are introduced for the potential literal act that is commonly associated with the type of sentence, i.e., an assertion variable for declaratives, a question variable for interrogatives, etc. Obligatory existential closure applies to these variables, based on the set of relevant entities. Thus, after the meaning shift, (11) can be paraphrased as "If you're hungry, there's an assertion that pizza is in the fridge and it is relevant." Accordingly, (2a) is coerced to mean "Because I'm already hungry again, there is a relevant question whether there's anything left from lunch."

Now, since *weil* is a subordinating conjunction, the *weil*-clause is a syntactic constituent in the other argument clause. Any assertion variable that has been introduced for the matrix clause will have scope over the entire sentence, including *weil* and its clause. Therefore, *weil* cannot target this variable for scope reasons. The causal link expressed by *weil* is part of its *assertion*. Thus, the assertion variable introduced for the sentence will of course have this part in its scope.

In the case of *denn*, the *assertion* of a sentence "p, denn q" just has the content ($p \wedge q$) (which amounts to asserting p, and asserting q). In addition, both clauses can introduce potential literal acts independently, since they are complete CPs being coordinated. In this way, *denn* can target the variable introduced by the preceding clause as its argument.

For the sentences with epistemic causation like (1), the argument proceeds similarly. The epistemic operator MUST involved in these sentences is introduced by the context. *Denn* conjoins two CPs - if an epistemic MUST is inferred for the first one, sentences like (1a) are obtained.The meaning is represented in the following way:

(12) (MUST it rained) *denn* (the street is wet)

It is a quite complicated empirical problem to resolve the data regarding *weil* entirely. Sentences like (1b) show that an epistemic MUST introduced by inference in the first argument may only have wide scope, since the sentence doesn't have the

reading that the *denn* sentence has, and is thus ungrammatical. It is yet unclear why explicit MUST sometimes can be embedded in the first argument:

(13) *? Weil sein Licht an ist, muß Peter zuhause sein.*
Because his light is on, Peter must be home.

5. Conclusion

This paper shows that German *denn* is a conventional implicature item, and a coordinating conjunction of CPs. Together, these facts explain why *denn* can be used to express a wider range of causal relations than the related *weil*, and why at the same time there are some restrictions on the use of *denn*.

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