

# German Discourse Particles in Questions\*

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## 1. Introduction

- German discourse particles (DiPs) like *ja*, *JA*, *doch*, *denn*, *schon* and *nur* contribute to the not-at-issue meaning, be it in terms of expressive content (Kratzer 1999), presuppositional import (Kaufmann 2010), felicity conditions (Jacobs 1991, Karagjosova 2004 on speech acts; Theiler 2017) or discourse structure requirements (Viesel 2015).<sup>1</sup>

- (1) Er wohnt ja in Allmannsdorf.  
He lives JA in Allmannsdorf.  
'As you may know, he lives in Allmannsdorf.'
- (2) 'He lives in Allmannsdorf. [S(peaker) considers this uncontroversial.']

- According to received wisdom, some DiPs are dependent on clause types (Thurmair 89):

○ <i>ja</i> :	✓ declaratives	* imperatives	* interrogatives
○ <i>JA</i> :	* declaratives	✓ imperatives	* interrogatives
○ <i>denn</i> :	* declaratives	* imperatives	interrogatives: ✓WhQ, ✓PolQ
<i>schon, nur</i> :	* declaratives	* imperatives	interrogatives: ✓WhQ, *PolQ

- (3) Declarative:  
Sie trinkt ✓*ja* / \* *JA* / \**denn*  
Sie drinks *JA* / *JA* / *DENN* 'She drinks. [S considers this uncontroversial.']
- (4) Imperative:  
Steh \**ja* / ✓*JA* / \**denn* auf! 'Stand up! [S's request is strengthened']  
Stand *JA* / *JA* / *DENN* up
- (5) Interrogative: Wh-question (WhQ)
- a. Wo wohnt er?  
Where lives he 'Where does he live?'
- b. Wo wohnt er \**ja* / \**JA*?  
Where does he live? 'Where does he live? I'm wondering.'  
[S considers this question specially motivated.]
- c. Wo wohnt er *denn*?  
Where does he live? (...Nowhere interesting!)  
[S uses the question rhetorically.]
- d. Wo wohnt er *schon*?  
Where does he live? 'Where on earth does he live?'  
[S can't find the answer to the question.]
- e. Wo wohnt er *nur*?  
Where does he live? 'Where on earth does he live?'  
[S can't find the answer to the question.]
- (6) Interrogative: Polar questions (PolQ)  
Trinkt sie \**ja* / \**JA* / *denn* / \**schon* / \**nur*?  
Drink she *JA* / *JA* / *DENN* / *SCHON* / *NUR*.  
'Does she drink. [S considers the question specially motivated.']

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<sup>1</sup> These DiPs co-exist with homonyms like the response particle *ja* 'yes', the causal conjunction *denn* 'since' and the adverbials *schon* 'already' and *nur* 'only'. In this talk, we will be concerned exclusively with their use as DiPs. We leave the possibility of a unified analysis of DiP uses and non-DiP uses for future research.

- Intuitively, the DiP seems to reshape or fine-tune the illocutionary act attached to its clause (Jacobs 1991, Bayer & Obenauer 2011, a.o.). Relatedly, the clause hosting the DiP typically is a root clause –as in the examples above– or root-like, as e.g. in (7).<sup>2</sup>

(7) Christine fragte, warum Klaus denn so blass ist.  
Christine asked why Klaus DENN so pale is  
'Christine asked why Klaus is so pale.'

- Two main approaches in the semantic/pragmatic literature to derive this fine-tuning:

- DiPs as **direct** modifiers of some left periphery operator: illocutionary operators (Jacobs 1991, Lindner 1991), speech act operators (Waltereit 2001, Karagiosova 2004) or sentence type operators (Zimmermann 2008).
- DiPs as affecting the illocutionary act **indirectly**: DiPs introduce some piece of meaning at the non-at-issue level. When combined with whichever utterability conditions the illocutionary act imposes, it feels like the original, bare illocutionary act has been fine-tuned (Kratzer 1999, Zimmermann 2011, Gutzmann 2011, Kaufmann 2010, Zeevat 2002, Repp 2013, Rojas-Esponda 2014, Theiler 2017, Rapp to appear).

(8) Ich fahre doch nächste Woche nach Wien.  
I drive DOCH next week to Vienna  
'As you know but may have forgotten, I am going to Vienna next week.'

(9) **Direct** modification of illocutionary act à la Jacobs (1991) and Lindner (1991):

a.  $[[\text{ASSERT}]]^{s,h}(p) = \text{EXPR-BELIEF}(s,p)$

b.  $[[\text{doch ASSERT}]]^{s,h}(p) = \text{EXPR-BELIEF}(s,p) \wedge \neg \text{B-CONS}(h,p)$

= 's(peaker) expresses belief in p and h(earer) is neither convinced that p nor is considering the possibility that p'.

(10) **Indirect** / side-effect modification à la Rojas-Esponda (2014):

*Doch*(p) signals that the current QUD –the Question Under Discussion that p answers– was previously answered or invalidated.

- The construction at issue:

Interestingly, one finds naturally occurring examples where the DiP and the (directly or indirectly) modified illocutionary act are not local to each other: (11).

(11) Welches Bild glaubst du [dass er denn von mir haben könnte]?  
Which picture believe you [that he DENN of me have could]  
'Which impression do you believe he could have of me?' [Bayer et al. 2016]

↪ Empirical issue: Under what constraints is a non-local relation between the DiP and the relevant illocutionary act possible?

↪ Theoretical issue: How are the meaning and the constraints of sentences like (10) to be derived?

<sup>2</sup> For discussion of DiPs in integrated (non-root-like) and non-integrated (root-like) adverbial clauses, see Coniglio (2011), Hinterhölzl & Krifka (2013). See Viesel (2015) for further environments.

- Roadmap:
  - §2 Main data
  - §3 Analysis: First try
  - §4 Additional data
  - §5 Analysis: Second try
  - §6 Conclusions

## 2. Main data

- Two constraints have been argued to apply to DiPs in WhQs with complement CPs:
  - ① DiP must lie on the "path" of the wh-chain.
  - ② The surface position of DiP determines its semantic scope (= semantic argument)
- Constraint ① (Bayer, Häussler & Bader 2016):
  - DiPs *schon* and *nur* yield clear contrast in short vs. long wh-movement:  
 Embedded *schon* easily gives rise to a DiP-based rhetorical question interpretation in (13), but this interpretation "is very hard if not impossible" in (12) (Bayer et al. 2006:§2.2.3). Instead, *schon* in (12) gets the temporal adverb interpretation 'already'. Similarly, embedded *nur* easily allows for a DiP interpretation in (15) but it mandatorily gets the adverbial meaning 'only' in (14).
- (12) **Wer<sub>1</sub> t<sub>1</sub> glaubt (schon), dass man an unsere Regierung (schon) gerne Steuern bezahlt?**  
 Who believes SCHON that one to our government **already** gladly taxes pays  
 'Who believes that one is already fond of paying tax to our government?'
- (13) **An welche Regierung<sub>1</sub> glaubt er (schon), dass man (schon) t<sub>1</sub> gerne Steuern bezahlt?**  
 To which government believes he SCHON that one SCHON gladly taxes pays  
 'To which government does he believe one is fond of paying taxes? (To none at all!)
- (14) **Wer<sub>1</sub> t<sub>1</sub> glaubt, dass der Junge das nur abgeschrieben haben könnte?**  
 Who believes that the boy this **only** copied have could  
 'Who believes that the boy could have only copied this?'
- (15) **Von wem<sub>1</sub> glaubst du, dass der Junge das nur t<sub>1</sub> abgeschrieben haben könnte?**  
 From who believe you that the boy this NUR copied have could  
 'From who on earth do you believe the boy could have copied this?'
- DiP *denn* is more subtle and calls for an experimental study.
- Magnitude Estimation experiment crossing site of wh-extraction –short movement in (16) vs. long movement (17)– with surface position of DiP –matrix vs. embedded clause and with surface position of a regular adverb (*damals* 'then').
- (16) **Wer<sub>1</sub> t<sub>1</sub> berichtete ihr (denn), dass die Einbrecher (#denn) gefasst wurden?**  
 who told her DENN that the burglars DENN caught were  
 'Who told her that the burglars were caught?'
- (17) **Wen<sub>1</sub> vermutete er (denn), dass die Polizei (denn) t<sub>1</sub> festgenommen hat?**  
 Who assumed he DENN that the police DENN arrested has  
 'Who did he assume that the police arrested?'

- Results:

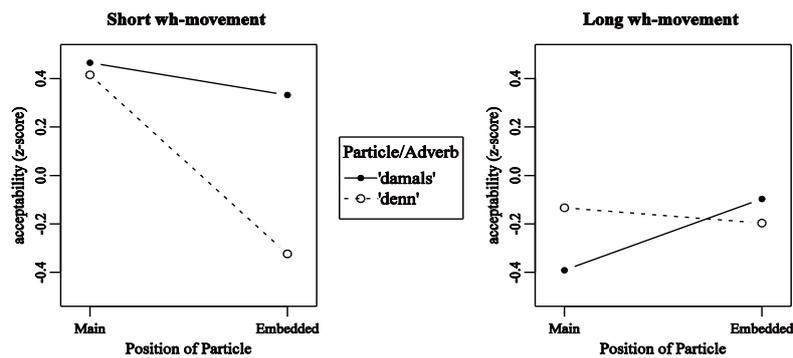


Figure 1: Acceptability of matrix and embedded DiP den in short vs. long movement, compared to that of the adverb *damals* 'then'.

- Discussion:

With short wh-extraction, *denn* in the matrix clause is fine but *denn* in the embedded clause is degraded.

Long wh-extraction –which is somewhat marked for many German speakers–, *denn* in the matrix clause and embedded clause are equally acceptable.

- (18) **Constrain ①: Wh-path constraint**  
The DiP must be located in the clause the WhP is extracted from or higher (up to the landing site of the WhP).

- (19) **Wo<sub>1</sub>** glaubst du, dass Fritz denn meint, dass man hier schon **t<sub>1</sub>** Benzin kriegt?  
Where believe you that Fritz DENN thinks that one here SCHON gasoline gets  
'Where do you believe that Fritz thinks that one can get gasoline here?'

■ **Constraint ② (Bayer, Häussler & Bader 2016):**

- When the DiP *schon* appears in the matrix clause in (20), S(peaker) conveys skepticism about there being any place of which Hans would think that one can get gasoline at 3am there (maybe such gas stations abound, but Hans is new in the area and the speaker believes he does not have a clue).
- When the DiP *schon* appears in the embedded clause in (20), S conveys skepticism about there being any place here where one can get gasoline at 3am.

- (20) **Wo<sub>1</sub>** glaubt Hans (schon), dass man hier nachts um 3 Uhr (schon) Benzin **t<sub>1</sub>** bekommt?  
where believes H. SCHON that one here at-night at three SCHON gasoline gets  
'Where does Hans believe that one can get gasoline here at 3 o'clock at the night?'

- (21) **Constrain ②: Scope constraint**  
The surface position of DiP determines its semantic scope.

■ A Constraint ③? A note on pragmatic "main point status":

- It might be argued that, when the DiP is located in the embedded clause, the matrix clause merely functions as an evidential expression. E.g. 'you believe' in (22) would pragmatically function as a hearsay evidential, as in (23), and similarly for (17), (19) and (20). If this were the case, then DiP and the (directly or indirectly) modified illocutionary act would be local again.

(22) **Welches Bild** glaubst du [dass er denn t<sub>1</sub> von mir haben könnte]? [= (11)]  
 Which picture believe you [that he DENN of me have could]  
 'Which impression do you believe he could have of me?'

(23) Which impression –according to you– could he have of me?

- But, in a parallel experiment (Braun 2015), it is shown that the same constraints obtain for non-evidential-like verbs, e.g. *versuchen* 'try', *planen* 'plan', *entscheiden* 'decide':

(24) **Wer<sub>1</sub> t<sub>1</sub>** hat (denn) versucht, den Wagen (#denn) zu waschen?  
 Who has DENN tried, the car DENN to wash  
 'Who tried to wash the car?'

(25) **Welchen Wagen<sub>1</sub>** hast du (denn) versucht, in Konstanz (denn) t<sub>1</sub> reparieren zu lassen?  
 Which car has you DENN tried in Konstanz repair to let  
 'Which car did you try to get repaired in Konstanz?'

- Nevertheless, speakers report the intuition that, in cases like (22), what is at stake is the question arising from embedded CP (i.e., "what impression he could have of me").

- This is reminiscent of Simons' (2007) embedded clauses with "main point status", i.e., embedded clause that provide the answer to the immediate QUD: (26). Simons (2007) notes that, in these cases, the matrix clause still functions semantically and pragmatically as the main clause: the reply in (27Ci) negating the embedded clause is not a denial of what B said, but merely a rejection of (27B) being a satisfactory answer to the question; the reply in (27Cii) negating the main clause is a true denial of what B said.

(26) A: Who was Louise with last night?  
 B: Henry thinks that [she was with Bill last night]<sub>Main-point-status</sub>.

(27) A: Why isn't Louise coming to our meetings these days?  
 B: Henry thinks she's left town.  
 C: i. But she hasn't. I saw her yesterday in the supermarket.  
 ii. No he doesn't. He told me he saw her yesterday in the supermarket.

(28) Potential constrain ③: Main point status  
 When the DiP is located in the complement clause of a WhQ, the embedded clause has main point status.

### 3. Analysis: First try

■ Ingredients:

- DiP takes as its semantic argument the (ordinary) semantic value of its LF sister.
- WhPs are reconstructed to base position and interpreted via Hamblin alternatives.

- (29) a. S-Str: Whom<sub>1</sub> do you think [ that John DENN saw t<sub>1</sub> ]  
 b. LF: [CP<sub>1</sub> C<sup>0</sup> you think [CP<sub>2</sub> that DENN [John saw whom] ]]

- (30) [[DENN]] (Q<sub><st,t></sub>)  
 a. At-issue meaning: Q  
 b. Non-at-issue meaning: S(peaker) consider question Q specially motivated  
 $\lambda w. Q$  is specially motivated is w

- (31) Semantic derivation (à la Potts 2005):  
 a. [[whom]] = { x: x is a person }  
 b. [[John saw whom]] = { [ $\lambda w$ '. John saw x in w"]: x is a person }  
 c. [[DENN John saw whom]]  
 = { [ $\lambda w$ '. John saw x in w"]: x is a person } •  
 $\lambda w'. \{[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person}\}$  is specially motivated is w'  
 d. [[you think that DENN John saw whom]]  
 = { [ $\lambda w'. \text{you think in } w' (\lambda w''. \text{John saw } x \text{ in } w'')]: x \text{ is a person} \}$  •  
 $\lambda w. \{[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person}\}$  is specially motivated is w

■ Scope Constraint ② is derived:

- (33) Where does Hans (DENN) believe [that one DENN can get gasoline]??  
 (33) With DENN in the embedded clause:  
 a. LF: [CP<sub>1</sub> C<sup>0</sup> Hans believes [CP<sub>2</sub> that DENN [one can get gasoline where] ]]  
 b. { [ $\lambda w'$ . Hans believes in w' ( $\lambda w''$ . one can get gas at x in w'')]: x is a place in w } •  
 $\lambda w. \{[\lambda w''. \text{one can get gas at } x \text{ in } w'']: x \text{ is a place}\}$  is specially motivated is w  
 (34) With DENN in the matrix clause:  
 a. LF: [CP<sub>1</sub> C<sup>0</sup> DENN Hans believes [CP<sub>2</sub> that one can get gasoline where] ]  
 b. { [ $\lambda w'$ . Hans believes in w' ( $\lambda w''$ . one can get gas at x in w'')]: x is a place in w } •  
 $\lambda w. \{[\lambda w''. \text{Hans believes in } w' (\lambda w'''. \text{one can get gas at } x \text{ in } w''')]: x \text{ is a place}\}$   
 is specially motivated is w

■ Wh-Path Constraint ① follows:

- (35) S-Str: **Who** t<sub>1</sub> told her [that the burglars #DENN were caught]?  
 LF: [CP<sub>1</sub> C<sup>0</sup> who told her [CP<sub>2</sub> that DENN [the burglars were caught] ]]  
 (36) Semantic derivation:  
 a. [[the burglars were caught]] =  $\lambda w''$ . the burglars were caught in w''  
 c. [[DENN the burglars were caught]] =  Type mismatch!

■ Issues left open so far:

- This analysis establishes no link between the matrix illocutionary act and DENN'S contribution in e.g. (29): Each involves a different Q<sub><st,t></sub> and thus there is no indirect fine-tuning. Can the independence of the two be supported with clearer examples?
- The analysis so far does not derive constraint ③. If confirmed, how can it be derived?

#### 4. Additional data

- Naturally occurring data from different web forums (Bayer et al. 2016, Fortmann 2017)

- Data set 1: Embedded DiPs in **interrogatives without long extraction**.

- (37) Wer sagt, dass Klamottenstyl denn teuer sein muss?  
Who says that clothing-style DENN expensive be must  
'Who says that clothing style must DENN be expensive?'  
↳ DENN (Must clothing style be expensive?)
- (38) Glaubst du, dass dieser Mann denn ernsthaft eine Beziehung führen möchte?  
Believe you that this man DENN seriously a relation lead wants  
'Do you believe that this man DENN seriously wants to be in a relationship?'  
↳ DENN (Does this man seriously want to be in a relationship?)  
↳ DENN (To what extent does this man want to be in a relationship?)
- (39) (...) ob Adorno (...) glaube, dass man denn wirklich alle Menschen belasten  
whether A. believes.Konj that one DENN really all people burden  
muesse mit Grundsatzproblematik und Reflexionsaufwand, (...)  
must.Konj with fundamental.problems and reflexion.effort  
'(...) whether Adorno thinks that one DENN really should bother everybody with  
fundamental problems and reflection (...)'  
↳ DENN (Should one really bother everybody with ...?)

- (40) **Constraint ① weakened:** Even though the embedded DiP does not lie on the path of the wh-chain, the DiP is acceptable in the appropriate discourse context, being interpreted as DENN + **salient question** retrieved from embedded clause.

- Data set 2: Emdeded DiPs in **declaratives** (hence without any wh-extraction)

- (41) Wenn ich bei google Bilder "full lace wig" eingebe, kommen immer  
When I by google pictures "full lace wig" enter, come always  
irgendwelche extreme Schönheiten, kann ich nicht so ganz glauben  
some extreme beauties, can I not so completely believe  
dass es denn wirklich so aussieht  
that it DENN really so looks.like  
'When I enter "full lace wig" in google pictures, there always appear some extreme  
beauties, I cannot quite believe that it DENN really looks like that.'  
↳ DENN (Does it really look like that?)
- (42) Bin gerade dabei, das ganze "zu versuchen zu verstehen" und schliesslich  
am right.now by.it, the whole to try to understand and finally  
für meine eigene Ruhe damit zu akzeptieren und zu glauben, dass es denn so ist.  
for my own peace with.it to accept and to believe that it DENN is so.  
'I'm trying to understand the whole thing and, for my own peace of mind, to finally  
accept and believe that it is DENN so.'  
↳ DENN (Is it so?)  
↳ DENN (How is it?)

- (43) **No link** between matrix illocutionary act –which is assertive– and embedded DiP –  
which, if anything, requires an interrogative act.

## 5. Analysis: Second Try (still tentative!)

### ■ Ingredients:

- WhPs are reconstructed to base position.
- WhPs are inherently focus marked, à la Beck (2006): The ordinary semantic value  $\llbracket \cdot \rrbracket_o$  of a WhP is undefined and its focus semantic value  $\llbracket \cdot \rrbracket_f$  is a set of Focus/Hamblin alternatives. Here we will use a simplified version.
- In a (matrix or embedded) declarative clause, focus falls on some non-wh-constituent (in our examples, often on the polarity).
- DiPs are focus sensitive: they take as their semantic argument a set  $C_{\langle st, t \rangle}$ , whose value needs to be retrieved from the focus value of some subconstituent via the  $\sim$ -operator. The DiP operates on this  $C$  at the non-at-issue tier, and at the at-issue tier it passes the ordinary and focus semantic value untouched: see (44) for *denn*.

(44)  $DENN_C [\alpha \sim C_{\langle st, t \rangle}]$ :

- a. Ordinary semantic value:  $\llbracket \alpha \rrbracket_o$  [in blue]
- b. Focus semantic value:  $\llbracket \alpha \rrbracket_f$  [in green]
- c. Non-at-issue meaning: S(peaker) consider question  $C_{\langle st, t \rangle}$  specially motivated  
 $\lambda w. C_{\langle st, t \rangle}$  is specially motivated is w [in pink]

- The semantic value of a constituent  $[\alpha \sim C]$  is as in (45):

(45) a.  $\llbracket [\alpha \sim C] \rrbracket_o$  is defined only if  $C \subseteq \llbracket \alpha \rrbracket_f$ ; if defined,  $\llbracket [\alpha \sim C] \rrbracket_o = \llbracket \alpha \rrbracket_o$  [Rooth 1992]  
 b.  $\llbracket [\alpha \sim C] \rrbracket_f$  is defined only if  $C \subseteq \llbracket \alpha \rrbracket_f$ ; if defined,  $\llbracket [\alpha \sim C] \rrbracket_f = \llbracket \alpha \rrbracket_f$  [Romero 2015]

- The Q-operator and the Exh-operator "close off" the focus semantic value of their sister constituent (cf. Wald 1996): (46)-(47). Exh arises from the focus falling accent on a given constituent, indicating completeness of the relevant list (Zimmermann 2000, Westera 2017; cf. Biezma & Rawlins 2012, Roelofsen & van Gool 2010).

(46) a.  $\llbracket [Q IP] \rrbracket_o = \lambda w_0. \lambda p. p \in \llbracket [IP] \rrbracket_f \wedge p(w_0) = 1$   
 b.  $\llbracket [Q IP] \rrbracket_f = \{ \lambda w_0. \lambda p. p \in \llbracket [IP] \rrbracket_f \wedge p(w_0) = 1 \}$

(47) a.  $\llbracket [Exh IP] \rrbracket_o = \lambda w_0. \llbracket [IP] \rrbracket_o(w_0) = 1 \wedge \forall q \in \llbracket [IP] \rrbracket_f : \llbracket [IP] \rrbracket_o \not\subseteq q \rightarrow q(w_0) = 0$   
 b.  $\llbracket [Exh IP] \rrbracket_f = \{ \lambda w_0. \llbracket [IP] \rrbracket_o(w_0) = 1 \wedge \forall q \in \llbracket [IP] \rrbracket_f : \llbracket [IP] \rrbracket_o \not\subseteq q \rightarrow q(w_0) = 0 \}$

(48) a. John saw Anna $\downarrow$  (yesterday).  
 b. Exh [John saw Anna<sub>F</sub> (yesterday)]

(49) a. Peter said that John saw Anna $\downarrow$  (yesterday).  
 b. LF1: Exh [Peter said that John saw Anna<sub>F</sub> (yesterday)]  
 c. LF2: Peter said [that Exh [John saw Anna<sub>F</sub> (yesterday)]]

■ Case 1: [CP WhP<sub>1</sub> ... [CP ... DENN<sub>C</sub> ... t<sub>1</sub> ] ]

- (50) a. S-Str: Whom<sub>1</sub> do you think [ that John DENN saw t<sub>1</sub> ] [= (29)]  
 b. LF: [CP<sub>1</sub> Q<sub>1</sub> you think [CP<sub>2</sub> that DENN<sub>C</sub> [John saw whom<sub>1</sub>]-C ]]

(51) Semantic derivation:

- a.  $\llbracket \text{whom} \rrbracket = \# \bullet \{x: x \text{ is a person}\}$   
 b.  $\llbracket \text{John saw whom} \rrbracket = \# \bullet \{[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person}\}$   
 c.  $\llbracket [\text{John saw whom}] \sim C \rrbracket = \# \bullet \{[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person}\}$   
     if  $C \subseteq \{[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person}\}$ ; otherwise #.  
 d.  $\llbracket \text{DENN}_C [\text{John saw whom}] \sim C \rrbracket$   
     = # •  
     {  $[\lambda w''. \text{John saw } x \text{ in } w'']: x \text{ is a person} \}$  •  
      $\lambda w'. \text{question } C \text{ is specially motivated in } w'$   
 e.  $\llbracket \text{you think that DENN}_C \text{John saw whom} \rrbracket$   
     = # •  
     {  $[\lambda w'. \text{you think in } w' (\lambda w''. \text{John saw } x \text{ in } w'')]: x \text{ is a person} \}$  •  
      $\lambda w. \text{question } C \text{ is specially motivated in } w$   
 f.  $\llbracket [\text{Q you think that DENN}_C \text{John saw whom}] \rrbracket$   
     =  $\lambda w_0. \lambda p. p \in \{[\lambda w'. \text{you think in } w' (\lambda w''. \text{John saw } x \text{ in } w'')]: x \text{ is a person}\} \wedge p(w_0)=1$  •  
     {  $\lambda w_0. \lambda p. p \in \{[\lambda w'. \text{you think in } w' (\lambda w''. \text{John saw } x \text{ in } w'')]: x \text{ is a person}\} \wedge p(w_0)=1$  } •  
      $\lambda w. \text{question } C \text{ is specially motivated in } w$

■ Case 2: [CP-Decl ... [CP ... DENN<sub>C</sub> ... Pol<sub>Focus</sub> ... ] ]

- (52) a. S-Str: I can't believe [that it DENN really looks like that] [for (41)]  
 b. LF: [ I can't believe [ that Exh DENN<sub>C</sub> [it (yes)<sub>Focus</sub> looks like that] ] ]

(53) Semantic derivation:

- a.  $\llbracket \text{it (yes)}_{\text{Focus}} \text{ looks like that} \rrbracket$   
     =  $\lambda w''. \text{it looks so in } w''$  •  
     {  $\lambda w''. \text{it looks so in } w'', \lambda w''. \neg(\text{it looks so in } w'')$  }  
 b.  $\llbracket [\text{it (yes)}_{\text{Focus}} \text{ looks like that}] \sim C \rrbracket$   
     =  $\lambda w''. \text{it looks so in } w''$  •  
     {  $\lambda w''. \text{it looks so in } w'', \lambda w''. \neg(\text{it looks so in } w'')$  }  
     if  $C \subseteq \{ \lambda w''. \text{it looks so in } w'', \lambda w''. \neg(\text{it looks so in } w'') \}$ ; otherwise #.  
 c.  $\llbracket \text{DENN}_C [\text{it (yes)}_{\text{Focus}} \text{ looks like that}] \sim C \rrbracket$   
     =  $\lambda w''. \text{it looks so in } w''$  •  
     {  $\lambda w''. \text{it looks so in } w'', \lambda w''. \neg(\text{it looks so in } w'')$  } •  
      $\lambda w'. \text{question } C \text{ is specially motivated in } w'$   
 d.  $\llbracket [\text{Exh DENN}_C [\text{it (yes)}_{\text{Focus}} \text{ looks like that}] \sim C \rrbracket$   
     =  $\lambda w''. \text{it looks so in } w'' \wedge \neg \neg(\text{it looks so in } w'')$  •  
     {  $\lambda w''. \text{it looks so in } w''$  } •  
      $\lambda w'. \text{question } C \text{ is specially motivated in } w'$   
 e.  $\llbracket [\text{I can't believe [that Exh DENN}_C [\text{it (yes)}_{\text{Focus}} \text{ looks like that}]] \sim C \rrbracket$   
     =  $\lambda w'. \text{I can't believe in } w' (\lambda w''. \text{it looks so in } w'')$  •  
     {  $\lambda w'. \text{I can't believe in } w' (\lambda w''. \text{it looks so in } w'')$  } •  
      $\lambda w. \text{question } C \text{ is specially motivated in } w$

■ Case 3: [CP-Interr ... [CP ... DENN<sub>C</sub> ... XP<sub>Focus</sub> ... ] ]

- (54) a. S-Str: Do you think [ that this man DENN seriously wants a relationship] [for (38)]  
 b. LF: [CP<sub>1</sub> Q<sub>1</sub> you think [CP<sub>2</sub> that Exh DENN<sub>C</sub> [this man seriously<sub>Focus</sub> wants rel.]~C ]]

(55) Semantic derivation:

- a.  $\llbracket \text{this man seriously}_{\text{Focus}} \text{ wants a relationship} \rrbracket$   
 =  $\lambda w''$ . this man seriously wants relationship in  $w''$  •  
 $\{ \lambda w''$ . this man seriously wants relationship in  $w''$ ,  
 $\lambda w''$ . this man tentatively wants relationship in  $w''$ ,  
 $\lambda w''$ . this man jokingly wants relationship in  $w'' \}$
- b.  $\llbracket [\text{this man seriously}_{\text{Focus}} \text{ wants a relationship}] \sim C \rrbracket$   
 =  $\lambda w''$ . this man seriously wants relationship in  $w''$  •  
 $\{ \lambda w''$ . this man seriously wants relationship in  $w''$ ,  
 $\lambda w''$ . this man tentatively wants relationship in  $w''$ ,  
 $\lambda w''$ . this man jokingly wants relationship in  $w'' \}$   
 if  $C \subseteq \{ \lambda w''$ . this man seriously wants relationship in  $w''$ ,  
 $\lambda w''$ . this man tentatively wants relationship in  $w''$ ,  
 $\lambda w''$ . this man jokingly wants relationship in  $w'' \}$ ;  
 otherwise #.
- c.  $\llbracket \text{DENN}_C [\text{this man seriously}_{\text{Focus}} \text{ wants a relationship}] \sim C \rrbracket$   
 =  $\lambda w''$ . this man seriously wants relationship in  $w''$  •  
 $\{ \lambda w''$ . this man seriously wants relationship in  $w''$ ,  
 $\lambda w''$ . this man tentatively wants relationship in  $w''$ ,  
 $\lambda w''$ . this man jokingly wants relationship in  $w'' \}$  •  
 $\lambda w'$ . question C is specially motivated in  $w'$
- d.  $\llbracket [\text{Exh DENN}_C [\text{this man seriously}_{\text{Focus}} \text{ wants a relationship}] \sim C \rrbracket$   
 =  $\lambda w''$ . this man seriously wants relationship in  $w'' \wedge \neg(\text{this man tentatively}$   
 $\text{wants relationship in } w'') \wedge \neg(\text{this man jokingly wants relationship in } w'')$  •  
 $\{ \lambda w''$ . this man seriously wants relationship in  $w'' \wedge \neg(\text{this man tentatively}$   
 $\text{wants relationship in } w'') \wedge \neg(\text{this man jokingly wants relationship in } w'') \}$  •  
 $\lambda w'$ . question C is specially motivated in  $w'$
- e.  $\llbracket [Q \text{ you think that Exh DENN}_C [\text{this man seriously}_{\text{Focus}} \text{ wants a relationship}] \sim C \rrbracket$   
 =  $\{ \lambda w'$ . you think in  $w'$  ( $\lambda w''$ .he seriously and not tentatively and not jokingly wants relation in  $w''$ ),  
 $\lambda w'$ . $\neg(\text{you think in } w' (\lambda w''$ .he seriously and not tentatively and not jokingly wants rel. in  $w'')) \}$  •  
 $\{ \{ \lambda w'$ . you think in  $w'$  ( $\lambda w''$ .he seriously and not tentatively and not jokingly wants relation in  $w''$ ),  
 $\lambda w'$ . $\neg(\text{you think in } w' (\lambda w''$ .he seriously and not tentatively and not jokingly wants rel. in  $w'')) \}$  }  
 $\lambda w'$ . question C is specially motivated in  $w'$

■ In sum:

- Weakened constraint ①: The semantic argument  $C_{\langle \text{st}, t \rangle}$  of DiPs like *denn* is a subset of the focus semantic value of its LF sister, no matter whether this focus semantic value arises via a WhP –as in the main data– or via focus on a non-wh-constituent –as in additional data sets 1 and 2. [See also open issue 2.]
- Constraint ② on the scope of the DiP follows as before.
- No syntactic link between the matrix illocutionary act and the embedded DiP is derived. The matrix illocutionary act may be interrogative –as in the main data and the additional data set 1– or declarative –as in the additional data set 2.

■ Open issue 1:

With the weakened constraint ① and no syntactic link between *denn* and interrogativity, how to rule out *denn* in simple declaratives and imperatives like (56)-(57)?

(56) \* Sie trinkt denn. (=3)  
 She drinks DENN 'She drinks DENN.'

(57) \* Steh denn auf!  
 Stand DENN up 'Stand up DENN!' (=4)

- Ruling out simple declaratives: The not-at-issue meaning of DENN requires that the relevant attitude holder –the S(peaker), in our examples– does not know the answer to the question C to begin with: (58). Hence, S cannot assert an answer to C.

(58) Non-at-issue meaning of DENN ( $C_{\langle st, t \rangle}$ ):

- a. S considers question C specially motivated [here, as simplification]
- b. S wants to know the answer to C (and thinks that there is a contextually relevant person that knows the answer to C) [Rapp, to appear]
- c. S considers learning the answer to C a necessary precondition for S to proceed in the discourse. [Theiler 2017]

- What about ruling out simple imperatives?

■ Open issue 2:

If constraint ③ on main point is confirmed, how to derive it? Possible idea:

DiPs like *schon*, *nur* and *denn* are –like *only*– conventionally focus sensitive (à la Beaver & Clark 2008). Roughly, this means that the QUD and the semantic argument of the DiP must match. As a result, DiP's argument would be felt as the question that is at stake, i.e., as Simons' (2007) "main point".

Additionally, constraint ③ may help explain the discrepancy between the naturally occurring data –where the context easily renders the Q modified by DENN the "main point"/QUD– and the experimental data in Fig. 1 –where no context comes to help.

## 6. Conclusions

■ Combining the experimental data from Bayer et al. (2016) and naturally occurring data, the following empirical picture emerges:

- DiPs like *denn/schon/nur* take as semantic argument a set of propositions (a question).
- When the DiP lies on the path of a wh-chain, the corresponding WhQ serves as the semantic argument of the DiP.
- When DiP *denn* does not lie on the path of a wh-chain, the sentence is degraded out of context, but it is acceptable if an appropriate question can be recovered to serve as semantic argument of the DiP.
- The DiP is not necessarily linked to the matrix illocutionary act.

■ Analysis tentatively proposed:

- DiPs like *denn*, *schon* and *nur* are focus sensitive.
- By being focus sensitive, their semantic argument  $C_{\langle st, t \rangle}$  is shaped by the focus semantic value of their sister constituent:

(59)  $DENN_C [ IP \sim C ]$  (=44)

- This focus semantic value may arise in principle from a WhP –WhPs are inherently focus marked– or from focus on a non-wh-constituent.

