

# WHEN AND WHY FACTIVE *THAT*-COMPLEMENTS ARE ISLANDS FOR EXTRACTION (IN GERMAN)

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## 1. INTRODUCTION

This paper is concerned with the well-known phenomenon that long wh-movement from *that*-complement clauses gets influenced by the matrix verbs occurring as illustrated by the German data in (1) and (2).

(1)   Wen **meint/ glaubt/ sagt/ will** Peter, dass der Chef entlässt?  
Who **thinks/ believes/ says/wants** Peter that the boss fires  
'Who does Peter think/believe/say that the boss will fire?/Who does Peter want the boss to fire?'

(2) ?? Wen **ignoriert/bedenkt/ verdrängt/verheimlicht** Peter, dass der Chef  
Who **ignores/ keeps in mind/ represses/ conceals** Peter that the boss  
entlässt?<sup>1</sup>  
fires  
'Peter ignores/keeps in mind/represses/conceals that the boss fires who?'  
(intended meaning)

Whereas asking for a constituent which is contained in the subordinate clause is acceptable in structures in (1), parallel structures such as (2) have to be assigned a degraded status. Verbs allowing extractions from their *that*-complements are called *bridge verbs*, verbs whose *that*-clauses are non-transparent for the dislocation of constituents are coined *non-bridge verbs*. In (2), *factive* matrix verbs occur which constitute one class of verbs for which it has been argued that they display the non-bridge verb quality.<sup>2</sup>

As extraction domains in general have been examined in terms of syntactic principles for decades, there is also an extensive amount of syntactic work on this subject in particular. Syntactic analyses which aim at offering an account of data such as in (2) motivate different syntactic structures depending on whether a bridge or non-bridge verb occurs in the matrix clause. Once having derived structural differences, such structural accounts make reference to well-known syntactic principles: There is e.g. one stream of approaches which argues that

<sup>1</sup> Throughout the paper, three diacritics (\*, ??, ?) are used in order to account for increases and decreases in acceptability. However, those assignments are not meant to give absolute judgements. In particular, I do not want to argue that the structures for which I claim a higher degree of acceptability are fully acceptable (if such a status can be determined and decided on at all). An absolute judgement of extraction data is difficult and risky because the 'good' cases are often already quite marked.

<sup>2</sup> For references see the many accounts mentioned below.

there is reason to assume an underlying NP-structure in the case of non-transparent complement clauses. The consequence is that a violation of Ross' (1967) *Complex NP Constraint* applies in those cases (cf. Kiparsky & Kiparsky (1970), Pütz (1975), Cattell (1978); cf. also Basse (2008) with a different explanation). Others have argued that non-transparent complement clauses are not sisters to the verb, but are situated in a higher position in the tree and, therefore, they are assigned the status of adjuncts, the consequence being this time that a violation of Huang's (1982) *Condition on Extraction Domains* applies or some version of a barriers theory (cf. Fukui (1986), Stowell (1981, 1986), Cinque (1990), Rizzi (1990)). Even others have referred to the unavailability of the embedded Spec CP position under the occurrence of non-bridge verbs. This might be the case because e.g. other principles would otherwise be violated (cf. Fanselow (1987), De Cuba (2006)), because the position does not exist in the structure at all (cf. Basse (2008)) or because it is already filled by another element (cf. Rizzi (1990), Manzini (1992)). In all those approaches, the explanation of the extraction construction's unacceptability then follows from (some version of) Chomsky's (1973, 1977) *Subjacency Condition*, the more recent *Phase Theory* (cf. Chomsky (2000, 2001, 2004, 2008)) or *Relativized Minimality* (Rizzi (1990)).

Regardless of the concrete implementation of those ideas, the important aspect of all those approaches is that all that is relevant for the argumentation is that a wh-phrase undergoes movement in syntax and by doing so leaves certain structural domains, crosses certain nodes in the tree or moves to intermediate positions. In this sense, such analyses make the prediction that every time the movement operation applies, the same violations should occur which again should get mirrored in the data's degraded status. Besides the aspect that motivating different syntactic structures for sentences such as (1) and (2) in many cases involves a considerable number of stipulations (e.g. Grewendorf (1988) simply stipulates that Spec CP of a CP selected by a non-bridge verb cannot host an intermediate trace), data can be found that display exactly the same configuration as in (2). However, differences are created with the help of linguistic material such as particles or intonation contours and contextual factors which all concern the precise interpretation of the *question* that results from extracting a wh-pronoun from a *that*-complement clause.

In the tradition of less abundantly developed semantic and information structural accounts (cf. e.g. Abrusán (2008), Comorovski (1996), Erteschik-Shir (1973), Oshima (2007), Szabolcsi & Zwarts (1993))<sup>3</sup> a non-structural account will be developed. The analysis suggested will trace the negative influence of factive verbs back to the effect that the resulting questions have on discourse, i.e. it will analyse their roles within communicative settings. The overall claim with respect to degraded cases of extractions from factive *that*-complements is that the questions formed do not fulfill the function that is usually associated with questions, namely to open up alternatives the reduction of which leads to an increase in private as well as consciously shared knowledge. To develop the analysis, the paper is organised as follows: Section 2 will raise issues concerning a question's varying intentions and present two types of data motivating the non-structural perspective pursued in this paper. Section 3 will introduce some background assumptions concerning the formal modelling of discourse structure and, thereby, introduce the tools made use of in the actual analysis of less acceptable extraction constructions in section 4. Section 5 will take up again the data presented in section

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<sup>3</sup> Due to lack of space, a discussion of those accounts, unfortunately, cannot be offered in this paper.

2 and show how they support the analysis developed in section 4. Section 5 will also involve a discussion of two kinds of readings which are assumed to be available for extraction constructions in general (the *low* and the *high interpretation* of exhaustivity in the structures). Section 6 concludes the discussion and opens up some more general questions arising in a study of extraction constructions concerning cross-linguistic variation and choice of a linguistic perspective on this topic and its respective predictions and consequences.

## 2. TYPES OF QUESTIONS

Wh-questions are assigned a default interpretation as an *information seeking question* and it is this particular type of question for which classical speech act theory has formulated the conditions that are necessary and sufficient for a particular illocutionary act to be successfully and sincerely performed. As Searle's assumptions concerning the illocutionary type *question* in (3) demonstrate, those conditions involve that the speaker does not know the answer, assumes that the addressee knows it and wants the addressee to provide it.

(3)      Preparatory rule: 1. S does not know 'the answer', i.e. [...] does not know the information needed to complete the proposition truly [...].  
                   2. It is not obvious to both S and H that H will provide the information at that time without being asked.  
                   Sincerity rule: S wants this information.  
                   Essential rule: Counts as an attempt to elicit this information from H.

Searle (1969:66)

However, there are further subtypes to the question illocution. Those can e.g. be evoked by the insertion of modal particles, intonation, focus or by providing respective contexts.

### 2.1 Subtypes of the question illocution

By using the combinations of particles *doch gleich* e.g., the speaker can signal that s/he is asking for information which s/he in fact knows, but has temporarily forgotten (cf. (4)).

(4)      Was war **doch gleich** das Gute am Rock 'n' Roll?  
                   What was PRT PRT the good about Rock 'n' Roll  
                   'What was it again that was good about Rock 'n' Roll?'  

Kwon (2005:91)

Another interpretation of a question, namely the illocutionary subtype of a *rhetorical question* e.g., can be evoked by the modal particle *wohl* (cf. (5)).

(5)      Uli: Von wem ist denn der Brief?  
                   By whom is PRT the letter  
                   'Who sent the letter, then? '  
                   Nina: Na, von wem **wohl**? (Von der Bank natürlich.)  
                   INT by whom PRT (By the bank of.course.)  
                   'Well, from whom can it be? (From the bank, of course.)'  

Thurmair (1989:145)

Caponigro & Sprouse (2007) argue that the same semantic object corresponds to information seeking as well as rhetorical questions, whereas, pragmatically, different assignments of knowledge between the discourse participants occur: The speaker does not pose the question in order to get information that s/he is lacking, but s/he indicates that s/he knows the answer and assumes the answer to be already shared knowledge between her and the addressee.

Against the background of such a more differentiated view on a question's illocution, it can be observed that such variation regarding a question's illocutionary subtype has an impact on the acceptability of extractions from factive complement clauses: The comparison of the isolated extraction construction in (6) with the same construction under the occurrence of the particles *doch gleich* (evoking the 'memory-gap'-reading of the resulting question act) in (7) or the modal particle *wohl* (evoking a rhetorical reading of the question) in (8) shows that inserting these particles and additionally providing a suitable context for this illocutionary subtype improves the questions although the constructions unmistakably still have to be considered extractions from factive *that*-complement clauses.

- (6) ?? Wen impliziert die Aussage, dass der Chef entlässt?  
Who implies the statement that the boss fires  
'Who does the statement imply that the boss will fire?'
- (7) Peter: I can only remember that several members of staff were on the verge of being fired. And then there was this silly statement from the boss which told us in a roundabout way who would have to go. I do remember the strange atmosphere.  
? Hm, aber wen implizierte die Aussage **doch gleich**, dass der Chef entlässt?  
INT, but who implied the statement PRT PRT that the boss fires  
'Well, but **who was it again** for whom the statement implied that the boss would fire him?'
- (8) ? Na, wen impliziert die Aussage **wohl**, dass der Chef entlässt? (Dich natürlich!)  
Well, who implies the statement PRT that the boss fires (You of.course!)  
'Well, who does the statement imply that the boss will fire, after all? (Of course it's you!)'

## 2.2 Intonation

Another observation in this context is that particular intonational patterns can also have a positive impact on the extraction data at issue in this paper. To illustrate the intonation's influence, one can e.g. imagine the following scenario: Mary organises a party and, unfortunately, there are quarrels among certain guests which results in some guests ignoring other guests being invited. The question which has to be assigned a rather low degree of acceptability in (9) receives conceivably higher judgements when being uttered in a context such as (10) which describes the situation depicted above and in which the so called *hat contour* occurs.

- (9) ?? Wen ignoriert Peter, dass Maria eingeladen hat?  
who ignores Peter that Mary invited has  
'Peter ignores that Mary invited whom?' (intended meaning)
- (10) B: /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
Fritz ignores that Mary Paul invited has

'Fritz ignores that Mary invited Paul.'

? A: Ah ok, und wen ignoriert /PEter, dass Maria eingeladen hat?  
 Ah, ok, and who ignores Peter that Mary invited has  
 'Ah, ok, and what about Peter? He ignores that Mary invited whom?'  
 (intended meaning)

B: /PEter ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Peter ignores that Mary Fritz invited has  
 'Peter ignores that Mary invited Fritz.'

? A: Aha. Und wen ignoriert /KARL, dass Maria eingeladen hat?  
 Right. And who ignores Karl that Mary invited has  
 'Right. And what about Karl? He ignores that Mary invited whom?'  
 (intended meaning)

B: /KARL ignoriert, dass Maria HANS\ eingeladen hat.  
 Karl ignores that Mary Fritz invited has  
 'Karl ignores that Mary invited Fritz.'

As the name suggests, the intonational contour starts with a rise (/ marking a rising accent), stays constant on the high level reached and falls again at the end (\ marking a falling accent). In this particular context, the matrix subject noun phrase marks the start of the hat contour by carrying the rising accent, the direct object noun phrase concludes it by being assigned a falling accent. The part in between is realised on the same pitch level.

Apart from phonetic/phonological issues regarding the hat contour (cf. e.g. Uhmann (1991), Féry (1993), Mehlhorn (2001)), studies on this (in the first place) intonational phenomenon have also discovered aspects concerning the construction's interpretation. Apart from semantic issues relating to scope and, especially, scope inversion phenomena (cf. Büring (1997), Krifka (1998)), this intonational pattern has been looked at from an information/discourse structural point of view (cf. Steube (2001), Büring (2003)), that is from the (pragmatic) perspective of the construction's contextual use. Especially Büring (2003) develops a precise account of the discourse structural contribution of this intonational pattern.

As the present paper pursues the idea to put forth a discourse structural account of extractions from *that*-complement clauses, the hat contour and its positive influence as illustrated in (10) can serve the purpose of supporting (or even motivating) this account just as much as can the positive impact of changing a question's standard illocution (cf. section 2.1).

Before developing this account which aims at modelling the different degrees of acceptability observed between (6) and (7), (8) as well as (9) and (10), the next section will introduce background assumptions on (the modelling of) discourse structure which represent the main tools used within the approach presented in section 5.

### 3. CONTEXT THEORY

Linguistic utterances obviously do not occur in isolation, but within larger contexts. Certain persons (speaker, addressee) who are shaped by their views about the world in general and the topic of the conversation in particular participate. It occurs at a place, at a certain time, further utterances already precede. Linguistic phenomena such as e.g. reference of deictic pronouns or coreference relations provide ample evidence for this assumption.

### 3.1 Simple sentences

Since Stalnaker (1978), who has been studying the effect that assertions have on a context, diverse assumptions on a formal representation of an utterance context have been made (cf. e.g. Giannakidou (1998), Roberts (1996), Büring (2003), Caponigro & Sprouse (2007), Gunlogson (2003), Bartels (1999), Portner (2005), Farkas & Bruce (2009)). The central concept in the characterisation of a context in Stalnaker (1978) as well as in the other approaches mentioned here is the *Common Ground* (CG) which can be modelled as a set of propositions which represent the assumptions the discourse participants knowingly mutually agree on. On the one hand, mutual belief can be achieved by tacit assumption, on the other hand, speakers come to agree on certain pieces of information in the course of a conversation. Assuming with *Possible World Semantics* that a proposition is associated with the set of worlds in which it is true, the context also contains the *Context Set* (CS) which represents the set of worlds in which all CG-propositions are true.

Stalnaker (1978:322) writes about the purpose of communication: “To engage in a conversation is, essentially, to distinguish among alternative possible ways that things may be. The purpose of expressing propositions is to make such distinctions.” If an assertion is uttered (cf. e.g. (11)), this aim is attempted directly. Unless the addressee rejects the proposition expressed, it is added to the CG and the CS gets reduced of the worlds in which the CG-propositions are not valid (cf. (12)).

(11)      Anna invites Stephan for coffee. (=  $p_1$ )  
 (12)      **input context**                    **output context**  
               CG = {}                            CG' = { $p_1$ }  
               CS = W                            CS' = CS  $\cap$  { $w \in W \mid p_1(w) = 1$ }

If a constituent question is uttered, it opens up a restricted number of alternatives which the answer (in most cases an assertion) ideally reduces to one possibility. Relying on *Partition Semantics* for the semantic assumptions on questions (cf. Groenendijk & Stokhof (1984), (1997), Higginbotham & May (1981), Higginbotham (1991), (1996), a wh-question such as (13) induces a space of answers as in (14). (For purposes of illustration, the discourse domain is restricted to two individuals here.) Each cell corresponds to a proposition (or, respectively, a set of worlds) which represents a *possible complete* (within this type of theory *strong exhaustive*) answer.<sup>4</sup>

(13)      Who does Anna invite for coffee?, D = {Julia, Stephan}  
 (14)

Anna invites Julia as well as Stephan for coffee.	(= $p_1$ )
Anna invites Julia, but does not invite Stephan for coffee.	(= $p_2$ )
Anna invites Stephan, but does not invite Julia for coffee.	(= $p_3$ )
Anna invites neither Julia nor Stephan for coffee.	(= $p_4$ )

<sup>4</sup> On alternative approaches to the semantics of questions cf. e.g. Karttunen (1977), Heim (1994), Dayal (1996), Krifka (2001), Reich (2003).

As (15) illustrates, the CG gets expanded with one possible answer, the CS can be changed in as many ways as the CG. After an answer has been given, an assertive context update follows.

(15)	<b>input context</b>	<b>output context</b>
	$CG = \{ \}$	$CG' = CG \cup \{p_1\} \vee$
		$CG \cup \{p_2\} \vee$
		$CG \cup \{p_3\} \vee$
		$CG \cup \{p_4\}$
	$CS = W$	$CS' = CS \cap \{w \in W \mid p_1(w) = 1\} \vee$
		$CS \cap \{w \in W \mid p_2(w) = 1\} \vee$
		$CS \cap \{w \in W \mid p_3(w) = 1\} \vee$
		$CS \cap \{w \in W \mid p_4(w) = 1\}$

A demand that an adequate proposition has to meet in a context is its *informativity*, i.e. that by adding a proposition, the information state of discourse is supposed to change (cf. (16)).

$$(16) \quad CS \cap \{w \in W \mid p(w) = 1\} \neq CS$$

For an informative assertion, (16) means that it should not intend to add a proposition that is already in the CG. A wh-question should not open up any of the possibilities which the CS earlier has already been reduced of (cf. e.g. (17) taken from Büring (2003:5)).

$$(17) \quad \text{Informativity: [...], don't ask for known things!}$$

### 3.2 Complex sentences: two-stage context changes

If a complex sentence such as (18) is introduced into the context, the context update takes place on two levels: On the level of the main context, the sentence has the effect that it is added to the CG that Julia has the belief of Anna inviting Stephan for coffee (=  $p_2$ ) by simultaneously deleting those worlds from the CS in which her doxastic system does not contain this belief.

$$(18) \quad [p_2 \text{Julia thinks } [p_1 \text{that Anna invites Stephan for coffee}]].$$

However, the matrix verb introduces a further embedded context. In contrast to (11) (repeated for convenience in (19)), the truth of  $p_1$  is not evaluated with respect to the speaker who, therefore, wants it to become information shared by the discourse participants, but with respect to the individual Julia.

$$(19) \quad \text{Anna invites Stephan for coffee.} (= p_1)$$

Farkas (1992) refers to the individual with respect to whose system a proposition's truth value gets assigned as the *individual anchor* of a proposition. She further assumes that the individual anchoring of propositions happens indirectly: Propositions are anchored in worlds which are again anchored in individuals. The proposition  $p_1$  in (18) is thus true in the worlds which represent the actual world from Julia's perspective, i.e. the matrix subject Julia is the individual anchor of  $p_1$  because it is connected to the worlds relative to which  $p_1$  is evaluated.

In (19), however,  $p_1$  is true in the worlds which represent the actual world from the speaker's perspective, that is the speaker is the individual anchor of  $p_1$  because s/he is connected with the worlds relative to which  $p_1$  is evaluated. For the context update induced by a sentence such as (18), the assumptions by Farkas mean that one has to assume further sets of propositions besides the CG and the CS, namely, a set of propositions containing the propositions that constitute Julia's beliefs ( $D_{i,w}$  in (20)) and corresponding worlds which make up Julia's belief worlds ( $D^{i,w}$  in (20)). In analogy to a CG/CS-update,  $p_1$  is added to  $D_{i,w}$  and the worlds in which  $p_1$  is not true are deleted from  $D^{i,w}$ .

(20)	$CG = \{ \}$ $CS = W$	$D_{i,w} = \{ \}$ $D^{i,w} = W$
	$CG' = \{p_2\}$ $CS' = CS \cap \{w \in W \mid p_2(w) = 1\}$	$D'_{i,w} = \{p_1\}$ $D'^{i,w} = D^{i,w} \cap \{w \in W \mid p_1(w) = 1\}$

Assuming for complex sentences such as (18) that the context update takes place on two levels, the context change induced by a complex question such as (21) can be considered to look like (22).

(21)	Who does Julia think that Anna invites for coffee?, $D = \{\text{Stephan, Caro}\}$
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By asking a question such as (21), the speaker aims at getting that proposition that should be added to the set constituting Julia's beliefs, the proposition answering the root question *Who does Anna invite for coffee?* (cf. the partition(s) in (23)).

(22)	<b>main context</b>	<b>Julia's doxastic system<sup>5</sup></b>
	$CG = \{ \}$ $CS = W$	$D_{i,w} = \{ \}$ $D^{i,w} = W$
	$CG' = CG \cup \{p_1\} \vee$ $CG \cup \{p_2\} \vee$ $CG \cup \{p_3\} \vee$ $CG \cup \{p_4\}$	$D'_{i,w} = D_{i,w} \cup \{p_5\} \vee$ $D_{i,w} \cup \{p_6\} \vee$ $D_{i,w} \cup \{p_7\} \vee$ $D_{i,w} \cup \{p_8\}$
	$CS' = CS \cap \{w \in W \mid p_1(w) = 1\} \vee$ $CS \cap \{w \in W \mid p_2(w) = 1\} \vee$ $CS \cap \{w \in W \mid p_3(w) = 1\} \vee$	$D'^{i,w} = D^{i,w} \cap \{w \in W \mid p_5(w) = 1\} \vee$ $D^{i,w} \cap \{w \in W \mid p_6(w) = 1\} \vee$ $D^{i,w} \cap \{w \in W \mid p_7(w) = 1\} \vee$

<sup>5</sup> Assuming that (21) induces the partitions in (23) and the context update in (22) means attributing a certain meaning to the question which can be paraphrased as in (i).

(i) 'What is the proposition that can be anchored in Julia's doxastic system, the possibilities all being complete answers to the question: Who does Anna invite for coffee?'

This interpretation, however, is not the only one possible. It is also the reading possible which can be paraphrased by (ii).

(ii) 'For which individual is it the case that Julia thinks that Anna invites it for coffee?'

Although those two interpretations do not necessarily make a difference as far as the meaning of an extraction construction under the occurrence of the matrix verb *think* is concerned, the two different interpretations do indeed affect the meaning of such questions under the occurrence of different matrix verbs. Cf. section 4 and 5 for discussion of those two readings.

$$CS \cap \{w \in W \mid p_4(w) = 1\} \quad D^{i,w} \cap \{w \in W \mid p_8(w) = 1\}$$

(23) a.

Julia thinks that Anna invites Stephan as well as Caro for coffee.	= p <sub>1</sub>
Julia thinks that Anna invites Stephan, but does not invite Caro for coffee.	= p <sub>2</sub>
Julia thinks that Anna invites Caro, but does not invite Stephan for coffee.	= p <sub>3</sub>
Julia thinks that Anna invites neither Stephan nor Caro for coffee.	= p <sub>4</sub>

b.

Anna invites Stephan as well as Caro for coffee.	= p <sub>5</sub>
Anna invites Stephan, but does not invite Caro for coffee.	= p <sub>6</sub>
Anna invites Caro, but does not invite Stephan for coffee.	= p <sub>7</sub>
Anna invites neither Stephan nor Caro for coffee.	= p <sub>8</sub>

Differentiating between the effect that the extraction construction has on the main and the embedded context, on the one hand, the question asks for the proposition which can be added to the set containing Julia's beliefs ( $D_{i,w}$ ) (and thereby deleting Julia's non-belief worlds from  $D^{i,w}$ ) by opening up the possibilities in (23b). On the other hand, the question concerns the update of CG and CS with one of the propositions out of (23a).

### 3.3 Presuppositions semantically and pragmatically

The decisive property of *that*-complements selected by factive matrix verbs (which are of central interest in this paper) is that the proposition expressed is *presupposed*, that is (24) cannot be considered true without the subordinate clause being considered true as well – a situation which does not apply to (25) under the occurrence of a non-factive *verbum putandi* or *verbum dicendi*.

(24) [p<sub>1</sub> Peter conceals [p<sub>2</sub> that Mary is pregnant.]] -> Mary is pregnant.  
 (25) [p<sub>1</sub> Peter thinks/says [p<sub>2</sub> that Mary is pregnant.]] -> Mary is pregnant.

In order to test for the presuppositional nature of an inference one can draw and to delimit it from other logical deductions such as *implications*, traditionally, a whole battery of contexts (the *S-family*) (cf. Chierchia & McConnell-Ginet (1991:281)) is given. If an inference 'survives' in those contexts, in all likelihood, it will be a presupposition (but cf. e.g. Chierchia & McConnell-Ginet (1991:282f.), Abbott (2005:3) on problematic issues).

(26) a. Peter conceals that Mary is pregnant. -> Mary is pregnant.  
 b. Peter does not conceal that Mary is pregnant. -> Mary is pregnant.  
 c. Does Peter conceal that Mary is pregnant?  
 d. If Peter conceals that Mary is pregnant, he will not be very happy to be the father.

As predicted, the presupposition in the complement of *conceal* remains in a positive (cf. (26a)) as well as negative (cf. (26b)) declarative, in a yes-no-question (cf. (26c)) and in the antecedent of a conditional (cf. (26d)).

From the point of view of the context update induced, it is assumed that presuppositions are propositions which have to be true in the CS that exists before the sentence containing

them is uttered and its proposition considered true in CS' (cf. Farkas (2003:4), Kadmon (2001:14), Heim (1992:186)). In this argumentation, presuppositions are understood as requirements on the context state before the sentence containing the presupposition is introduced into the context. For (24), this means that the CS has to contain worlds in which  $p_2$  is true when the CS is intended to be reduced of the worlds in which  $p_1$  is not true (cf. (27)). Otherwise, the sentence is not defined relative to this context and a context update cannot apply.

$$(27) \quad \begin{aligned} \text{CS} &= \{w \in W \mid p_2(w) = 1\} \\ \text{CS}' &= \text{CS} \cap \{w \in W \mid p_1(w) = 1\} \end{aligned}$$

Choosing a more *pragmatic* approach to presuppositions means that they are not treated in terms of a relation between a sentence and a proposition as it is practised within the semantic view, but that a presupposition is mirrored in the beliefs, in intentions or expectations of speakers. The approach which is the intuitively most plausible one is reached when understanding presuppositions as CG-information. This assumption can e.g. be derived from the following quotation by Stalnaker (2002:704).

In the simple picture, the common ground is just common or mutual belief, and what a speaker presupposes is what she believes to be common or mutual belief. The common beliefs of the parties to a conversation are the beliefs they share, and that they recognize that they share: a proposition  $\phi$  is common belief of a group of believers if and only if all in the group believe that  $\phi$ , all believe that all believe it, all believe that all believe that all believe it, etc.

Under Stalnaker's view, a sentence such as (28) has to be analysed in the following way: The speaker assumes that the proposition expressed in the complement clause is already part of the CG, that is the speaker and the hearer know that Mary is pregnant and that they both know that.<sup>6</sup>

$$(28) \quad \begin{aligned} [p_1 \text{ Peter verheimlicht, } [p_2 \text{ dass Maria schwanger ist}]]. \\ \text{Peter conceals } &\text{ that Mary pregnant is} \\ &\text{'Peter conceals that Mary is pregnant.'} \end{aligned}$$

As the context update illustrated above involves both evaluating the truth/falsity of propositions with respect to the worlds in the CS as well as adding the same propositions to the CG, the second part of the update being left out in (27) (cf. (29)) illustrates exactly the pragmatic view on the effect on the context referred to above.

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<sup>6</sup> There are several factors which complicate the simplified picture presented here. Due to lack of space and the focus of this paper, I cannot elaborate on those at length (cf. Müller (2011) for the full account capturing the facts I can only mention briefly here). The first aspect concerns the fact that the assumptions made by speaker and hearer do not necessarily present true beliefs, but only have to be made for the purpose of the conversation (cf. Stalnaker (1978:231)). This in fact applies to all operations taking part in up-dating the context and is, therefore, no special issue in the discussion of presuppositions. The second aspect which is of relevance for the discussion of presuppositions more directly is the insight that presupposed information does not necessarily have to be old information by being part of the CG before the utterance containing the presupposition is uttered. This phenomenon known as *accommodation* (cf. e.g. Stalnaker (1974:202), Lewis (1979:340), Kadmon (2001:17f.)) also has to be spared out in the illustration here although it has an influence on the analysis presented in section 4.

$$\begin{aligned}
 (29) \quad CG &= \{p_2\} \\
 CG' &= CG \cup \{p_1\} \\
 &= \{p_2\} \cup \{p_1\} \\
 &= \{p_1, p_2\}
 \end{aligned}$$

The role of the speaker's attitude towards the presupposed issue that is assumed when choosing a pragmatic perspective on the topic can be backed up by sequences such as (30) to (33).

- (30) Peter conceals that the school is on fire, #but I do not consider it true that the school is on fire.
- (31) Peter thinks that the school is on fire, but I do not consider it true that the school is on fire.
- (32) Peter conceals that the school is on fire, #but I do not know whether the school is on fire.
- (33) Peter thinks that the school is on fire, but I do not know whether the school is on fire.

The speaker can neither commit herself/himself to the (first part of the) assertion in (30) without committing her/himself to the presupposed issue nor can s/he present the (first part of the) assertion in (32) by simultaneously denying knowledge of the presupposed content in the complement. Both attitudes, however, can be advanced in (31) and (33) under the occurrence of a non-factive verb without any problems.

#### 4. A DEFICIENT MOVE IN DISCOURSE

The pragmatic account of presuppositions (cf. section 3.3) together with the semantics of questions introduced in section 3.1 now allows an analysis of the negative influence that factive verbs have on extractions from *that*-complement clauses. In section 3.3, it was assumed that by asking a question such as (34), a speaker aims at getting that proposition that should be added to the set constituting Peter's beliefs, the proposition answering the root question *Who did Mary invite?* (cf. the partition in (35)).

- (34) Wen meint Peter, dass Maria eingeladen hat?, D = {Hans, Fritz}  
 Who thinks Peter that Maria invited has  
 'Who does Peter think that Mary invited?'

- (35) 

Peter thinks that Mary invited Hans as well as Fritz.
Peter thinks that Mary invited Hans, but did not invite Fritz.
Peter thinks that Mary invited Fritz, but did not invite Hans.
Peter thinks that Mary invited neither Hans nor Fritz.

Interpreting the less acceptable question in (36) in analogy to (34), it opens up the possible complete answers in (37).<sup>7</sup> This time, the speaker wants to know what the proposition that

<sup>7</sup> As already mentioned in footnote 5, this is only *one* interpretation that can be assigned to this question. Cf. section 5 for further discussion of this issue.

has to be anchored in Peter's 'ignorance system' looks like, this proposition being understood as a complete answer to the question *Who did Mary invite?*,

(36) ?? Wen ignoriert Peter, dass Maria eingeladen hat?, D = {Hans, Fritz}  
 Who ignores Peter that Mary invited has  
 'Peter ignores the fact that Mary invited who?' (indended reading)

(37)

[p <sub>5</sub> Peter ignores [p <sub>1</sub> that Mary invited Hans as well as Fritz]].
[p <sub>6</sub> Peter ignores [p <sub>2</sub> that Mary invited Hans, but did not invite Fritz]].
[p <sub>7</sub> Peter ignores [p <sub>3</sub> that Mary invited Fritz, but did not invite Hans]].
[p <sub>8</sub> Peter ignores [p <sub>4</sub> that Mary invited neither Hans nor Fritz]].

As the proposition expressed by a factive complement clause presents CG-content, by uttering a question such as (36), the deficient situation arises that the proposition that should be added to Peter's ignorance system cannot be different from the one that is already part of the CG. If it was possible that Peter could ignore something different from what is the case anyway, (38) should present an adequate sequence.

(38) Mary invited only Hans, #and Peter ignores (the fact) that Mary invited Hans as well as Fritz.

This means that by uttering (36), the speaker opens up alternatives although no alternatives are available. (39) illustrates this situation in discourse.

(39)	<b>main context</b>	<b>Peter's ignorance system</b>
	CG = {p <sub>2</sub> }	I <sub>i,w</sub> = { }
	CS = {w ∈ W   p <sub>2</sub> (w) = 1}	I <sup>i,w</sup> = CS
	CG' = CG ∪ {p <sub>5</sub> } ∨	I' <sub>i,w</sub> = I <sub>i,w</sub> ∪ {p <sub>1</sub> } ∨
	CG ∪ {p <sub>6</sub> } ∨	I <sub>i,w</sub> ∪ {p <sub>2</sub> } ∨
	CG ∪ {p <sub>7</sub> } ∨	I <sub>i,w</sub> ∪ {p <sub>3</sub> } ∨
	CG ∪ {p <sub>8</sub> } ∨	I <sub>i,w</sub> ∪ {p <sub>4</sub> } ∨
	CS' = CS ∩ {w ∈ W   p <sub>5</sub> (w) = 1} ∨	I' <sup>i,w</sup> = I <sup>i,w</sup> ∩ {w ∈ CS   p <sub>1</sub> (w) = 1} ∨
	CS ∩ {w ∈ W   p <sub>6</sub> (w) = 1} ∨	I <sup>i,w</sup> ∩ {w ∈ CS   p <sub>2</sub> (w) = 1} ∨
	CS ∩ {w ∈ W   p <sub>7</sub> (w) = 1} ∨	I <sup>i,w</sup> ∩ {w ∈ CS   p <sub>3</sub> (w) = 1} ∨
	CS ∩ {w ∈ W   p <sub>8</sub> (w) = 1} ∨	I <sup>i,w</sup> ∩ {w ∈ CS   p <sub>4</sub> (w) = 1} ∨

Using the factive verb presupposes that the proposition in the embedded clause (here p<sub>2</sub>) is part of the CG, so that the question whether p<sub>1</sub>, p<sub>2</sub>, p<sub>3</sub> or p<sub>4</sub> is part of Peter's ignorance system simply does not arise. In parallel, adding p<sub>5</sub> to p<sub>8</sub> to the CG does not present a serious possibility as the CS's reduction can only be induced by p<sub>6</sub>. The same problem, however, does not arise with the acceptable question in (34) as it poses no requirements on the CG and Peter's belief system can be updated totally independently from the propositions in the CG. In principle, Peter can believe in a completely different possible answer to the question *Who did Mary invite?* as it is possibly known that it is the case (cf. (40)). Opening up alternatives is, therefore, legitimate.

(40) Mary invited only Hans, but Peter thinks that Mary invited Hans as well as Fritz.

Consequently, by asking for a constituent contained in a *that*-complement clause selected by a factive matrix verb, a question results which does not further progress in discourse, but rather induces a step backwards because it asks for the form of an issue for which the speaker simultaneously expresses that s/he (as well as the discourse partner) know about and know that they both know that. This paper therefore suggests that the unacceptability of questions such as (36) (when interpreted as in (39)) is due to the fact that the questions have to be considered fully uninformative operations in discourse. The questions do not fulfill the function that is usually associated with questions, namely to open up alternatives the reduction of which leads to an increase in private as well as consciously shared knowledge.

The claim that a pragmatic condition influences the question's well-formedness, might be considered controversial. The decisive aspect to keep in mind with respect to that claim, however, is that the reasons which lead to the assumption that the speaker displays a certain knowledge state do not result from a particular context being constructed (of course a perfectly acceptable question does not degrade when being asked for the second time in one and the same discourse sequence although it has been answered yet), but are of a much more general nature: They are anchored in the properties of the linguistic material employed to yield the respective knowledge states of the participants and are, therefore, due to the meaning components that are invariably available for this particular linguistic material (cf. also Gajewski's (2002, 2008) concept of *L-analyticity* to cope with similar questions when tracing ungrammaticality back to tautologies and/or contradictions, cf. also Abrusán (2008) who relies on Gajewski's works with respect to contradictions being supposed to influence acceptability). In the present case, it is the verb's factivity, in other cases, it might be modal meaning components (cf. Müller (in press a) for further cases involving modal verbs and modal particles).

## 5. REPAIR BY CHANGING THE QUESTION'S INTENTION

An analysis which judges the unacceptable extraction constructions to be inadequate in discourse semantic terms makes the prediction that the non-occurrence of the factor made responsible for the discourse structural 'defect' (i.e. the contradiction between the cognitive deficit expressed by posing a wh-question and the knowledge state indicated by using a factive matrix verb) should have an impact on the acceptability of the extraction constructions. The data introduced in section 2 (repeated for convenience in (41) to (45)) can serve this very purpose, namely to illustrate that this prediction is indeed borne out. Thus, on the one hand, they provide evidence for the general assumption of a discourse semantic constraint, on the other hand, they support the concrete modelling of the extraction data developed above as the influence observed can be explained by referring to the parameters that are assumed to be relevant within the analysis suggested.

(41) ?? Wen impliziert die Aussage, dass der Chef entlässt?  
 Who implies the statement that the boss fires  
 'Who does the statement imply that the boss will fire?'

(42) Peter: I can only remember that several members of staff were on the verge of being fired. And then there was this silly statement from the boss which told us in a roundabout way who would have to go. I do remember the strange atmosphere.

? Hm, aber wen implizierte die Aussage doch gleich, dass der Chef entlässt?  
 INT, but who implied the statement PRT PRT that the boss fires  
 'Well, but **who was it again** for whom the statement implied that the boss would fire him?'

(43) ? Na, wen impliziert die Aussage wohl, dass der Chef entlässt? (Dich natürlich!)  
 Well, who implies the statement PRT that the boss fires (You of.course!)  
 'Well, who does the statement imply that the boss will fire, after all? (Of course it's you!)'

(44) ?? Wen ignoriert Peter, dass Maria eingeladen hat?  
 who ignores Peter that Mary invited has  
 'Peter ignores that Mary invited whom?' (intended meaning)

(45) B: /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
 Fritz ignores that Mary Paul invited has  
 'Fritz ignores that Mary invited Paul.'

? A: Ah ok, und wen ignoriert /PEter, dass Maria eingeladen hat?  
 Ah, ok, and who ignores Peter that Mary invited has  
 'Ah, ok, and what about Peter? He ignores that Mary invited whom?'  
 (intended meaning)

B: /PEter ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Peter ignores that Mary Fritz invited has  
 'Peter ignores that Mary invited Fritz.'

? A: Aha. Und wen ignoriert /KARL, dass Maria eingeladen hat?  
 Right. And who ignores Karl that Mary invited has  
 'Right. And what about Karl? He ignores that Mary invited whom?'  
 (intended meaning)

B: /KARL ignoriert, dass Maria HANS\ eingeladen hat.  
 Karl ignores that Mary Fritz invited has  
 'Karl ignores that Mary invited Fritz.'

## 5.1 Subtypes of the question illocution

As formulated in Searle's conditions concerning the illocutionary type *question* (cf. Searle (1969:66), cf. (3)), from a pragmatic perspective, (constituent) questions standardly serve the purpose of expressing a cognitive deficit on the part of the speaker who wishes its removal by the addressee. In case of such an *information seeking question*, regarding the knowledge states attributed to the discourse participants, the situation which the analysis in section 4 is based on occurs: Some piece of information is missing in the speaker's system of knowledge which, therefore, cannot be contained in the CG either. The speaker assumes it to be part of the addressee's (state of) knowledge so that it can become part of the CG by being introduced into the context by the addressee and after being accepted by the questioner. As becomes already obvious by Searle's *commentary* (cf. Searle (1969:66)), this type of question is not the only one possible. However, the intention of this illocutionary act can vary and – as elaborated on in section 2 – and illustrated again in (41) to (45), such rather subtle changes regarding a question's illocutionary subtype do have an impact on an extraction construction's acceptability – an observation which now awaits its explanation within the account proposed in section 4.

In section 2, it was e.g. argued that the isolated question in (41) improves if the modal particles *doch* and *gleich* occur in the question and the context further supports the question's interpretation of the speaker searching for an answer which s/he in fact knows, but has temporarily forgotten (cf. (42)). Franck (1988:181ff.) calls this the "erinnernde *doch*" ('remembering *doch*'), Luukko-Vinchenzo (1989:30) calls it the speaker's attempt to remove his/her loss of memory. Therefore, the simple wh-questions in (46) get interpreted exactly along those lines: The sports club used to be known to the speaker in (46a) as was the wife's name in (46b).

(46) a. Nun, wie hieß doch der Sportverein, in dem du warst früher?  
 Well, how named PRT the sports club in the you were earlier  
 'Well, what was the name of your former sports club again?'

Kwon (2005:91)

b. Wie hieß doch gleich seine erste Frau?  
 How named PRT PRT his first wife  
 'What was his first wife's name again?'

Thurmail (1989:269)

The higher degree of acceptability of the extraction from a factive *that*-complement clause under this reading of the question can be traced back within the analysis spelled out in section 4 to the fact that the contradiction between the cognitive deficit expressed by posing the question and the very knowledge expressed by using a factive matrix verb does not arise: The speaker expresses that s/he has to activate existing knowledge which is not available right at the moment, however, which is not missing in principle. That is the speaker only has to dig up the presupposed piece of information (presented as such by the factive matrix verb) which can be interpreted as CG-content (left apart the phenomenon of accommodation which is factored out in the argumentation as presented in this paper, cf. footnote 6).

Another illocutionary subtype is involved in (43). Inserting the modal particle *wohl* e.g. in a wh-question leads to a rhetorical interpretation of the question. Asking the simple constituent question in (47) carries the expectation that an affirmative answer to the question which contains the referent(s) to the wh-pronoun is easily available for the addressee and known to the speaker.

(47) Uli: Von wem ist denn der Brief?  
 By whom is PRT the letter  
 'Who sent the letter, then?'  
 Nina: Na, von wem wohl? (Von der Bank natürlich.)  
 INT by whom PRT (By the bank of.course.)  
 'Well, from whom can it be? (From the bank, of course.)'

Thurmail (1989:145)

Put differently, in a rhetorical question such as (43) or (47), the speaker does not pose the question in order to receive information which is unknown to him/her, but s/he in fact expresses that she does know the answer and that she does assume the answer to be CG-information. Unlike seriously asking for information that is marked to be shared knowledge between the discourse participants at the same time, there is nothing wrong with expressing

(for whatever stylistic or rhetorical purposes) that a certain piece of information is CG-information.<sup>8</sup>

The study of different erothetic subtypes (which can only be carried out exemplarily at this point, cf. Müller (2011, section 5.3.4 for a more detailed study) can thus show that rather subtle differences regarding a question's intention manifesting themselves in different distributions of knowledge do have an impact on the acceptability of extractions from factive *that*-complements. In case the wh-question receives a reading under which the uninformativity assumed does not arise (that is the contradiction between knowledge and cognitive deficit does not occur), the structures are judged more acceptable than when being interpreted as information seeking questions.

## 5.2 A further informative reading

By pursuing the pragmatic explanation developed above, parallel effects should arise whenever the context allows for an informative interpretation of the wh-question.

The core of the analysis argued for in this paper is the assumption that a question such as (48) – in analogy to a question as in (50) with the supposed partition in (51) – induces a partition as in (49).

(48) ?? Wen ignoriert Fritz, dass Maria eingeladen hat?, D = {Hans, Karl}  
Who ignores Fritz that Mary invited has

(49) [Fritz ignoriert,  
[dass Maria Hans eingeladen hat, Karl eingeladen hat]p<sub>1</sub>]p<sub>5</sub>.  
[dass Maria Hans eingeladen hat, Karl nicht eingeladen hat]p<sub>2</sub>]p<sub>6</sub>.  
[dass Maria Hans nicht eingeladen hat, Karl eingeladen hat]p<sub>3</sub>]p<sub>7</sub>.  
[dass Maria weder Hans noch Karl eingeladen hat]p<sub>4</sub>]p<sub>8</sub>.]

(50) Wen glaubt Fritz, dass Maria eingeladen hat?, D = {Hans, Karl}  
Who believes Fritz that Mary invited has

(51) [Fritz glaubt,  
[dass Maria Hans eingeladen hat, Karl eingeladen hat]p<sub>1</sub>]p<sub>5</sub>.  
[dass Maria Hans eingeladen hat, Karl nicht eingeladen hat]p<sub>2</sub>]p<sub>6</sub>.  
[dass Maria Hans nicht eingeladen hat, Karl eingeladen hat]p<sub>3</sub>]p<sub>7</sub>.  
[dass Maria weder Hans noch Karl eingeladen hat]p<sub>4</sub>]p<sub>8</sub>.]

Under this interpretation, the question aims at naming the precise form of the proposition which should be anchored in Fritz' ignorance-system, the embedded proposition corresponding to the strong exhaustive answer to the question *Wen hat Maria eingeladen?*

<sup>8</sup> Note that German does even have genuine linguistic material carrying out this move in discourse, namely the modal particle *ja* (cf. the analysis of its contribution in formal discourse structural terms in Karagjosova (2003), Gast (2008), for illustration cf. also (i) and its paraphrase).

(i) Onkel Hans war **ja** bei der Marine.  
Uncle Hans was PRT at the navy  
'As we both know, uncle Hans used to work for the navy.'

(*Who did Mary invite?*). The meaning thus ascribed to the question in (48) is that the matrix subject's attitude gets assigned to the complete state of the world: It asks what it is that he ignores and what he ignores is a complete description of the world. Although it is surely not possible under the occurrence of a factive matrix verb to e.g. ignore a different state than the one existing in the context set, it is still plausible that the attitude is only displayed towards a part of the state of the world or even towards no part of it. In this interpretation, the extraction construction asks against the background of existing facts (in this case a known constellation of invited and invited guests) for those aspects of this state which Fritz ignores. One could e.g. imagine a scenario in which it is known that Mary invited Hans as well as Karl and the speaker then wants to know what it is that Fritz ignores with respect to this state. Under such a scenario, he could ignore the fact that Mary invited Hans, but Karl's presence gets considered by him or he could have a problem with both guests, only with Karl, but not with Hans or also with none of them. The partition mirroring this meaning is shown in (52).

(52)

[ $p_3$ Fritz ignoriert, [ $p_1$ dass Maria Hans eingeladen hat]], und
[ $p_4$ Fritz ignoriert, [ $p_2$ dass Maria Karl eingeladen hat]].
[ $p_3$ Fritz ignoriert, [ $p_1$ dass Maria Hans eingeladen hat]], und
[ $\neg p_4$ Fritz ignoriert nicht, [ $p_2$ dass Maria Karl eingeladen hat]].
[ $\neg p_3$ Fritz ignoriert nicht, [ $p_1$ dass Maria Karl eingeladen hat]], und
[ $p_4$ Fritz ignoriert, [ $p_2$ dass Maria Karl eingeladen hat]].
[ $\neg p_3$ Fritz ignoriert nicht, [ $p_1$ dass Maria Karl eingeladen hat]], und
[ $\neg p_4$ Fritz ignoriert nicht, [ $p_2$ dass Maria Karl eingeladen hat]].

Ascribing this interpretation to the question in (48) does not evoke the discourse structural inadequacy as the speaker does not ask for the complete state of the world which Fritz ignores. S/he knows what the state looks like, but does not know towards which parts of it Fritz displays the attitude of ignorance. This reading of the question is thus fully legitimate and informative.

Assumed that the semantic intuitions with respect to the two interpretations of the questions (modelled here by assuming two possibilities of partitioning) are real, the question arises what exactly differentiates those two readings from each other. The decisive factor at issue here is in fact where the strong exhaustivity is anchored. Under the reading in (49), positive and negative instantiations of being invited are opened up, i.e. the exhaustive partitioning applies in the scope of the conjunction (in the following referred to as the '*low*' reading). In (52), the partitioning concerns ignored and non-ignored issues, i.e. the exhaustive partitioning applies above the conjunction (in the following referred to as the '*high*' reading).<sup>9</sup> Presupposing that both interpretations of the question are available, the account pursued here predicts a higher degree of acceptability for the factive construction under the high reading as the construction does not display the pragmatic anomaly assumed to hold under the low reading.

<sup>9</sup> One might ask why the problematic low reading should exist at all. However, there are a couple of arguments and observations which make this assumption necessary. Due to lack of space, I cannot elaborate on this aspect at this point. Evidence comes from fully legitimate *partial answers* which lead one to deduce that the negative information has to be available below the conjunction as well as from so called *wh-imperatives* (cf. Reis & Rosengren (1992)). The last linguistic phenomenon opens up the bigger issue of scope reconstruction and expansion phenomena. Cf. Müller (in press b) for discussion of those aspects.

### 5.3 The hat contour and discourse structural strategies

As the account pursued here makes the prediction that the questions are degraded due to a possible interpretation under which they have to be considered pragmatically anomalous, evoking the reading of the question such as (52) (which has been attested to be informative) should contribute positively to its acceptability status. What the account is looking for at this point is thus linguistic or contextual means which strengthen the imaginable reading of the question that it aims at selecting a set of the CG-propositions which then make out the ignored issues. The remaining CG-propositions then are those propositions which are not ignored. In order to make the account's predictions even stronger, the reading which corresponds to the partition in (49) should altogether be excluded. In the following, it will be argued that the data involving the hat contour (cf. (45), repeated for convenience in (53)) can serve this very purpose.<sup>10</sup>

(53) B: /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
 Fritz ignores that Mary Paul invited has  
 'Fritz ignores that Mary invited Paul.'

? A: Ah ok, und wen ignoriert /PEter, dass Maria eingeladen hat?  
 Ah, ok, and who ignores Peter that Mary invited has  
 'Ah, ok, and what about Peter? He ignores that Mary invited whom? '  
 (intended meaning)

B: /PEter ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Peter ignores that Mary Fritz invited has  
 'Peter ignores that Mary invited Fritz.'

? A: Aha. Und wen ignoriert /KARL, dass Maria eingeladen hat?  
 Right. And who ignores Karl that Mary invited has  
 'Right. And what about Karl? He ignores that Mary invited whom? '  
 (intended meaning)

B: /KARL ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Karl ignores that Mary Fritz invited has  
 'Karl ignores that Mary invited Fritz.'

It has been argued that this intonational contour is associated with a particular discourse structural meaning. Büring (2003) argues that an assertion displaying this intonational pattern indicates that this sentence is part of a more complex discourse structure. He builds on the assumption that discourse is organised in sequences of questions and sub-questions (cf. also Roberts (1996)). In a conversation about an evening e.g., questions such as (54) (cf. Büring

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<sup>10</sup> In Müller (2011), it is also argued that this meaning has to be assigned under the occurrence of resumptive pronouns so that the account developed here can also explain why questions such as (i) are perfectly acceptable although they ask for material contained in a factive *that*-complement clause as well. An account making the questions' interpretation responsible for their ill-formedness (and not the syntactic configurations) has to explain the acceptability of structures such as (i).

(i) Für wen gilt, dass Fritz ignoriert, dass Maria ihn eingeladen hat?  
 For whom applies that Fritz ignores that Mary him invited has  
 'For whom is it the case that Fritz ignores that Mary invited him?'

(2003:4)) might arise which get answered either directly or by splitting the bigger question into sub-questions which get answered in turn.

(54)      **question:** How was the concert?  
               **sub-question:** Was the sound good?  
               **sub-question:** How was the audience?  
               **sub-question:** How was the band?  
                   **subsub-question:** How was the drummer?  
                   **subsub-question:** And what about the singer?  
               **sub-question:** Did they play old songs?  
               **question:** So what did you do after the concert? ...

No, it was awful.  
                   They were enthusiastic.  
                   Just fantastic.  
                   Better than ever.  
                   Not a single one.

This interplay between question and sub-question aiming at answering the ‘highest’ question via the different sub-question-sub-answer sequences is called a *strategy* in Roberts (1996).

Büring argues that an English sentence such as (55) serves the purpose of indicating that it answers a sub-question of such a question-answer-sequence. (55) e.g. indicates that it is part of a bigger sequence which aims at answering the overall question *Who ate what?* by answering the sub-question *What did Fred eat?*.<sup>11</sup>

(55)       $\begin{array}{c} \vee \\ \text{FRED ate the BEANS.} \\ \backslash \end{array}$

Moreover, it indicates that there are further questions of the type *What did X eat?*, the X being an alternative to the element that receives the rising accent in German<sup>12</sup> and the fall-rise in English (namely, the NP *Fred* in the case at hand) (cf. (56)).

(56)      **question:** Who ate what?  
               **sub-question:** What did Fred eat?  
                    $\begin{array}{c} \vee \\ \text{sub-answer: FRED ate the BEANS.} \\ \backslash \end{array}$   
               **sub-question:** What did Mary eat?  
                    $\begin{array}{c} \vee \\ \text{sub-answer: MARY ate ...} \end{array}$

Büring (2003:8)

A sentence such as (57) can be interpreted in analogy to (55) as being part of a more complex discourse structure the topic of which is the question asking which person ignored which invitation by Mary (cf. (58)).

(57)      B: /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
               Fritz ignores that Mary Paul invited has

<sup>11</sup> Jackendoff (1972) calls the first accent (the fall-rise) *B-accent*, the second one (fall) *A-accent*. According to Büring (2003), the B-accent marks a *contrastive topic*, the A-accent the *focus*.

<sup>12</sup> In German, in such contexts, the hat contour occurs.

'Fritz ignores that Mary invited Paul.'

(58) **question:** Wer ignoriert welche Einladung von Maria?  
 Who ignores which invitation by Mary  
 'Who ignores which invitation by Mary?'

**sub-question:** Wessen Einladung durch Maria ignoriert FRITZ?  
 Which invitation by Mary ignores Fritz  
 'Which invitation by Mary does Fritz ignore?'

**sub-answer:** /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
 Fritz ignores that Mary Paul invited has  
 'Fritz ignores that Mary invited Paul.'

**sub-question:** Wessen Einladung durch Maria ignoriert PEter?  
 Which invitation by Mary ignores Peter  
 'Which invitation by Mary does Peter ignore?'

**sub-answer:** /PEter ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Peter ignores that Mary Fritz invited has  
 'Peter ignores that Mary invited Fritz.'

**sub-question:** Wessen Einladung durch Maria ignoriert Karl?  
 Which invitation by Mary ignores Karl  
 'Which invitation by Mary does Karl ignore?'

**sub-answer:** /KARL ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Karl ignores that Mary Fritz invited has  
 'Karl ignores that Mary invited Fritz.'

Instead of the questions in (58), the questions in (59) which have to be judged more acceptable than the isolated question in (60) are also imaginable.

(59) B: /FRITZ ignoriert, dass Maria PAUL\ eingeladen hat.  
 Fritz ignores that Mary Paul invited has  
 'Fritz ignores that Mary invited Paul.'

? A: Ah ok, und wen ignoriert /PEter, dass Maria eingeladen hat?  
 Ah, ok, and who ignores Peter that Mary invited has  
 'Ah, ok, and what about Peter? He ignores that Mary invited whom?'  
 (intended meaning)

B: /PEter ignoriert, dass Maria FRITZ\ eingeladen hat.  
 Peter ignores that Mary Fritz invited has  
 'Peter ignores that Mary invited Fritz.'

? A: Aha. Und wen ignoriert /KARL, dass Maria eingeladen hat?  
 Right. And who ignores Karl that Mary invited has  
 'Right. And what about Karl? He ignores that Mary invited whom?'  
 (intended meaning)

B: /KARL ignoriert, dass Maria HANS\ eingeladen hat.  
 Karl ignores that Mary Hans invited has  
 'Karl ignores that Mary invited Hans.'

(60) ?? Wen ignoriert Peter, dass Maria eingeladen hat?  
 who ignores Peter that Mary invited has  
 'Peter ignores that Mary invited whom?'  
 (intended meaning)

The intonational pattern's positive influence on the extraction construction can find an explanation within the account proposed here along the following lines: On the one hand, the intonational contour allows the inference that there is more than one question of the form *Wen ignoriert X, dass Maria eingeladen hat?*, i.e. the question indicates that there are further questions asking for the ignorance systems of different individuals. The whole set of those questions aims at answering the higher question which aims at detecting all ignorance-relations that occur. This aspect already seems to suffice to make it a reasonable assumption that there is more than one choice of ignored contents as the question asks for several assignments of individuals and the issues ignored by them. Although everybody could in theory ignore the invitation of the same individuals, the people who ignore other people's invitations probably do not ignore their own invitation. The issues ignored by different individuals, therefore, should already differ for this reason. This idea is strengthened by the fact that Büring assumes for sequences such as (56) the *conversational implicature* that every person who is mentioned in a question has eaten something else. This means that if Fred has eaten beans, then Mary has not eaten beans, too. The inference goes along the following lines: If someone else had eaten beans as well, the speaker would have been more informative if s/he had already conveyed this piece of information in the course of speaking about Fred. As the speaker knows that further people have eaten, but does not say about them that they ate beans as well, the conclusion can be drawn that they have eaten something else. Similarly, it can thus be argued for (59) that the subject referents do not display the same ignorance systems. If everybody ignores something else, this does make it even more reasonable that there are different subsets of the state of the world which correspond to ignored issues as the question can only be answered with respect to the same state of the world. This means that the systems cannot differ because of the state of the world being a different one for each individual. They can only differ by containing different pieces of the state of the world or of the propositions in the CG respectively. Against the background of a CG as in (61), 18 different ignorance systems are imaginable. Assuming the implicature triggered by the answers, the extraction constructions aim at getting to know which of the 18 possible ignorance systems apply to each subject referent.

(61)        CG = {that Mary invited Peter, that Mary invited Fritz, that Mary invited Paul,  
                  that Mary invited Karl}

Based on the discourse structural analysis developed in Büring (2003), the hat contour can be considered a linguistic means the occurrence of which evokes the question's reading under which the strong exhaustivity gets interpreted high. As has been illustrated above, under this interpretation, the question receives an interpretation under which the conflict between the speaker's knowledge (expressed by the factive verb) and his lack thereof (expressed by the

constituent question) does not arise. In accordance with the analysis pursued in this paper, the question's degree of acceptability rises.<sup>13</sup>

## 6. Conclusion

In the tradition of other accounts (cf. e.g. Erteschik-Shir (1973), Comorovski (1996), Oshima (2007), Abrusán (2008)) this paper proposes a non-structural analysis of extractions from factive and non-factive *that*-complement clauses in German. Based on the observation that the question's acceptability can be influenced by changing the question illocution and by employing particular intonational patterns, an analysis is developed which refers to the context changes induced by the questions. The core of the analysis is the detection of a contradiction arising under ascribing a particular interpretation to the question (the low reading of exhaustivity) and in case the question is interpreted as an information seeking question. This contradiction arises because the speaker simultaneously expresses a lack of knowledge as well as the existence of this very knowledge. Changing the question illocution or employing a particular intonation (which is argued to be associated with a particular discourse structural interpretation) results in dissolving this conflict which again goes hand in hand with an increase in acceptability.

In contrast to syntactic accounts many of which have shown over the last decades that they obviously can model the *that*-complement's opacity caused by factive matrix verbs, the present account offers an explanation why factivity leads to the *that*-clauses losing their transparency for extraction under certain conditions. In order to answer this question, the approach developed here builds on the assumption that moving a wh-phrase to the front in syntax serves the purpose of forming a question in semantics and pragmatics by dwelling on the issue why the formation of this communicative entity should be prevented by the occurrence of factive verbs. Especially the observation that different subtypes of erothetic illocutionary force have an impact on the acceptability of extractions from *that*-complements selected by factive verbs does in fact challenge the whole tradition of (generative) syntactic accounts approaching these data as the natural consequence to be drawn from such data is that the (non)bridge quality is not an inherent property at all, but only arises under specific readings of the resulting questions. As all syntactic configurations are maintained, sticking to a syntactic manifestation of factive verbs causing the clause's opacity does not seem reasonable.

The account presented here focuses on properties of the extraction *domain* and leaves issues concerning the extractee's mobility untouched – a topic which is subject in syntactic (cf. Rizzi (1990), Cinque (1990), Rizzi (2004), De Cuba (2006), Basse (2008)) as well as non-structural accounts (cf. Abrusán (2008), Comorovski (1996), Oshima (2007), Szabolcsi & Zwarts (1993)). However, factors that are mentioned in this context (*D-Linking* (Rizzi

<sup>13</sup> As the anonymous reviewer correctly remarks, the insertion of modal particles as well as the occurrence of the hat contour function as *repair strategies* in the analysis pursued here. S/he is also absolutely right in mentioning that the hat contour can occur in many contexts and is not only associated with extractability facts. As the analysis of the particles focuses on the occurrence and interpretation of certain modal particles in wh-questions, the particle strategy might be considered to be more closely associated with extraction in general. However, Büring's (2003) discourse structural analysis of the hat contour's effect directly opens up its relation to question-answer-sequences. This straight association allows a neat integration of his ideas into the model proposed in this paper.

(1990), the claim (made more or less explicitly in Comorovski (1996), Oshima (2007), Abrusán (to appear)) that the argument reference must be  $> 1$ , studies of the extractee's denotation domain (cf. Szabolcsi & Zwarts (1993), Abrusán (2008)) do at least seem to be compatible with a discourse structural perspective.

The pieces of work mentioned moreover are all concerned with other languages than German (namely English and Italian). As the accounts mentioned above heavily rely on extraction *asymmetries* (regardless of whether they are modelled structurally or non-structurally), apart from questions having to do with the general possibility of modelling the phenomenon of extraction asymmetries, another more general question arises. This question asks how it is possible to model variation between languages at all (syntax vs. semantics vs. pragmatics). Looking at existing accounts, it does not really seem possible to decide on a winner regarding this issue: The analysis developed in this paper has to be considered too restrictive when applied to the data discussed in the pieces of work mentioned above (e.g. by excluding extractions of direct objects). However, on the other hand, the other accounts do in fact little better in this respect than the analysis developed here: When tried to be applied to the German data looked at here, they are too little restrictive with respect to their predictions regarding the sentences' acceptability status (e.g. by freely allowing extractions of direct objects). In addition, it also does not seem to be the case that the same matrix verbs influence extractions from *that*-clauses across languages. The negative impact that factivity has on extraction constructions is assumed to hold in many accounts (as has been mentioned throughout the paper). However, Cattell (1978) e.g. discusses further verb classes for English, Müller (2011) also discusses *implicative verbs* in German extraction constructions – a class of verbs which has not been mentioned in the extraction literature to play a role at all.<sup>14</sup> Presupposing clarification of the data to be considered in individual languages, such differences observed present a challenge especially for non-structural accounts in general (and, therefore, for the present analysis in particular) as an approach building on meaning components and discourse structural conditions arguably does not leave much space (if at all) for language-specific variation.

Concluding the present argumentation, not only because of the open issues mentioned above, but also because further questions of this type could easily be raised, the following can certainly be argued to hold: Although an Evergreen within linguistic research, extractions from *that*-complements do still leave enough questions for further research. The present account intends to offer some innovative insights and, thereby, to offer some new pieces contributing to this puzzle. Future research will hopefully come up with further missing pieces.

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<sup>14</sup> This is probably due to the fact that most of the relevant research has been conducted on English. In English, implicative verbs, however, do not select for *that*-clauses.

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