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Some Concepts and Consequences of DRQ*

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1. Superiority and the MLC

The subject of this study will be multiple interrogatives, in particular questions with two Wh-elements (henceforth, “Multiple Wh”), and the contrast between fronting Wh-elements in these constructions in English and German exemplified in (1-4):^{1,2}

- (1) a. Who kissed whom?
b. * Whom did who kiss?
- (2) a. When did who kiss Maria?
b. * How did you kiss Maria why?
- (3) a. Wer hat wen geküßt?
b. Wen hat wer geküßt?
- (4) a. Wann hat wer Maria geküßt?
b. Wie hast du Maria warum geküßt?

On a descriptive level, the Superiority Condition (Chomsky 1973) supposedly accounts for possible Multiple Wh: fronting of the lower Wh is blocked and thus prohibited by an intervening, superior Wh.³

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¹ Unless otherwise noted, I will employ this paradigm throughout: the German examples will appear without glosses as the equivalents of the English examples wherever possible.

² In order to keep the length of this paper somewhat under control, I will confine myself solely to the discussion of Wh-arguments such as (1) and (3); for discussion of the data concerning the interplay of Wh-adjuncts, see Grohmann 1998, section 3.

³ Chomsky (1973:246) formulates the Superiority Condition as follows:

There are a number of purely syntactic accounts in the literature, most of which have failed to capture not only variance or even exceptions among different types of Multiple Wh in English (such as (2a)) but also among dialects and other languages (cf. (3-4)).⁴

In this paper, I will investigate the possibility of discourse factors being involved in the contrast (1-4) above and many others. On a theoretical level, I will propose an analysis to the syntax of Multiple Wh in German (and to some extent, English) within the minimalist framework (Chomsky 1995). The core of the syntactic analysis, however, is of pragmatic nature: I will show that Multiple Wh-constructions in German underlie a strict discourse requirement which I will label “Discourse-Restricted Quantification” (DRQ).

Superiority violations in the Minimalist Program can basically be conceived of as a violation of some version of the Shortest Move/Minimal Link Condition (see Chomsky 1995, for example): an element may not be fronted over a closer element of the same type; either cross-linguistic variation (now more unlikely) or other (possibly syntactic) processes must then be involved. In other words, movement must obey locality restrictions at all times, and in contexts of Multiple Wh there are arguably stricter locality conditions at work. With relevance to the present paper, we should consider only locality conditions relevant for checking of a Wh-feature when we talk about Superiority.⁵

The interaction of Wh-movement and other movement operations, however, has been considered in recent years—for exactly this reason. In particular, many researchers argued in favour of linking Wh-movement to previously applying (A-)movement operations (such as Boskovic 1997, Hornstein 1995, Takahashi 1993 and others).

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- (i) a. No rule can involve X, Y in the structure ... X ... [_{α} ... Z ...—WYV] ...
where the rule applies ambiguously to Z and Y, and Z is superior to Y.
b. The category A is ‘superior’ to the category B if every major category dominating A dominates B as well but not conversely.

I will refer to this definition as a simple descriptive statement about the data; as we can witness in German (3b), for example, it does not easily hold for other languages; however, (2a) possibly induces the necessity for elaboration even for English.

⁴ The interpretation to be yielded from all Multiple Wh considered here is distributive: a pair-list reading between the two Wh-elements must be construed. For semantic approaches to (Multiple Wh-)questions, see Karttunen 1977 among many others.

⁵ What is relevant here is some locality restriction on movement, in whichever way it may best be instantiated. The Minimal Link Condition, for instance, can be defined as follows (Chomsky 1995:311), where ‘closeness’ is defined as in (ii), according to Chomsky (1995:299) and Kitahara (1997:15):

- (i) K attracts α only if there is no β , β closer to K than α , such that K attracts β .
(ii) β is closer to H(K) than α iff β c-commands α , and β is not in the minimal domain of CH, where CH is the chain headed by γ , and γ is adjoined to H(K).

It seems plausible that if these conditions apply to movement, they should apply universally, hence parameterization of some sort better not apply at this level.

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In Grohmann 1997, I apply the scrambling-approach to German, where some types of scrambling involve A-movement. However, I take German word order particulars to remain mysterious in general; I hence follow the following dichotomy: re-ordering below the subject is the result of A-movement, while fronting arguments over the subject invokes the C-domain as instances of topicalization (Grohmann 1996 and Grohmann, in progress).⁶

Without going into detail for reasons of space and exposition, let us simply assume the following (Grohmann, in progress). Clause structure consists of three prolific domains, i.e. configurational areas with specified syntactic content and semantic relations: VP where thematic relations are established, TP where agreement relations are established and CP where information relations are established. Arguments in German may not survive inside the thematic domain at the interfaces but must have established agreement relations; hence movement to FP (which might stand for “AgrOP,” yet leaving out specific checking relations for the time being). The subject canonically raises to SpecTP—at least for reasons of EPP.

It is irrelevant for the present purposes whether direct and indirect object are generated in either order or whether the surface order is purely derived by movement. Let us for the sake of exposition assume two possible representations for standard, subject-initial matrix clauses in German such as in (5), where internal arguments are generated in either order:⁷

- (5) a. [TP Martin_i hat [FP Maria_j [FP das Buch_k [VP t_i gegeben t_j t_k]]]]
b. [TP Martin_i hat [FP das Buch_j [FP Maria_k [VP t_i gegeben t_j t_k]]]]
'Martin gave the book to Maria.'

On the other hand, movement into the C-domain involves at least a number of Top(ic)P's—adopting to some degree Rizzi's (1997) work on the left periphery. Instances of left-peripheral movement will be presented throughout this paper; so let us for now assume something like (6) for German clause structure (cf. Grohmann 1996, in progress):

⁶ In this sense, “scrambling” is not a unified operation (a result which should be very welcome, especially if we consider comparable and non-comparable phenomena across languages; cf. Mahajan's (1990) work on Hindi, forexample); actually, it is not an operation at all but a cover term for (at least) two different syntactic operations: it refers to obligatory argument-raising out of VP into the T-domain on the one hand, and to topicalization into the C-domain on the other (where topicalization is used in a general sense, such as by Birner and Ward (1998)). In this respect, the often heard claim that scrambling and Wh-movement do not interact does not amount to much substance, as it relates a cover term for displacement to a specific displacement operation (e.g., Müller and Sternefeld 1993); consequently, I will not be concerned with this possible objection for the remainder.

⁷ For motivation of assuming a head-initial structure for VP, see the by now rich literature and arguments as contained in, Zwart 1997 or Hinterhölzl 1998, for example. There is also a rich body of literature available for the base-generated and derived ordering relations of internal arguments which I will leave aside here.

- (6) [_{info} CP—TopP*—FocP—TopP*]—[_{agr} TP—FP*—...]—[_{theta} VP]⁸

Of course, just as movement over the subject of a non-interrogative object is an instance of information-driven topicalization, one might account for German Multiple Wh in terms of this leftwards movement.

More general: if there is “independently motivated” movement prior to Wh-checking, could Multiple Wh involve topicalization? This would imply that the lower Wh in (3), for example, is not *in situ* as standardly assumed but has also moved to the left periphery. (7) shows, however, that German is not a language that fronts its Wh-elements in the same way that Bulgarian, for instance, does:⁹

- (7) * Wer wen hat geküßt?

I will present this independent motivation for movement of Wh-elements that suggests a view of “Wh-topics” in German Multiple Wh.

2. English vs. German: Apparent Asymmetries

A comparison between Multiple Wh-constructions in German versus English seems to suggest that the former does not exhibit Superiority effects. The contrasts shown in (1-2) extend to all variations of Multiple Wh containing two Wh-arguments. While only the “highest” Wh, i.e. the one that would obey the MLC, may be fronted in English, any Wh in German may overtly move to SpecCP.

The following pairs show the different behaviour of Wh-adjuncts. In English, *why* and *how* have to move; in other words, neither *why* nor *how* may remain *in situ* in English, but their German counterparts *warum* and *wie* may:

- (8) a. * Whom did Martin kiss why?
 b. Why did Martin kiss whom?
- (9) a. Wen hat Martin warum geküßt?
 b. Warum hat Martin wen geküßt?

⁸ Let us take FocP the locus of the feature [Wh], as cross-linguistically focus and Wh are in complementary distribution which can be witnessed in languages that have focus-morphemes (see Horvath 1986 for the original proposal; Megerdumian (1998) recently supports this generalization with data from Armenian). Relevant for current purposes is that there are a number of (recursive, as indicated by the Kleene star) TopP's in between the position that contains the Wh-feature and TP, the boundary between the C- and the T-domains. For the sake of simplicity, I will continue to refer to the Wh-position as CP (but see Grohmann, to appear for good reasons not to).

⁹ Bulgarian is a representative of languages that front all Wh-elements obligatorily in Multiple Wh-constructions; see, e.g., Boskovic 1998, Richards 1997, Rudin 1988.

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- (10) a. * Whom did Martin kiss how?
b. How did Martin kiss whom?
- (11) a. Wen hat Martin wie geküßt?
b. Wie hat Martin wen geküßt?

This leads to the obvious exclusion of both *why* and *how* in one question in English but not in German:¹⁰

- (12) a. * Why did he kiss Mary how?
b. * How did he kiss Mary why?
- (13) a. Warum hat er Maria wie geküßt?
b. Wie hat er Maria warum geküßt?

On the other hand, Wh-adjuncts such as *where* or *when* do not underlie these restrictions:

- (14) a. Who kissed Mary where/when?
b. Where/when did who kiss Mary?
- (15) a. Wer hat Maria wo/wann geküßt?
b. Wo/Wann hat wer Maria geküßt?

Two explanations for the contrasts come to mind immediately: (i) the Superiority Condition is not active or may be violated in some languages (such as German) or (ii) the MLC is not active or may be violated in these languages. Neither possibility seems appealing: the Superiority Condition and/or the MLC would lose generality, maybe even the status of principled conditions; moreover, a number of languages may order Wh-elements freely, but they all differ in how freely. I will thus pursue a different option: movement other than for the purpose of checking a Wh-feature plays a role. The following section will lay out such a possibility in the form of topicalization of the Wh-elements, while section 4 will explore motivation for this approach based on contextual restrictions. Section 5 will contain a syntactic analysis of these Wh-topics, while section 6 will deal with some of the consequences for seemingly unrelated phenomena.

3. Syntactic Solution: Movement Operations Prior to Wh

Pesetsky (1987) started a by now rich history in treatment of apparent Superiority violations in English, as exemplified in (16):

- (16) a. Which student kissed which professor?
b. Which professor did which student kiss?

¹⁰ Apparently, this is subject to dialectal variation; cf. Haider 1996.

We can see that certain Wh-phrases may be fronted in either order;¹¹ what makes the Wh-phrases in (16) different from those in (1), for example, is their complexity. Pesetsky showed that these Wh-phrases are D(iscourse)-linked, i.e. they bear inherently referential properties that allow a derivation different from wide-scoping, non-referential bare Wh-elements.

The case of D-linked Wh-phrases extends naturally to even more complex Wh-phrases, such as (17):¹²

- (17) a. Mary asked which of the students kissed which of the professors.
b. Mary asked which of the professors which of the students kissed.

With D-linking in mind, let us now turn to an approach to the apparent Superiority violations in German Multiple Wh. To start with, consider the two situations depicted in (18) and (19):

- (18) Situation I: *A professor talks at the faculty meeting about recent events.*
“I know that Al, Bob and Claire kissed—and I don’t mean each other.”
a. Who kissed whom?
b. * Whom did who kiss?
c. # Wer hat wen geküßt?
d. # Wen hat wer geküßt?
- (19) Situation II: *Another professor provides more information.*
“I know that Al, Bob and Claire kissed Xavier, Yvonne and Zed.”
a. Who kissed whom?
b. * Whom did who kiss?
c. Wer hat wen geküßt?
d. Wen hat wer geküßt?

As the contrast in the two situations shows, there seems to be a restriction on the well-formedness of Multiple Wh in German which does not seem to apply in English;¹³ in particular, Multiple Wh in German are only felicitous if possible referent sets of both Wh-elements have been introduced into the discourse—in sharp contrast to English.¹⁴

¹¹ Again, I confine myself here to the simple case of subject-Wh and object-Wh.

¹² The relevance of these “partitive Wh-phrases” will become evident in the next section.

¹³ As Bruce Morén points out to me, there might be dialects of English that allow fronting of the Wh-object over the Wh-subject. Interestingly, these dialects pattern like German with respect to the contextual restrictions, vis-à-vis DRQ as shown in (20). With this in mind, further research needs to be done to apply the insights of DRQ to a wider range of languages, and to figure out cross-linguistic variation. Clearly, D-linking in English à la Pesetsky (1987) take contextual information into consideration, though not on the same level as German. As shown in Grohmann 1998, Hebrew and Spanish also allow fronting of the “lower” Wh with different contextual restrictions than both D-linking and DRQ.

¹⁴ Further examples are the following (see also Grohmann 1998, section 3):

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This contextual requirement on Multiple Wh in German, I capture with the felicity condition which I call “Discourse-Restricted Quantification” as formulated provisionally in (20); let us assume that DRQ is operative (strictly) in German but not (at all) in standard English (adopted from Grohmann 1998).

(20) *Discourse-Restricted Quantification*

Questions involving two Wh-expressions are felicitous iff the referent sets of both Wh are determined by the context; such determination is satisfied by providing a list of more than one possible referent in the discourse.

One might wonder whether this discourse restriction (ultimately, pragmatics) could possibly correlate to grammatical derivations (syntax). I will argue in the next section that we have both in German: special pragmatic circumstances and special syntactic properties. I suggest to relate the two by overtly moving both Wh-elements to the left periphery, a fronting strategy that I will refer to as “topicalization” (in the general sense). In this respect, Multiple Wh in German contain two “Wh-Topics,” both in the left periphery (an articulated C-domain).

4. Motivating Topicalization: DRQ (Grohmann 1998)

The proposal is then that if the discourse forces the referent sets of both Wh-elements to have been introduced in German (but not in English), it should mark it syntactically; one way of doing so is viz. topicalization: both Wh-elements move overtly to TopP to check this discourse property [Top].¹⁵

Preliminary support for the details of the analysis comes from Multiple Wh in English involving partitive Wh-phrases:

- (21) a. * Who did who kiss?
b. * Which professor did who kiss?
c. Which of these professors did who kiss?

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- (i) *More possibilities of the type Situation I*
a. “I know that students kissed (but not each other).”
b. “I know that three students kissed (but not each other).”
c. “I know that certain students kissed (but not each other).”
d. “I know that Albert and others kissed (but not each other).”

- (ii) *More possibilities of the type Situation II*
a. “Students kissed (some) professors.”
b. “Three students kissed three professors.”
c. “Certain students kissed certain professors.”
d. “Albert and others kissed Xavier and others.”

¹⁵ DRQ is presumably not at work in English, at least not in the same way as it is in German. Remnants of DRQ can, however, even be observed in some English dialects. This observation has to remain a puzzle to be discussed and solved at another time.

The difference observed in (21) is that many speakers accept fronting of a “lower” partitive Wh-phrase over a “higher” bare Wh but not fronting of a mere D-linked Wh.

Partitivity—whatever its exact syntactic structure—suggests itself to be involved which I take to denote the locus of [Top] on the Wh-element. The contrast in (21) suggests that English marks special properties (i.e. [Top]) only on explicit Wh-elements, while German does so on all Wh-elements;¹⁶ we could say that German Wh-expressions have a deeper, abstract structure, namely that of partitives. A suggestion of this idea is illustrated in (22-23):

- (22) a. [DP welchen [+Wh] von [DP diesen [+Top] Professoren]]
 b. [DP wen [+Wh] [DP [+Top]]]
- (23) a. [DP which [+Wh] of [DP these [+Top] professors]]
 b. [DP who [+Wh]]

Further evidence in favour of the existence of Wh-topics in the grammar is presented by Wu (1996): a Wh-element may be fronted in Chinese under certain circumstances which are very similar to the circumstances in German (DRQ).¹⁷

- (24) a. Shei mai-le shenme?
who buy-ASP what
 ‘Who bought what?’
- b. Shenme_i shei mai-le t_i?
what who buy-ASP
 ‘*What did who buy?’

As in German, the possibility of fronting is dependent on the context:¹⁸

- (25) Situation I: *Zhangsan went to the supermarket.*
 a. Zhangsan mai-le shenme?
Zhangsan buy-ASP what
 ‘What did Zhangsan buy?’

¹⁶ Note that with this notion we can also capture dialectal variation in English: speakers who allow more freedom with D-linked or even bare Wh-elements, might adopt the “German strategy” to some degree; I thank Bruce Morén for crucial observations.

¹⁷ At least since Huang 1982 it is assumed that Wh-expressions in Chinese do not move; Wu argues that in these cases, they do not move for Wh-checking purposes. This is desirable: if the language does not make the overt displacement of Wh-elements for this purpose available, this type of fronting should not take place for this reason. This suggests that another feature needs to be involved, which as Wu argues is [Top].

¹⁸ Wu shows that a distributive interpretation of Chinese Wh-topics is not available under these circumstances. The relevant facts for our current purposes are simply that the concept of “Wh-topics” is not novel nor crazy of any sort.

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- b. # Shenme Zhangsan mai-le?
what Zhangsan buy-ASP
 ‘What did Zhangsan buy?’

- (26) Situation II: *Same as in I but he bought items from a known list.*
 Shenme Zhangsan mai-le?

With Wu we can analyse the fronted Wh-element as topicalized; note that it cannot be movement to CP, otherwise standard Wh-questions could not be explained (see fn. 17). This is exactly the proposal for German: both Wh-elements move to TopP to check off [Top], here taken to be the formal identification of DRQ; only the higher Wh-element moves further to CP to check [Wh], the Wh-feature marking the entire construction as an interrogative.

5. Some Concepts: The (Rough) Syntax of Wh-Topics

We now have an idea what Wh-topics in German Multiple Wh are: they are Wh-elements that check topichood prior to interrogativity. We also have a clue as to the whereabouts of [Top]: within a deeper, elaborate structure of partitives that on an abstract level underlies all Wh in German, [Top] marks the partitive part of the Wh-element; hence DRQ is satisfied by checking of [Top] and all DRQed Wh-elements in German (Multiple Wh) behave like partitive interrogatives. A reflex of this behaviour was witnessed for English.¹⁹

If [Top] and [Wh] are inherent to both Wh-elements, we can capture the derivation abstractly as in (27), focusing on the [Top]/[Wh]-interaction, and for some constructions shown in (28):

- (27) $[_{CP} Wh [_{TopP} t [_{TopP} Wh [_{TP} \dots]]]]$

- (28) a. $[_{CP} Wem_j hat [_{TopP} t_j [_{TopP} was_k [_{TP} der Martin[_{FP} t_j [_{FP} t_k gegeben]]]]]]]$
 b. $[_{CP} Was_j hat [_{TopP} t_j [wem_k [_{TP} der Martin [_{FP} t_j [t_k gegeben]]]]]]]$
what has to-whom the Martin given
 ‘What did Martin give to whom?’

Again, the specific content of “FP” shall not be of concern here; the relevant steps in the derivation are raising of both Wh-elements from their respective positions in the T-domain to TopP to check off the feature [Top] and ultimately satisfy DRQ. The higher one further moves to SpecCP, thus satisfying any locality conditions on movement.²⁰

¹⁹ There are more instances of the greater freedom that partitives exhibit in English. Some have been discussed by Kiss (1993), others by Grohmann (to appear, in progress).

²⁰ Note that movement of the Wh-elements out of TP is indeed equidistant, although their paths are crossing (in the sense of Richards 1997, though without assuming multiple specifiers: movement out of the T-domain into the C-domain concerns closely related projections). Crucial is the well-formedness of all movement operations assumed here.

One consequence of this approach is that non-interrogative subjects in between two Wh-topics must also be topicalized:²¹

- (29) [_{CP} Wer_i hat [_{TopP} t_i [_{TopP} was_j [_{TP} t_i [_{FP} t_j gekauft]]]]]]
 ‘Who bought what?’
- (30) [_{CP} Was_j hat [_{TopP} t_j [_{TopP} Martin_i [_{TopP} wem_k [_{TP} t_i [_{FP} t_j [_{FP} t_k gegeben]]]]]]]]]?
 ‘What did Martin give to whom?’

This, of course, is not such an unreasonable assumption, given the well-known natural topicality of the subject in languages such as German which usually carries discourse-old information. Further support for this will be presented in the next section and can also be found in Grohmann, to appear.

In sum, the approach argued for here accounts for apparent Superiority violations by obligatory topicalization of both Wh-elements where all movement operations conform locally to distance restrictions on movement. A more articulated structure of the C-domain à la Rizzi (1997) is needed anyway and the data presented so far support this view further (see Grohmann, in progress for a deeper discussion). Additional evidence will be provided in the next section.

6. Some Consequences: Quantifiers and Multiple Wh

I will now present some consequences of the DRQ-driven topicalization-approach to Multiple Wh in German laid out above which, at the same time, provides additional evidence in favour of it.

Beck (1996) discusses the following puzzle:²² subject quantifiers are ungrammatical in between two Wh-elements:

- (31) a. * Was hat niemand wann gekauft?
 what has nobody when bought
 ‘What did nobody buy when?’

²¹ As must any material in between the two Wh-elements. I will not discuss these instances of multiple topicalization further; it suffices to mention the possibility of “massive pied-piping” made available by many languages. (For instance, Etxepare (1998) discusses some interesting facts in Basque, Vallduví (1995) in Catalan and Grohmann (1998, in progress) lays out the specifics for the present issues in more detail.)

²² Beck’s data comprise of more than the bits presented here, some of which relevant to the present discussion, others not. I will only look at an alternative treatment of the cases shown here to keep the discussion in a manageable size.

The same reason also prohibits me from any discussion of Beck’s analysis, other than briefly mentioned in the text. It shall be noted that she does not adopt the minimalist analysis employed here which thus motivates the following discussion independently (which, of course, should only be taken to mean that it offers a further topic for study within minimalism and not concerning qualitative differences regarding pre-minimalism).

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- b. * Wem hat niemand was gegeben?
to-whom has nobody what given
'Who did nobody give what to?'

They are perfectly acceptable, however, following the two Wh:

- (32) a. Was hat wann niemand gekauft?
b. Wem hat was niemand gegeben?

The paradigm from (31) and (32) stands in sharp contrast to (33):

- (33) a. Was hat Martin wann gekauft?
b. Wem hat Martin was gegeben?

Thus, while a quantified subject in between the two Wh-elements leads to ungrammaticality, the presence of a non-quantified subject (such as a proper name) does not. Note that the co-occurrence of Wh-elements and quantifiers is not ungrammatical per se, as illustrated in (32).

The DRQ-approach pursued here analyses all Wh-elements in (31-33) to be Wh-topics; it follows that the quantified subject in (31) sits in TopP as well (as does the proper name in (33)), while it plausibly occupies SpecTP in (32). We might then want to argue that (31) is ruled out because quantifiers cannot be topicalized.

We know that quantifiers such as *niemand* or *nobody* make bad topics, as illustrated by the ungrammaticality of the following constructions, where the quantifier is topicalized (with or without co-reference with a resumptive pronoun, as in left-dislocated constructions):²³

- (34) a. * Nobody, Martin kissed (him/her)
b. * No girl, Martin kissed (her)
c. * Few girls, Martin kissed (them)
d. * Barely any girl, Martin kissed (her)
- (35) a. * Niemanden (den) hat Martin geküßt
b. * Kein Mädchen (das) hat Martin geküßt
c. * Wenige Mädchen (die) hat Martin geküßt
d. * Kaum ein Mädchen (das) hat Martin geküßt

²³ In German topic constructions, the grammaticality of these quantifiers may be subject to dialectal variation again; it could also be the case, however, that in order to be grammatical, the quantifiers in (35) have to be specially stressed. Relevant here is certainly some sort of referentiality that the quantifiers may bear.

A first stab at this phenomenon is thus that non-topicalizable elements may not intervene in between the two Wh-elements, which in turn supports the assumption that both Wh-elements have moved to TopP at some point.²⁴

On the other hand, constructions like (31) are grammatical when a different type of quantifier is used:

- (36) a. Was haben die meisten Mädchen wann gekauft?
what have the most girls when bought
'What did most girls buy when?'
- b. Wem haben die meisten Mädchen was gegeben?
to-whom have the most girls what give
'To whom did most girls give what?'

Other quantifiers make good topics; they can be freely topicalized:²⁵

- (37) a. All girls, Martin kissed (them)
b. Each girl, Martin kissed (her)
c. Many girls, Martin kissed (them)
d. Most girls, Martin kissed (them)
- (38) a. Alle Mädchen (die) hat Martin geküßt
b. Jedes Mädchen (das) hat Martin geküßt
c. Viele Mädchen (die) hat Martin geküßt
d. Die meisten Mädchen (die) hat Martin geküßt

The initial hypothesis regarding quantifier-interaction must thus be slightly revised: those quantifiers that cannot be topicalized cannot appear in between two Wh-elements in German Multiple Wh, while those that can be topicalized are fine in that configuration.

²⁴ Beck's approach makes use of the fact that negative islands often create "barriers" for movement and she argues in favour of a barriers-based prohibition on intervention in these cases. Apart from lack of theoretical appeal (especially in a minimalist framework that dispenses with barriers), further stipulations that she needs to make the analysis work are not needed here (e.g., not all prohibited intervening material is negative); the facts follow straightforwardly from the already supported assumptions.

Also, the negation-based account that extends to simple negation such as *nicht* 'not' runs into difficulties in passive-constructions even without two Wh-elements; further discussion would drift off too far (see Grohmann, in progress).

²⁵ The referents of the quantifiers must have been introduced in the discourse, i.e. they have to be known to some degree; only if they are referential are resumptive pronouns acceptable, picking out a specific group of referents (from a possibly larger one). Thus, in the current example the reference of *girls* is restricted to a specific group that speaker and hearer have in mind of which the quantifier picks out the relevant set.

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The difference between both sets (in German as well as English, very likely cross-linguistically; see also Cinque 1990, Grohmann and Etxepare 1998, Uriagereka 1995) that I would like to suggest tentatively is that increasing quantifiers are topicalizable and hence expected to appear in between two Wh-elements, while decreasing quantifiers are not and their intervention leads to ungrammaticality.

Beck also discusses other types of Wh-quantifier interaction which mirror the above observation. On the one hand, the availability of a non-interrogative quantified subject inside a split partitive Wh serves as corroborative evidence in favour of the abstract partitive structure of Wh-elements in German Multiple Wh proposed here, as the same pattern emerges.

Consider (39-40), where the split partitive Wh-phrase is italicized and the quantifier is marked boldface:

- (39) a. * *Wen hat **kein Student** von den Professoren gemocht?*
whom has no student of the professors liked
'Which of the professors did no student like?'
b. *Wen hat von den Professoren **kein Student** gemocht?*
c. *Wen von den Professoren hat **kein Student** gemocht?*
- (40) a. *Wen hat **Martin** von den Professoren gemocht?*
b. *Wen hat **jeder Student** von den Professoren gemocht?*
c. *Wen (hat) von den Professoren (hat) **jeder Student** gemocht?*

As in the Multiple Wh-constructions from above, decreasing quantifiers in between the split partitive Wh-phrase are ungrammatical (39a), as opposed to increasing quantifiers (40b) or non-quantified subjects (40a); their presence is fine when they follow the partitive Wh-phrase which may be split (39b) or not (39c). Increasing quantifiers (or non-quantified subjects) may also appear after the partitive Wh of either type, of course (40c).

Lastly, the same pattern emerges in non-partitive Wh-phrases that are nevertheless complex and may be split.²⁶

²⁶ There are a number of complex Wh-phrases in German that may be split (all taken from Pafel 1996:145-146): *was für*-phrases (*Was haben damals für Leute protestiert?* 'What kind of people protested back then?'), *w- alles*-phrases (*Wer hat den Minister alles zum Rücktritt gezwungen?* 'Who all forced the minister to resign?'), partitive Wh-phrases (*Wieviele haben sich von Euch gemeldet?* 'How many of you answered?'), *w- an*-phrases (*Was hat jeder an Aufgaben gelöst?* 'How many problems did everyone solve?') and *w- adjective*-phrases (*Was ist Neues passiert?* 'What's new?'). For an overview of extraction out of NPs in German, see Pafel 1996 and references cited there.

With respect to the present issues, all those extractable Wh-phrases follow the pattern described here, i.e. only topicalizable material may intervene.

- (41) a. * *Was hat niemand für Kurse besucht?*
what has nobody for courses visited
'What kind of lectures did nobody go to?'
b. *Was für Kurse hat niemand besucht?*
- (42) a. *Was hat jeder für Kurse besucht?*
b. *Was für Kurse hat jeder besucht?*

The analysis for the constructions presented in this section follows immediately. Both Wh-elements move to TopP ([Top] for DRQ) before the higher one moves on to CP ([Wh] for interrogativity); intervening material has also moved to TopP. Decreasing quantifiers cannot be topicalized and are thus ungrammatical in between two Wh-elements but not following them; they stand in contrast to increasing quantifiers which can be topicalized and occur here.

The Wh-element in German may be split from the rest of the Wh-phrase in partitive interrogatives.²⁷ If the partitive part is indeed the locus of [Top] as argued here, it is not unreasonable to assume the partitive part to have moved to TopP and the interrogative part to CP. In this case, intervening material has also to occupy topic positions. The same dichotomy regarding quantified subjects can be observed in these cases: increasing quantifiers may appear between the Wh-element and its referring partitive, decreasing ones may not. The last case considered here concerns a similar splitting option for non-partitives, where the same pattern emerges yet again.

These instances not only support the general approach taken here under which they receive a straightforward explanation; they also offer further evidence in favour of the part of the analysis that concerns the locus of the topic-feature [Top]: with the cases of Wh-partitive/quantifier-interaction in mind, we can account for the possible intervening quantifier if the partitive has moved to TopP to check its referentiality, here taken to be [Top].

In sum, the referential properties of Wh-elements in German Multiple Wh warrant for a syntactic treatment that takes discourse restrictions into account. A more detailed structure of the C-domain easily accommodates these. I have argued that both Wh-elements topicalize in the overt syntax, i.e. move to TopP, sandwiched between the Wh-bearing CP (or FocP) and the T-domain (TP). Only the higher of the two moves then on to check its Wh-feature overtly. Further evidence in favour of this approach comes from extraction facts presented in Grohmann, to appear.

²⁷ It is irrelevant for present purposes whether this split is the result of "extraction" (in the technical sense) or not. Notice that an extraction-approach might run into difficulties in these cases: it looks very much like extraction out of a left branch, independently undesirable, following Ross' (1967) "Left Branch Condition" and also more recent treatments by Corver (1990), Uriagereka (1998) and many others. A possible solution is to split these very early on. I leave the details open for the future.

7. Conclusion

In this paper, I have argued for a strict discourse condition that underlies all Multiple Wh-constructions in German. I identified this condition as DRQ: in order to ask a question with two Wh-elements, (loose) reference to both Wh-elements must have been made in the discourse.

On a theoretical level, I suggested to implement DRQ syntactically through topicalization: both Wh-elements move overtly to TopP in the course of the derivation, an operation that satisfies locality conditions on movement. At TopP each Wh-element checks the topic-feature [Top], independently argued to be the syntactic property of DRQ. After this Wh-topicalization—for which we find evidence from other languages—DRQ is satisfied; only the higher of the two Wh-elements moves then on to CP to check the Wh-feature. One immediate consequence is that intervening material also topicalizes obligatorily; of particular interest are subjects.

One major empirical advantage of this approach I have looked at here concerns the presence of (quantified) subjects in between two Wh-elements; this approach captures these cases based on the well-known observation that increasing quantifiers—which happen to appear freely in between two Wh-elements—can be topicalized, while decreasing ones—those that may not intervene—cannot. Referentiality, a property of increasing quantifiers but not of decreasing ones, not only plays a crucial role but also motivates TopP as the landing site of the syntactic operations involved.

What is left open for future research is the cross-linguistic validity of DRQ. Preliminary considerations of English dialects and some languages seems to support the general line of reasoning; the details will have to be refined, however.

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