

# Why must *wh*-quantifiers in German strand with complex *wh*-phrases?

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## 1 Introduction

- The German particle *alles* ('all') associates with *wh*-phrases to add a pluralizing and exhaustifying interpretation (e.g. Reis, 1992).
- *Alles* is found both right-adjacent to its 'associate' or at a distance.
- '{alles}' indicates mutually exclusive options.

- (1) Q: [CP [**Wen** {alles}]<sub>1</sub> [C' hast du t<sub>1</sub> {alles} angerufen]] ?  
          who.ACC ALL           have.2SG you.NOM   ALL   called

Q: 'Who all did you call?'

(adapted from Doliana, 2020)

- (2) A: Die Regina, die Vroni, den Seppi, und den Robert.  
A':#Die Regina.

### Claim:

- (3) *Complexity Restriction on adjacent alles (CR):*  
*Alles* cannot be right-adjacent to its associate if the associate's nominal is complex.

→ CR is syntactic, and rests on a head/phrase distinction

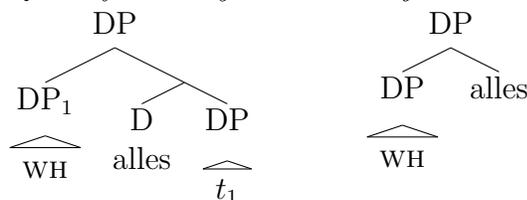
→ CR has important **consequences** for **stranding analyses** of *alles* (Doliana, 2020; Giusti, 1991; Pafel, 1991; Reis, 1992; *pace* Heck and Himmelreich, 2017)

### STRUCTURE OF THE TALK:

§2. Complexity Restriction

§3. Consequences: Stranding analyses excluded by CR

- (4) a. *Quantifier analysis:*    b. *Adjunction analysis:*



§4. A reformulation of CR, and a technical implementation

- (5) *Reformulation of CR:*  
Only pronominal *wh*-associates can “save” adjacent *alles*.

§5. Open issues

## 2 Complexity restriction

- (6) *Complexity Restriction on adjacent alles (CR):*  
*Alles* cannot be right-adjacent to its associate if the associate’s nominal is complex.

### 2.1 What is “complex”?

- Relevant facts first pointed out by Giusti (1991) for certain PPs, and Reis (1992) for *wh*-associates formed by *welch*- ‘which/what’ or possessor *wessen* ‘whose’.
- No adjacent *alles* with these *wh*-associates

WELCH- ‘WHICH/WHAT’:<sup>1</sup>

- (7) Q: [CP [**Welche Freunde**]<sub>1</sub> [C’ hast du t<sub>1</sub> **alles** angerufen]] ?  
what.ACC friends have.2SG you.NOM ALL called  
Q: ‘What friends all did you call?’
- (8) A: Die vom Fussball, die vom Judo, und die vom Ballet  
‘The ones from soccer, the ones from judo, and the ones from ballet’  
A’:#Die vom Fussball.  
‘The ones from soccer’
- (9) [CP [**Welche Freunde \*alles**]<sub>1</sub> [C’ hast du t<sub>1</sub> angerufen]] ?  
what.ACC friends ALL have.2SG you.NOM called  
‘What friends all did you call?’

POSSESSORS:

- (10) Q: [**Wessen Freunden** {**\*alles**}] würdet ihr t {**alles**} beim Umzug helfen?  
whose friends.DAT ALL would you ALL by.the move help  
‘The friends of who all would you guys help move?’
- (11) Q: [**Wem seine Freunde** {**\*alles**}] soll ich t {**alles**} einladen?  
who.DAT his.ACC.PL friends ALL shall I.NOM ALL invite  
‘The friends of who all shall I invite?’
- (12) A: Der Mina ihre, dem Rodrigo seine, und die von der Anouk.  
‘Mina’s, Rodrigo’s, and Anouk’s.’  
A’:#Der Mina ihre.

<sup>1</sup>Note that not all speakers I have consulted accept *welch*-associates out of the blue, but they do once a context supporting a kind-reading is clear, for instance by using an adequate head-noun, such as *Kuchen* ‘cakes’ (there must be a strong bias to interpret *welch*- phrases as denoting a predefined set of individuals; that goes against the semantics of *alles* which Reis (1992) argues restricts *alles* to “indefinite” operators).

*Wh*-PRONOUNS IS THE SPECIAL CASE

→ *Alles* can be right-adjacent to a *wh*-pronoun (13) inside a complex associate

- (13) [**Wem** **alles** *seine Freunde*] soll ich *t* einladen?  
 who.DAT ALL his.ACC.PL friends shall I.NOM invite

## 2.2 CR is about the nominal in the associate

PP-LAYER IGNORED BY CR:

- (14) [**In was** {**alles**}] muss man den *t* {**alles**} eintunken?  
 in what.ACC ALL must one.NOM that.ACC.M.SG ALL dip.in  
 ‘In what (sauces) all does one need to dip that in?’
- (15) [**In welche Saucen** {**\*alles**}] muss man den *t* {**alles**}  
 in which.ACC.PL sauces ALL must one.NOM that.ACC.M.SG ALL  
 eintunken?  
 dip.in

## 2.3 CR is syntactic: constituency

FRONTED:

- *Independent generalization*: Material to the left of inflected verb in verb-second clauses in German (“pre-field”) is one single constituent
- One and the same string is bad in pre-field (constituent, (16a)), but OK in verb-final clause because compatible with stranding (not a constituent, (16b))

- (16) a. \*[**Welchen (Freunden) alles**]<sub>1</sub> würde der Peter *t*<sub>1</sub> helfen?  
 which.DAT.PL friends ALL would the.NOM Peter help  
 ‘What friends all would Peter help?’
- b. [**Welchen (Freunden)**]<sub>1</sub> [*t*<sub>1</sub> **alles**]<sub>2</sub> der PEter *t*<sub>2</sub> helfen würde, bleibt  
 which.DAT.PL friends ALL the.NOM Peter help would remains  
 unklar.  
 unclear  
 ‘What friends all Peter would help, remains unclear.’

IN SITU:

- *Independent generalization*: Only one *wh*-phrase fronts in German multiple-*wh* questions. The other *wh*-phrase stays in situ, without stranding
- Complexity of associate modulates acceptability when [WH+*alles*] is plausibly in-situ.

- (17) a. [Wer alles] hat gestern dem Spiegel [**was alles**] gezeigt?!  
 who.NOM ALL have.3SG yesterday the Spiegel.DAT who.ACC ALL shown  
 ‘Who all showed what all to the Spiegel yesterday?’
- b. [Wer alles] hat gestern dem Spiegel [**welche geheimen Dokumente**  
 who.NOM ALL has yesterday the Spiegel.DAT which.ACC secret documents  
 (**\*alles**)] gezeigt?!  
 ALL shown  
 ‘Who all showed what secret documents all to the Spiegel yesterday?’

- Adjacent *alles* cannot surface in one constituent with a non-pronominal *wh*-associate
- The domain of application of CR is the constituent containing the associate and *alles*

## 2.4 CR is syntactic: no repair by ellipsis

- Merger with a *wh*-phrase and subsequent adjacency to a *wh*-morpheme is also not sufficient to license adjacent *alles*

- (18) a. Die Susi sollte einige Athleten interviewen.  
 the.NOM Susi should.PST several athletes interview  
 ‘Susi was supposed to interview a number of athletes.’
- b. Ich weiß aber nicht, *welche* (*Athleten*) (*\*alles*) (genau).  
 I know but not which.ACC.PL athletes ALL exactly  
 ‘but I don’t know what (athletes) (\*all) (exactly).’

- Importantly, CR cannot be purely prosodic

## 2.5 Summary

- *Alles* can surface constituent-finally to a pronominal *wh*-associate.
- *Alles* cannot surface constituent-finally to a non-pronominal *wh*-associate.
- ☞ The effect is modulated by **syntactic** properties.

## 3 Consequences for a stranding analysis of *alles*

- (1) [<sub>CP</sub> [**Wen** {**alles**}]<sub>1</sub> [<sub>C'</sub> hast du *t*<sub>1</sub> {**alles**} angerufen]] ?  
 who.ACC ALL have.2SG you.NOM ALL called  
 ‘Who all did you call?’ (adapted from Doliana, 2020)

**Stranding analysis:** (Doliana, 2020; Giusti, 1991; Pafel, 1991; Reis, 1992; Zimmermann, 2007; *pace* Heck and Himmelreich, 2017)

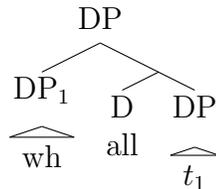
- Adjacent *alles* and distal *alles* are the same Lexical Item
- *Alles* and its associate form a First-Merge constituent (‘source’)
- Distal *alles* is derived by **stranding** it from its associate via **movement**.

- (19) *Stranding cartoon:*  
 [<sub>CP</sub> WH [<sub>C'</sub> ... [<sub>SOURCE</sub> WH *alles*] ... ]]

### 3.1 Quantifier analysis of stranding

- McCloskey (2000) gives the following analysis of *wh*-quantifier float in West Ulster English
- The stranded quantificational expression is analyzed as a quantifier
- The associate is the quantifier’s complement
- ‘Stranding’ is sub-extraction, escaping through Spec,Q/D

(20) *Quantifier analysis of stranding (QA):*



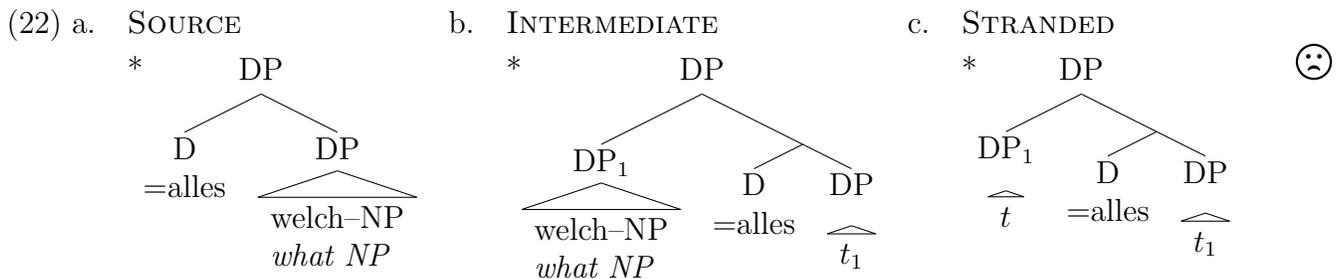
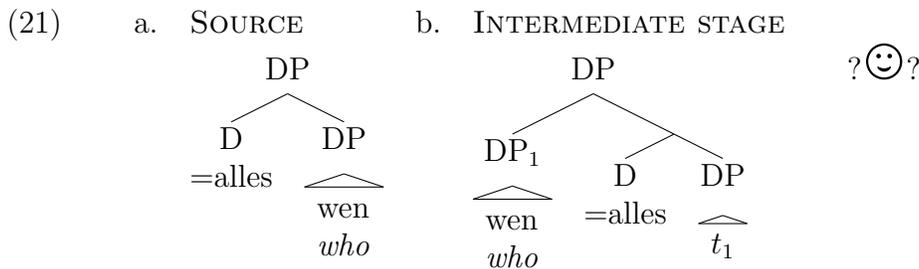
- Long tradition of QA, at least, e.g., Postal (1974); Shlonsky (1991); Merchant (1996)

GENERALLY:

- CR cannot be a First-Merge condition
- It would undergenerate by excluding all complex associates

CR 1: *Alles* MUST ENCLITICIZE TO A *wh*-PRONOUN

- *Alles* cannot bear stress
  - Reis (1992) characterizes *alles* as a “*wh*-clitic”
  - Cliticization is known to depend on a head/phrase distinction
- CR might be the result of a requirement on *alles* to encliticize to a *wh*-head



**Problem:**

- A requirement on *alles* to cliticize to a *wh*-head seems like a natural explanation, but

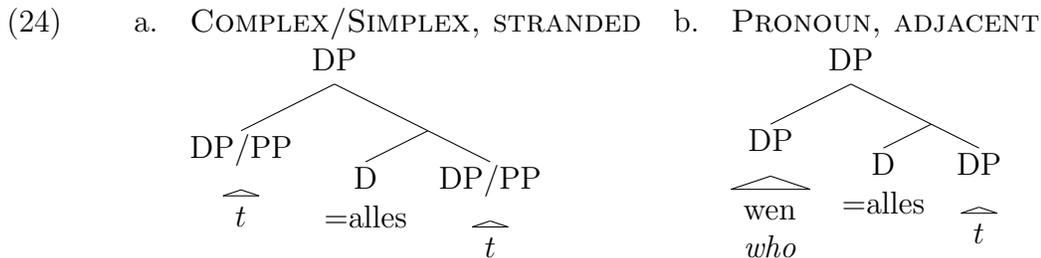
→ How can the requirement be satisfied *after* stranding?

CR 2: ALTERNATIVE CLITIC STORY

- Distribution of *alles* given CR is:

(23) *Disjunctive distribution of alles:*  
*Alles* is right-adjacent to (a) a *wh*-pronoun **or** (b) a *wh*-trace.

- IF *wh*-traces have the same status of *wh*-pronouns, the derivation can converge *after* stranding

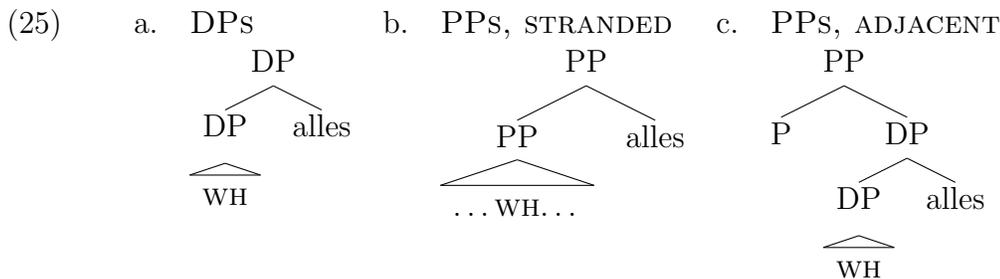


Challenges:

- Requires traces, and a reason why they have the status of *wh*-pronouns, OR
- Requires a principled mechanism for converting *wh*-copies to *wh*-words, that applies before CR applies

3.2 Adjunction analysis of stranding

- Giusti (1991); Reis (1992) for *alles*; Pafel (1996) for *was für* construction



→ Runs into the same problems

3.3 Filter: a restatement of the facts

- A good description of CR might be (26)

(26) *CR: restated geometrically:*  
 The sister of *alles* cannot be branching, at level ?? of representation.

→ If there are traces and CR applies at S-Structure/Spell-Out, or if an adequate level of representation can be found to deal with branching copies, (26) might be a good *description*, but still lacking an *explanation*.

## 4 A possible solution

### 4.1 Proposal

→ The way out is to flip CR on its head:

- (27) *Alternative formulation of CR:*  
Only pronominal *wh*-associates can “save” adjacent *alles*.

INGREDIENTS:

1. Associate–*alles* sources are inherently deficient in some way
2. Pronominal associates save the structure

ADVANTAGE:

→ Overcomes the problem of finding what aspect of complex associates causes the problem

TECHNICAL IMPLEMENTATION:

1. **Inherent deficiency:** *Local instability* of Symmetrically Merged structures (Ott, 2012)
2. **Repair by *wh*-pronoun:** *Wh*-pronouns can behave like heads or phrases (e.g. Donati, 2006)

### 4.2 Local instability

Ott (2011=2012) argues for a model of syntax where

- Merge is the structure building operation
- Merge is free
- A labeling algorithm determines at each spell-out point whether the structure can be labeled; structures must be labeled to satisfy interface conditions

CONSEQUENCE:

- Merge can apply to two XPs
- Ott argues that this is true of a number of discontinuous-constituent constructions in German, including inflecting DP-quantifier float (e.g., *die Leute... all-e* ‘the people.NOM... all-NOM.PL’)

$$(28) \quad \{DP, QP\} \qquad \qquad \qquad \text{(Ott, 2012: 154)}$$

LABELING:

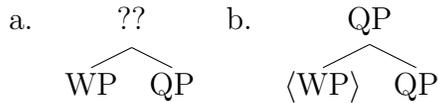
A structure can be labeled iff: (Ott, 2011: 64)

- (29) *Labeling by Minimal Search:*  
For any syntactic object  $K = \{\alpha, \beta\}$ ,  $\alpha$  is the label if  $\alpha$  is a [Lexical Item] and  $\beta$  is an XP.

- CONSEQUENCE: An XP–YP structure cannot be labeled

- SOLUTION 1: *symmetry breaking movement* of XP or YP (*à la* Moro/Chomsky)

(30) *Labeling made possible by movement of phrasal wh:*



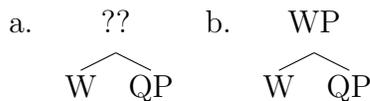
→ Captures all stranding derivations

→ But, so far stranding is obligatory

→ SOLUTION 2: Labeling by returning to an X-YP configuration

- *Wh*-pronouns are Lexical Items (LIs)
- When DP is a *wh*-pronoun, the label can be resolved to the LI's label, a *wh*-phrase/DP
- For example, as argued by Donati (2006), *wh*-pronouns can behave like heads or like phrases

(31) *Labeling made possible by pronominal WH being **able to be** an LI:*



- Nothing forces *wh*-pronoun to act as a head, however, so that *alles* can be (obligatorily) stranded if the *wh*-pronoun is a phrase in the particular derivation, as in (30)

### 4.3 Derivations

EXPLANANDA:

(32) *Complexity typology:*

	SOURCE: DP	PP
[WH-PRONOUN <i>alles</i> ]	OK	OK
[COMPLEX WH <i>alles</i> ]	*	*

(33) *Typology of derivations:*

		DP	PP
simplex	stranded	<WP>-QP: movement	<PP>-QP: movement
	pied-piped	W-QP: "projection"	[P[W-QP]]: "projection"
complex	stranded	<[W-NP]>-QP: movement	<PP>-QP: movement
	pied-piped	*: impossible	*: impossible

- Note: It must be possible for PP and QP to be merged as the source; should be an innocuous assumption in a Free Merge system

## 5 Open issues

### 5.1 Intermediate stranding

- *Alles* can be stranded in intermediate positions, e.g. successive-cyclically (Doliana, 2020)

(34) [<sub>CP1</sub> **Wem**<sub>1</sub> hat der Peter *t'* **alles** gemeint, [<sub>CP2</sub> dass die Maria *t*<sub>1</sub> geholfen hat]]?  
 who.DAT has the Peter ALL reckoned that the Maria helped has  
 ‘Who all did Peter say/think that Mary helped?’

- It must be possible to defer the labeling of the source until *alles* is stranded in an intermediate landing site

### 5.2 *What-for*-construction

- Splittable *wh*-construction with partitive interpretation
- (see e.g. Corver, 1991; Pafel, 1996; Abels, 2003; Leu, 2008)

(35) **Was** hat er damals bei dir **für Leute** treffen wollen?  
 what has he.NOM then by you for people meet want  
 ‘What sorts of people did he want to meet at your place back then?’

- *Alles* appears to be available constituent-finally

(36) ?[**Was für Leute alles**] hat er damals bei dir treffen wollen?  
 what for people ALL has he.NOM then by you meet want  
 ‘What all sorts of people did he want to meet at your place back then?’ (cf. Reis, 1992)

- Constituent-final *alles* in the *was für* construction is problematic (on any account, it seems)
- There is some initial evidence that these sentence are not as good as they appear at first blush (e.g., contrast with *alles* adjacent to *wh*-pronoun, (37); contrast between *alles* to the right or the left of *was für* in situ, (38)). More research is necessary; the contrast with “complex” *wh*-associates remains

(37) [**Was alles** für Leute] hat er damals bei dir treffen wollen?  
 what ALL for people has he.NOM then by you meet want  
 ‘What all sorts of people did he want to meet at your place back then?’

(38) **Was** hat er damals bei dir {**alles**} **für Leute** {**??alles**} treffen wollen?  
 what has he.NOM then by you ALL for people ALL meet want  
 ‘What sorts of people did he want to meet at your place back then?’

### 5.3 An A/ $\bar{A}$ -asymmetry in the distribution of distal *alles*

- Doliana (2020, under review) argues that *alles* can only be stranded via  $\bar{A}$ -movement
- For example, *alles* is dispreferred to the right of pronouns that are A-bound by the associate than to their left

WEAK CROSSOVER CONFIGURATION:

(39) *Intended*: ‘Who are all the individuals  $x$ , such that  $x$ ’s teacher hit  $x$ ?’

- a. **Wen<sub>i</sub>** hat **alles** sein<sub>i</sub> Lehrer geschlagen?  
 who has ALL his teacher hit
- b. ?? **Wen<sub>i</sub>** hat sein<sub>i</sub> Lehrer **alles** geschlagen?  
 who has his teacher ALL hit

- I cannot think of a natural way for the Local Instability approach to CR to capture the A/ $\bar{A}$ -asymmetry
- Movement *per se* can fix the labeling issues, so why would A-movement be blocked just here and not with inflecting DP-quantifier float?
- *N.B.*: *alles* can be stranded in intermediate clause of long-distance *wh*-movement (see above), but inflecting *all-*, for which Ott (2012) gives the same analysis, cannot (cf. Bobaljik, 2003). A paradox if the difference cannot be explained independently of the stranding mechanism.

## 6 Conclusion

I have argued that

1. There is a Complexity Restriction (CR) on the quantifying particle *alles*, which prevents it from appearing constituent-finally when the associate *wh*-phrase is not a *wh*-pronoun.
2. CR is syntactic, and rests on a head/phrase distinction.
3. **If** *alles* and its associate are in a stranding dependency, CR gives us a window into the mechanics of stranding by giving us a window into the structure of the source constituent that contains [associate + stranded particle]
4. CR places serious restrictions on the space of analyses of *alles*-stranding, plausibly eliminating two well-established alternatives: the Quantifier Analysis, and the Adjunction Analysis.
5. CR can be accounted for if the source constituent is inherently unstable, and *wh*-pronouns can rescue the structure.

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## A CR with Different Source theories

- “Different Source theories” are analyses where adjacent *alles* and distal *alles* are separate Lexical Items
- Heck and Himmelreich (2017): distal *alles* is an adverbial that is merged in the lowest specifier of *vP*, and that must be licensed by an appropriate associate via Agree
- ➔ Now, adjacent *alles* can be handled differently. The strength of the cliticization requirement on *alles* is should not be an issue anymore, like it was for the Quantifier or Adjunction Analyses of stranding. “Adjacent *alles* must cliticize to a *wh*-pronoun”, however formalized, will do the trick.
- ➔ **Issues:** Having separate lexical items raises a number of conceptual and empirical problems. For example,
  1. the two *alles* make the same meaning contribution, and
  2. it is not possible to have one adjacent *and* one distal *alles* for the same chain.
  3. See also Doliana (2020) for some arguments against an adverbial analysis based on the distribution of distal *alles* alone.