Why must \textit{wh}-quantifiers in German strand with complex \textit{wh}-phrases?

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1 Introduction

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

\begin{enumerate}
  \item Q: \textit{[CP [\textit{Wen} \{alles\}]}_1 \textit{[c’ hast du t}_1 \{alles\} \textit{angerufen}] ?}
  \textit{who.ACC all have.2SG you.NOM all called}
  Q: ‘Who all did you call?’
  \item A: \textit{Die Regina, die Vroni, den Seppi, und den Robert.}
  \item \textit{A’::#Die Regina.}
\end{enumerate}

\textbf{Claim:}

\begin{enumerate}
  \item \textit{Complexity Restriction on adjacent alles (CR):}
    \textit{Alles} cannot be right-adjacent to its associate if the associate’s nominal is complex.
  \item CR is syntactic, and rests on a head/phrase distinction
  \item CR has important consequences for stranding analyses of \textit{alles} (Doliana, 2020; Giusti, 1991; Pafel, 1991; Reis, 1992; pace Heck and Himmelreich, 2017)
\end{enumerate}

\textbf{Structure of the talk:}

\textbf{§2. Complexity Restriction}

\textbf{§3. Consequences: Stranding analyses excluded by CR}

\begin{enumerate}
  \item \textit{Quantifier analysis:}  \textit{Adjunction analysis:}
  \begin{equation}
  \begin{array}{c}
  \text{DP} \\
  \text{DP}_1 \\
  \text{WH} \quad \textit{alles} \\
  \text{DP}
  \end{array}
  \quad \quad \quad
  \begin{array}{c}
  \text{DP} \\
  \text{WH} \quad \textit{alles} \\
  \text{DP}
  \end{array}
  \end{enumerate}
A complexity restriction in German wh-QF

§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’

(7) Q: [CP [Welche Freunde]1 [C] hast du t1 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]1 [C] hast du t1 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.

1Note 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)  
\[ \boxed{\text{Wem alles seine Freunde}} ]\text{ soll ich t einladen?} \]  
\text{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)  
\[ \boxed{\text{In was \{alles\}}} ]\text{ muss man den t \{alles\} eintunken?} \]  
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)  
\[ \boxed{\text{In welche Saucen \{*alles\}}} ]\text{ muss man den t \{alles\}} \]  
in which.acc.pl sauces all must one.nom that.acc.m.sg all 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. *\[ \text{Welchen (Freunden) alles} \]_1 \text{ würde der Peter t1 helfen?} \]  
\text{which.dat.pl friends all would the.nom Peter t1 help}  
‘What friends all would Peter help?’

b.  
\[ \boxed{\text{Welchen (Freunden)}]}_1 \left[ t_1 \text{ alles} \right]_2 \text{ der PEter t2 helfen würde, bleibt unklar.}\]  
\text{which.dat.pl friends all the.nom Peter help would remains 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. *\[ \text{Wer alles} \] \text{ hat gestern dem Spiegel \{was alles\} gezeigt?!} \]  
\text{who.nom all have.3sg yesterday the.spiegel.dat who.acc all shown}  
‘Who all showed what to the Spiegel yesterday?’

b.  
\[ \boxed{\text{Welche geheimen Dokumente \{*alles\}}} ] \text{ gezeigt?!} \]  
\text{which.acc secret documents 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) \[ [\text{CP} [\text{Wen} \{alles\}]_1 [\text{C} \text{'} \text{ hast du t}_1 \{alles\} \text{ angerufen}]]? \]
\[ \text{who.ACC ALL have.2SG you.NOM ALL called} \]
‘Who all did you call?’ (adapted from Doliana 2020)

Stranding analysis:

(19) *Stranding cartoon*:
\[ [\text{CP WH [C} \text{'} \ldots [\text{SOURCE WH} \text{ alles} \ldots]]] \]

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.
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

\[(20) \text{ Quantifier analysis of stranding (QA):} \]

\[
\begin{array}{c}
\text{DP} \\
\text{DP}_1 \\
\text{wh} \quad \text{all} \\
\end{array}
\]

- 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
  
  \[\Rightarrow\text{ CR might be the result of a requirement on *alles* to encliticize to a *wh*-head}\]

\[(21) \text{ a. Source b. Intermediate stage} \]

\[
\begin{array}{c}
\text{DP} \\
\text{D} \quad \text{DP}_1 \\
\text{wen} \quad \text{who} \\
\text{=alles} \\
\end{array}
\]

\[(22) \text{ a. Source b. Intermediate c. Stranded} \]

\[
\begin{array}{c}
\text{DP} \\
\text{D} \quad \text{DP}_1 \\
\text{welch-NP} \quad \text{what NP} \\
\text{=alles} \\
\end{array}
\]

Problem:

  \[\Rightarrow\text{ A requirement on *alles* to cliticize to a *wh*-head seems like a natural explanation, but}\]
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

(24) a. **Complex/Simplex, stranded** b. **Pronoun, adjacent**

![Diagram](image)

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

(25) a. **DPs** b. **PPs, stranded** c. **PPs, adjacent**

![Diagram](image)

- 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 find 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’*

\((28)\) \{DP, QP\}

\[[Ott, 2012: 154]\]

**Labeling:**

A structure can be labeled iff:

\[(29)\] *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:*

- a. ??
- b. QP

\[
\begin{align*}
\text{WP} & \quad \text{QP} \\
\text{\langle WP\rangle} & \quad \text{QP}
\end{align*}
\]

→ 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:*

- a. ??
- b. WP

\[
\begin{align*}
\text{W} & \quad \text{QP} \\
\text{W} & \quad \text{QP}
\end{align*}
\]

- 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:*

<table>
<thead>
<tr>
<th>Source</th>
<th>DP</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>[wh-pronoun <em>alles</em>]</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>[complex wh <em>alles</em>]</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

(33) *Typology of derivations:*

<table>
<thead>
<tr>
<th>DP</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>simplex stranded</td>
<td>⟨wp⟩-QP: movement</td>
</tr>
<tr>
<td>pied-piped</td>
<td>W-QP: “projection”</td>
</tr>
<tr>
<td>complex stranded</td>
<td>⟨[w-np]⟩-QP: movement</td>
</tr>
<tr>
<td>pied-piped</td>
<td>*: impossible</td>
</tr>
<tr>
<td></td>
<td>⟨pp⟩-QP: movement</td>
</tr>
<tr>
<td></td>
<td>*[P[w-QP]]: “projection”</td>
</tr>
</tbody>
</table>

- 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 \cite{Doliana2020}.

\[(34) \quad [_{\text{CP1}} \text{Wem}_1 \text{ hat der Peter } t' \text{ alles } \text{g gemeint, } [_{\text{CP2}} \text{ dass die Maria } t_1 \text{ geholfen hat}]? \]

\[\text{who.DAT has the Peter } \text{ALL } \text{reckoned that the Maria } \text{helped has} \]

\[\text{‘Who all did Peter say/think that Mary helped?’} \]

\[\rightarrow \text{It must be possible to defer the labeling of the source until } \text{alles} \text{ is stranded in an intermediate landing site} \]

5.2 What-for-construction

- Splittable *wh*-construction with partitive interpretation

- (see e.g. \cite{Corver1991, Pafel1996, Abels2003, Leu2008})

\[(35) \quad \text{Was hat er } \text{damals bei dir } \text{f"ur Leute} \text{ treffen wollen?} \]

\[\text{what has he.NOM then by you for people meet want} \]

\[\text{‘What sorts of people did he want to meet at your place back then?’} \]

- *Alles* appears to be available constituent-finally

\[(36) \quad ?[\text{Was f"ur Leute alles}] \text{hat er } \text{damals bei dir } \text{treffen wollen?} \]

\[\text{what for people ALL has he.NOM then by you meet want} \]

\[\text{‘What all sorts of people did he want to meet at your place back then?’} \quad (\text{cf. Reis 1992}) \]

- Constituent-final *alles* in the *was f"ur* 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 f"ur* in situ, (38)). More research is necessary; the contrast with “complex” *wh*-associates remains

\[(37) \quad [\text{Was alles f"ur Leute}] \text{hat er } \text{damals bei dir } \text{treffen wollen?} \]

\[\text{what ALL for people has he.NOM then by you meet want} \]

\[\text{‘What all sorts of people did he want to meet at your place back then?’} \]

\[(38) \quad \text{Was hat er } \text{damals bei dir } \{\text{alles}\} \text{ f"ur Leute } \{??\text{alles}\} \text{ treffen wollen?} \]

\[\text{what has he.NOM then by you ALL for people ALL meet want} \]

\[\text{‘What sorts of people did he want to meet at your place back then?’} \]

5.3 An A/\-A-asymmetry in the distribution of distal *alles*

- \cite{Doliana2020 under review} argues that *alles* can only be stranded via \-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. \( \text{Wen}_i \) hat \text{alles} sein, Lehrer geschlagen?
   who has ALL his teacher hit

b. ?? \( \text{Wen}_i \) hat sein, Lehrer \text{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.: \text{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 \text{alles}, which prevents it from appearing constituent-finally when the associate \text{wh}-phrase is not a \text{wh}-pronoun.
2. CR is syntactic, and rests on a head/phrase distinction.
3. If \text{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 \text{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 \text{wh}-pronouns can rescue the structure.

References


Doliana, Aaron (under review). *Wh-Quantifier Float in German is Stranding*, under review at *Syntax*.


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.