

# Case (Mis-)Matching Effects in German Free Relatives

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## 1 Introduction

- Free relatives (FR) are relative clauses that lack an overt nominal head. Instead, the relative pronoun of FRs behave as if it was part of the relative as well as the matrix clause.
- In “true” FRs in German (see Fuß & Grewendorf (2012)), the relative pronoun differs from the relative pronoun found in normal relative clauses.

(1) Ich werde niemandem zeigen [<sub>FR</sub> was ich gefunden habe].

I will nobody show what I found have

‘I won’t show to anybody what I found.’

(Ott, 2011, 184)

### Claims:

- The general case matching property of FRs does not hold in German consistently, but is subject to a hierarchy: the case of the *wh*-phrase in the FR must be identical to the case assigned by the superordinate clause or lower on the case hierarchy than the case assigned by the superordinate clause.
- This property can be derived by assuming (i) that FRs are headed by a covert D, (ii) that cases are decomposed in a way that a case higher on the case hierarchy is a superset of a case lower on the hierarchy, and (iii) that every case feature on the *wh*-phrase in the FR must find a matching case feature on the covert D head.
- Under this analysis, the case matching effects are explained: a case  $c_1$  on the hierarchy can be matched by either the same case  $c_1$  or by a case  $c_2$  that consists of more case features, i.e. is higher on the case hierarchy.

## 2 Case (Mis-)Matching

- In general, FRs exhibit a case matching property (Bresnan & Grimshaw 1978; Groos & Riemsdijk 1981): the *wh*-phrase must bear a case marker that fits the case assigning properties of both the matrix clause and the FR.

- (2) a. Ich folge [FR wem ich vertraue]  
I follow→DAT who.DAT I trust→DAT  
'I follow who I trust.' (Vogel, 2001, 902)
- b. \*Ich folge [FR wem/wen ich bewundere]  
I follow→DAT who.DAT/who.ACC I adore→ACC  
'I follow who I adore.' (Vogel, 2001, 902)

- However, based on the case hierarchy in (3) (cf. Pittner 1991, 1995; Vogel 2001; Grosu 2003), certain case mismatches are allowed: if the case assigned by the matrix clause is higher on the hierarchy than the case assigned within the FR, the *wh*-phrase may bear the case of the FR, violating the matching condition.
- Importantly, if a case mismatch is allowed, the case marker on the *wh*-phrase *must* be the case assigned within the embedded clause, see (4-a) and (4-c).

(3) *Case Hierarchy*

NOM >> ACC >> DAT (>> GEN)

- (4) a. [FR Wem Maria vertraut] wird eingeladen  
who.DAT Maria.NOM trusts→DAT is→NOM invited  
'Who Maria trusts gets invited.' (Vogel, 2001, 903)
- b. \*Er zerstört [FR wer ihm begegnet]  
he destroys→ACC who.NOM him meets→NOM  
'He destroys who meets him.' (Vogel, 2001, 904)
- c. [FR Wen Maria mag] wird eingeladen  
who.ACC Maria.NOM likes→ACC is→NOM invited  
'Who Maria trusts gets invited.' (Vogel, 2001, 903)

*Notes:*

- For a certain group of speakers, (4-b) is acceptable (Pittner 1991, 1995). These speakers seem to have a slightly different case hierarchy: NOM, ACC >> GEN, DAT.
- Riemsdijk (2006, 17) argues that cases of mismatching can be traced back to the fact, that German is in a state where it loses its morphological case system, so that speakers do not actually perceive a mismatch in these cases.

**Exception:**

There is an exception to the matching condition that concerns morphologically syncretic forms: if the case markers of two cases are identical, the case hierarchy can be violated.

- (5) a. Er tut immer [FR was mich ärgert].  
he does→ACC always what.NOM/ACC me annoys→NOM  
'He always does something annoying to me.'
- b. \*Er liebt [FR wer mich ärgert].  
he loves→ACC who.NOM me annoys→NOM.  
'He loves who annoys me.'

### 3 An Analysis of Free Relatives

#### 3.1 Assumptions

##### Basic assumptions:

- Lexical items (LI) are sets of features consisting of syntactic (formal), phonological and semantic features. These features are not part of *one* set but belong to different sets. Furthermore, there are two kinds of syntactic features that belong to different sets: features involved in argument licensing (categorial features,  $\phi$ -features, case features etc.) and operator features (e.g. *wh*-features).
  - Importantly the argument licensing features form a constituent to the exclusion of the operator features, e.g., the *wh*-feature. The intuition behind this structure is that there are certain features that are necessary for a constituent in order to fill an argument position, e.g., the categorial feature to satisfy the selectional needs of the verbal projection,  $\phi$ -features to satisfy the needs of the functional heads *v* and *T*, and case features to pass the case filter (Rouveret & Vergnaud 1980; Chomsky 1980).
  - The *wh*-feature, on the other hand, is an operator feature that is not needed to fill an argument position but rather to satisfy the needs of the *C* head of the clause. In that sense, it does not classify as an argument licensing feature and is therefore part of a different feature set.
- (6)  $LI = \{\{D, \phi, case, \dots\}, \{wh, \dots\}, \{phon_1, phon_2, \dots\}, \{sem_1, sem_2, \dots\}\}$
- The LIs that are relevant for a derivation are gathered in a lexical array (LA). This LA must be empty by the end of the derivation.
  - Syntactic derivation is driven by the application of three operations: Copy, Merge and Agree (Chomsky 1995 et seq.).
  - *Agree* is a checking operation that affects features directly: a probe feature that needs a value looks for a matching goal feature that has a value and the two enter into an agreement relation whereby the probe feature is valued by the goal feature (see Chomsky 2000, 2001).
  - *Merge* is a set-building operations that acts upon sets of features: two sets  $\alpha$  and  $\beta$  become the elements of a new set.

$$(7) \quad \text{Merge}(\alpha, \beta) = \{\alpha, \{\alpha, \beta\}\}$$

For sake of simplicity, the set structures created in (7) are represented as trees or labeled bracketing.

$$(8) \quad \{\alpha, \{\alpha, \beta\}\} = [_{\alpha} \alpha \beta ] = \begin{array}{c} \alpha \quad \beta \\ \wedge \end{array}$$

There are two possibilities for Merge (Chomsky 2001):

1. *External Merge*: Merge of two sets that have no supersets, i.e., lexical items or undominated complex structures.
  2. *Internal Merge*: Merge of a subset  $\alpha$  of a complex structure  $\beta$  with  $\beta$ . Following Chomsky (1995 et seq.), Internal Merge involves a copy operation.
- *Copy* is an operation that precedes Internal Merge. (For the independency of Copy and Merge, see also Nunes 1995, 2004.) It creates a copy of a structure. Here I assume that the copy replaces the original item and that it is the original item that is merged in a new position.

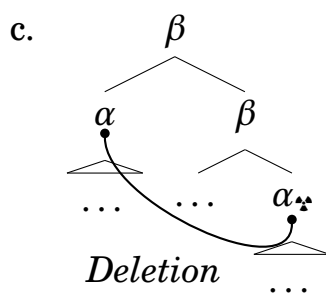
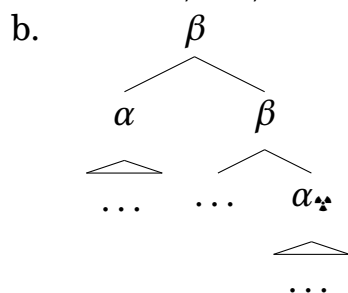
$$(9) \quad \text{Copy}(\alpha) = \langle \alpha, \alpha_{\clubsuit} \rangle$$

Copies must be deleted by the end of the derivation. Deletion of features applies post-syntactically for reasons of interface (especially PF) interpretability (Chomsky 1995; Nunes 2004).

In order to distinguish copied and original items, the copied item is marked by a diacritic  $\clubsuit$ , which is supposed to suggest that this object is unstable and has to be deleted.

Deletion of a copy  $\alpha_{\clubsuit}$  requires that it is c-commanded by the original item or another copied item.

- (10) Let  $\beta = [_{\beta} \dots \alpha]$ .
- a. (i) Merge( $\_$ ,  $\beta$ )  
 (ii) = Merge( $\_$ ,  $[_{\beta} \dots \text{Copy}(\alpha)]$ )  
 (iii) = Merge( $\_$ ,  $[_{\beta} \dots \langle \alpha, \alpha_{\clubsuit} \rangle]$ )  
 (iv) = Merge( $\alpha$ ,  $[_{\beta} \dots \alpha_{\clubsuit}]$ )  
 (v) =  $[_{\beta} \alpha [_{\beta} \dots \alpha_{\clubsuit}]]$



### Special assumptions about Copy and lexical integrity

- The possibility for Copy is given at any time, also *before* the derivation actually starts, namely in the lexical array.
- Again, Copy may affect only sets that have supersets, i.e., parts of LIs may be copied pre-syntactically.

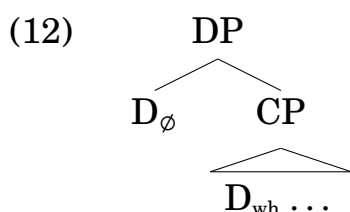
*Note:* There have also been proposals that Copy of syntactic features may apply post-syntactically, e.g. Fuß (2008).

- After an LI has entered the derivation, its internal structure is no longer accessible to Copy, i.e. lexical integrity is preserved. (This assumption might be dismissed, if theories like Chomsky 1995; Agbayani 1998; Brosziewski 2003 turn out to be correct, which assume that parts of lexical items can be subject to Internal Merge, and hence Copy, also in the syntax.)
- In most cases, pre-syntactic Copy of parts of LIs will lead to a crash of the derivation since there is no position available in the structure where the additional items can be merged, due to syntactic constraints like e.g. the  $\Theta$ -Criterion (Chomsky 1981), the case filter (Rouveret & Vergnaud 1980; Chomsky 1980) or the assumption that Merge is feature-driven (e.g. Müller 2011). Hence, the additional items will remain in the LA, which causes a violation of the constraint that the LA has to be empty.
- However, if the LA lacks an item to begin with, Copy may create the missing item out of an existing one.
- Assuming a structure of LIs as in (6), syntactic features do not form a constituent either with phonological or semantic features. Hence Copy may only affect the syntactic features of a lexical item. (If only phonological or only semantic features are copied, an element is created that is not viable in the syntax, since it has no syntactic features.)

### 3.2 Analysis

- (11) dass alle [FR was ich tue] gut finden  
that everyone what I do good find  
'that everyone likes what I do'

- FRs are assumed to have a structure as in (12) (Groos & Riemsdijk 1981; Grosu 1996, 2003; Citko 2004). This guarantees that the entire category is a DP which can be merged as an argument in a DP position.



- The main question here concerns the covert D head. It is often assumed that this head comes directly from the lexicon.
- As outlined in Assmann (2013), the properties of FRs suggest a special, very close, link between the covert D head and the *wh*-phrase, a link not found in headed relative clauses.

- This tight relation between the *wh*-phrase and the covert head basically leaves two possibilities within this type of approach:
  1. The covert head is massively underspecified and needs to Agree with the *wh*-phrase in all its features (Grosu 2003 notes that the covert head must even agree in categorial features, since there are also adjectival free relatives). This begs the question as to why the lexicon should provide such a massively underspecified covert head to begin with.
  2. The covert head is a copy of the *wh*-phrase, more exactly, a copy of a part of it.
- The main assumption that the derivation of FRs is based on is that the lexical array (LA) of a sentence containing an FR contains only one *wh*-phrase. This *wh*-phrase can only be merged either inside the FR, where it fills an argument position and satisfies the *wh*-feature of the embedded C, or in the matrix clause, where it fills an argument position.

(13) *Working hypothesis* (cf. Nunes (1995, 2004))

The lexical array of a sentence containing an FR is deficient and does not provide enough LIs to guarantee a converging derivation.

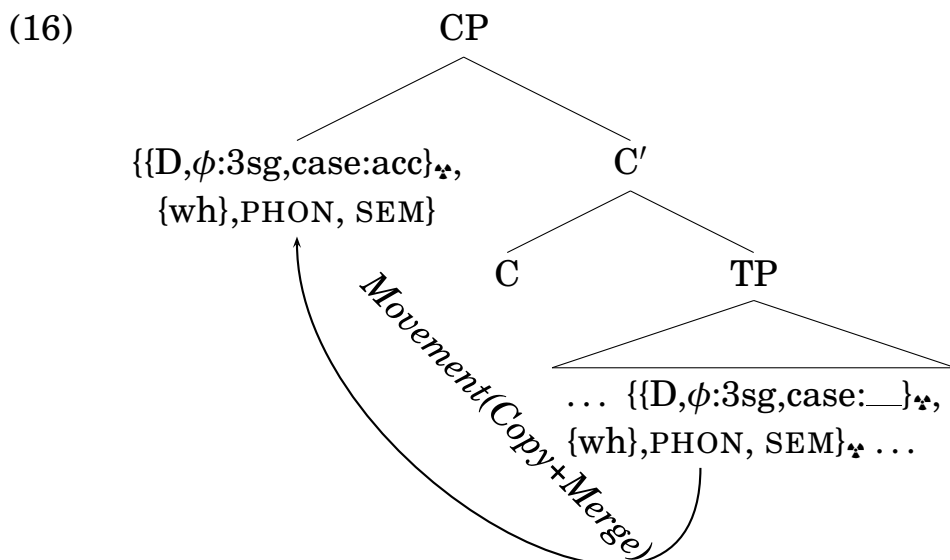
- Assuming that one DP can only fill one argument position (presumably for case and theta-role reasons), one possibility to ensure that both clauses have enough arguments is by Copy applying in the LA. In this way an additional item is created that may be merged in another argument position.
- By definition, Copy can only affect subsets. Now, given the structure in (14), there are various possibilities as to how Copy can apply to *was*. There is, however, only one possibility that will lead to a converging derivation:
  - Copy of the sets comprising the semantic or the phonological features would create an LI that is not viable in the syntax since it does not have any syntactic features.
  - The next option consists of copying the set containing the operator features. In this case, the item created would not have features that allow it to be merged in an argument position since it would lack the necessary argument licensing features.
  - Therefore, the only option that leads to a converging derivation is to copy only the set containing the argument licensing features. Thus the operation applying first is Copy of the argument licensing features of the *wh*-item.

(14)  $was = \{\{D, \phi:3sg, case:\_\_\}, \{wh\}, PHON, SEM\}$

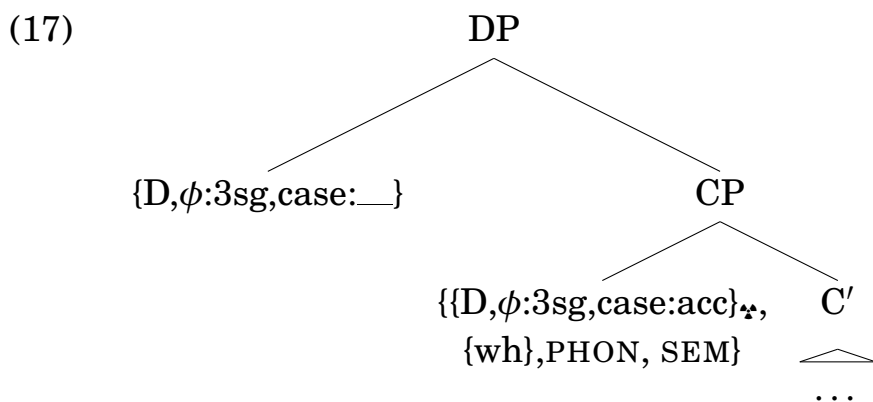
(15) *Pre-syntactic Copy*

$\{Copy(\{D, \phi:3sg, case:\_\_\}), \{wh\}, PHON, SEM\}$   
 $= \{\langle \{D, \phi:3sg, case:\_\_\}, \{D, \phi:3sg, case:\_\_\} \rangle, \{wh\}, PHON, SEM\}$   
 $= \{D, \phi:3sg, case:\_\_\}, \{\{D, \phi:3sg, case:\_\_\} \}, \{wh\}, PHON, SEM\}$

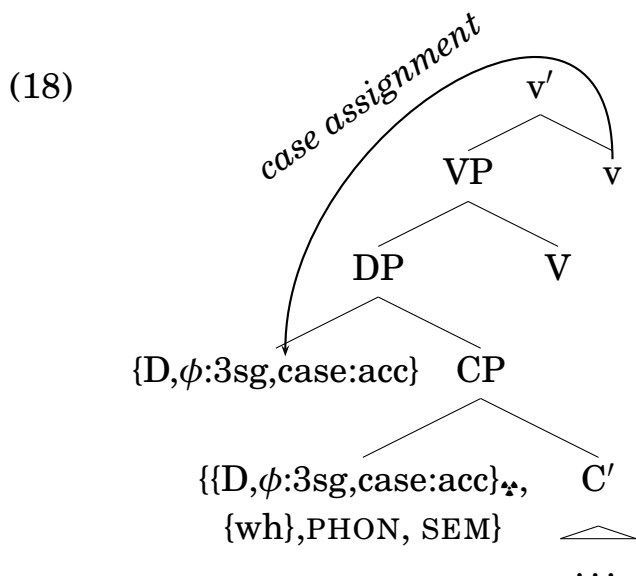
- When the syntactic derivation starts, the embedded clause is built first. The *was*-item that contains the *wh*-feature must be merged in this clause in order for C to check its *wh*-feature. In its base position, *was* receives accusative case from the embedded v. Movement of *was* to Spec-C leaves a copy behind that must be deleted later on.



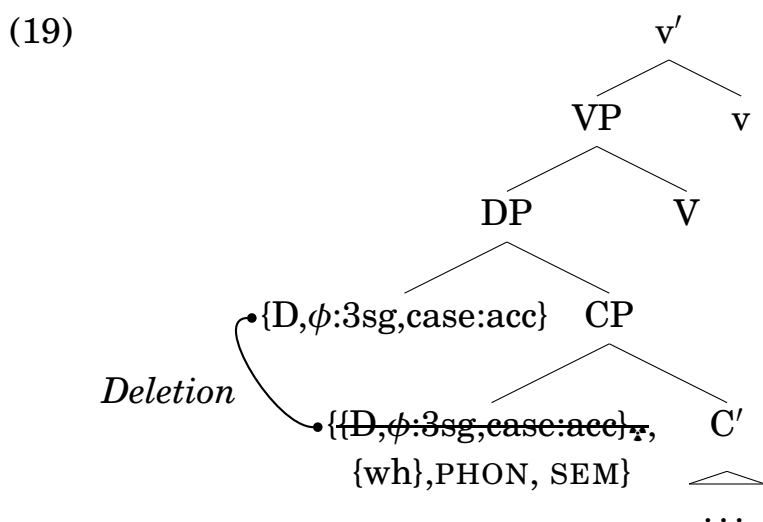
- The set  $\{D, \phi, case\}$  created by pre-syntactic Copy can now be merged with this CP, obtaining the structure in (12), see (17). Note that the D head does not contain any phonological features and is thus covert.



- Afterwards, the entire DP can be merged as an argument of the matrix clause and the covert D head receives case by the matrix v, see (18).



- Finally, after the syntactic derivation is terminated and the covert head of the FR has received case, post-syntactic deletion of the copied feature set on the *wh*-phrase applies under c-command and identity with the set containing the original features.



### 3.3 Interim Conclusion

- Up to now, we have achieved the following result: pre-syntactic Copy of the argument licensing features of the *wh*-item creates a new LI in the lexical array that is needed to enable a converging syntactic derivation. Post-syntactically, the copied features are deleted again.
- The account of FRs proposed here can provide answers to three important questions raised by this construction:
  1. *Why can a clause occur in a position reserved for non-clausal arguments?*  
FRs are headed by a covert D head. The entire structure is a DP and can therefore occur in DP positions.



2. *Why must the head of an FR be covert?*

The head must be covert because it created by pre-syntactic Copy. Since the phonological features cannot undergo pre-syntactic Copy for theory-internal reasons, the new LI, which serves as the external head later on, is covert.

3. *How does the close link between the wh-phrase and the covert head arise?*

The covert head is made up of features from the *wh*-head. Thus, the features and their values have to coincide.

## 4 Analysis of the Case Matching Effect

### Assumptions:

- Case features are rather case slots to which case features are added (cf. also Assmann et al. 2013).
- Cases are decomposed in a way that a case higher on the case hierarchy is a superset of a case lower on the hierarchy (cf. Béjar & Řezáč 2009; for similar ideas, see Trommer 2006, 2008). (The decomposed case features are abstract in (20). Exchanging the abstract case features by concrete features does not change the main idea of the analysis.)

(20) *Case Decomposition*

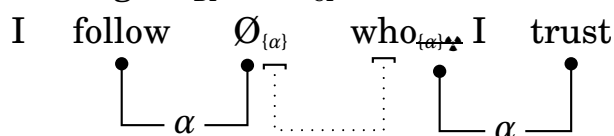
NOM  $[\alpha, \beta, \gamma] \supset$  ACC  $[\alpha, \beta] \supset$  DAT  $[\alpha]$

- The identity condition of deletion will be revised slightly: in order for a copied feature set to delete, it must be a subset of the original feature set, that is, all features in the copied feature set must have a matching feature in the original feature set.

### Analysis:

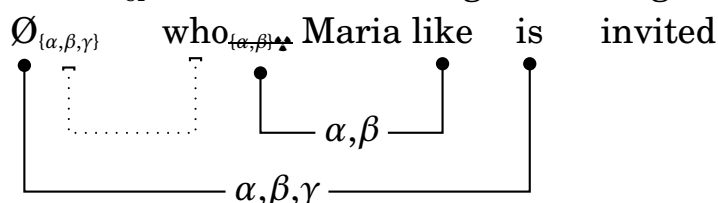
- *Identical case*

(21) Ich folge  $[_{DP} D$   $[_{CP}$  wem ich vertraue]]

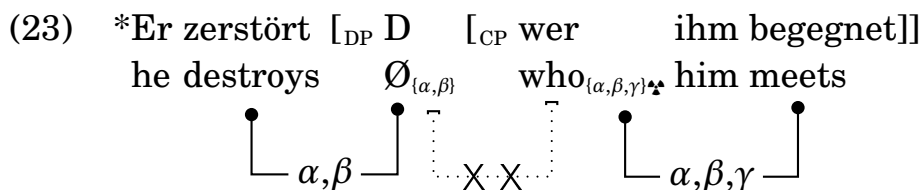


- *The case of the embedded clause is higher on the hierarchy*

(22)  $[_{DP} D$   $[_{CP}$  Wen Maria mag]] wird eingeladen

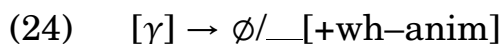


- *The case of the matrix clause higher on the hierarchy*

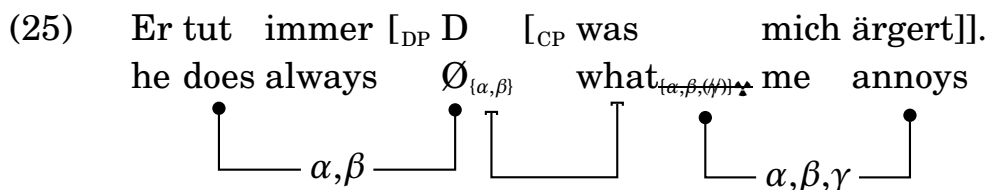


### Syncretism Exception:

- The morphological operation *Impoverishment* can apply in the syntax already (Keine 2010; Doliana 2013). The relevant rule with respect to FRs would be that in the context of inanimate nominative *was*, the nominative feature  $[\gamma]$  deletes and *was* bears only the accusative features  $[\alpha, \beta]$ .



- Consequently, in (25),  $[\gamma]$  deletes (marked as  $(\not\gamma)$ ) and a fatal case mismatch in FRs is circumvented, since the covert head and overt *was* possess an identical case feature set.



## 5 Conclusion

- The case matching property of FRs pose a puzzle for syntactic theories because the *wh*-phrase seems to have to fill two case positions in two different clauses.
- The general case matching property is derived by assuming a DP-shell structure of FRs where the FR is headed by a covert D head. The D head and the *wh*-phrase have to match in case due to the assumption that the D head is the result of a Copy operation and Copy deletion applies under identity.
- The exceptions to case matching that involve the case hierarchy *nom*  $\gg$  *acc*  $\gg$  *dat* follow if (i) cases are decomposed in a way that a case higher on the case hierarchy is a superset of a case lower on the hierarchy, and (ii) if it is the *wh*-phrase which has to check its case features with the covert D head.
- Variability in the data can be explained by parameterizing (i) the identity condition of Copy deletion (stronger identity condition = “Riemsdijk” judgments vs. weaker subset condition = “Pittner/Vogel” judgments) and (ii) the case hierarchy (*nom*  $\gg$  *acc*  $\gg$  *dat* vs. *nom, acc*  $\gg$  *dat*).

- The present approach can be seen as a development of the theory by Groos & Riemsdijk (1981) that assumed that the CP is headed by a covert D head. The close link between this covert head and the *wh*-phrase, which is merely stipulated in Groos & Riemsdijk (1981) can now be explained: the covert head is created out of the *wh*-item; i.e., it is a part of it.

## References

- Agbayani, Brian (1998): Feature Attraction and Category Movement. PhD thesis, University of California, Irvine.
- Assmann, Anke (2013): Three Stages in the Derivation of Free Relatives. In: F. Heck & A. Assmann, eds, *Rule Interaction in Grammar (Linguistische Arbeitsberichte 90)*. Universität Leipzig, Leipzig, pp. 203–245.
- Assmann, Anke, Svetlana Edygarova, Doreen Georgi, Timo Klein & Philipp Weisser (2013): Possessor Case in Udmurt: Multiple Case Assignment Feeds Postsyntactic Fusion. In: F. Heck & A. Assmann, eds, *Rule Interaction in Grammar (Linguistische Arbeitsberichte 90)*. Universität Leipzig, Leipzig, pp. 23–63.
- Béjar, Susana & Milan Řezáč (2009): ‘Cyclic Agree’, *Linguistic Inquiry* **40**(1), 35–73.
- Bresnan, Joan & Jane Grimshaw (1978): ‘The Syntax of Free Relatives in English’, *Linguistic Inquiry* **9**(3), 331–391.
- Brosziewski, Ulf (2003): *Syntactic Derivations - A Nontransformational View*. Vol. 470 of *Linguistische Arbeiten*, Niemeyer, Tübingen.
- Chomsky, Noam (1980): ‘On Binding’, *Linguistic Inquiry* **11**(1), 1–46.
- Chomsky, Noam (1981): *Lectures on Government and Binding: The Pisa Lectures*. 7 edn, Mouton de Gruyter, Berlin.
- Chomsky, Noam (1995): *The Minimalist Program*. MIT Press, Cambridge, Massachusetts.
- Chomsky, Noam (2000): Minimalist Inquiries: The Framework. In: R. Martin, D. Michaels & J. Uriagereka, eds, *Step by Step. Papers in Minimalist Syntax in Honor of Howard Lasnik*. MIT Press, Cambridge, chapter 3, pp. 89–155.
- Chomsky, Noam (2001): Derivation by Phase. In: M. Kenstowicz, ed., *Ken Hale: A Life in Language*. MIT Press, Cambridge, Massachusetts, pp. 1–52.
- Citko, Barbara (2004): ‘On Headed, Headless, and Light-Headed Relatives’, *Natural Language and Linguistic Theory* **22**, 95–126.
- Doliana, Aaron (2013): The Super-Strong Person-Case Constraint: Scarcity of Resources by Scale-Driven Impoverishment. In: F. Heck & A. Assmann, eds, *Rule Interaction in Grammar (Linguistische Arbeitsberichte 90)*. Universität Leipzig, Leipzig, pp. 177–202.
- Fuß, Eric (2008): ‘Multiple Agreement and the Representation of Inflection in the C-Domain’, *Linguistische Berichte* **213**, 77–106.

- Fuß, Eric & Günther Grewendorf (2012): Freie Relativsätze mit d-Pronomen. Handout. Talk given at GGS 38, Freiburg im Breisgau.
- Groos, Anneke & Henk van Riemsdijk (1981): Matching Effects with Free Relatives: A Parameter of Core Grammar. In: A. Belletti, L. Brandi & L. Rizzi, eds, *Theory of Markedness in Generative Grammar: Proceedings of the 1979 GLOW Conference*. Scuola Normale Superiore, Pisa, pp. 171–216.
- Grosu, Alexander (1996): ‘The Proper Analysis of “Missing-P” Free Relative Constructions’, *Linguistic Inquiry* **27**(2), 257–293.
- Grosu, Alexander (2003): ‘A Unified Theory of ‘Standard’ and ‘Transparent’ Free Relatives’, *Natural Language and Linguistic Theory* **21**(2), 247–331.
- Keine, Stefan (2010): *Case and Agreement from Fringe to Core: A Minimalist Approach*. Vol. 536 of *Linguistische Arbeiten*, De Gruyter, Berlin.
- Müller, Gereon (2011): *Constraints on Displacement: A Phase-Based Approach*. Vol. 7 of *Language Faculty and Beyond*, John Benjamins, Amsterdam.
- Nunes, Jairo (1995): The Copy Theory of Movement and Linearization of Chains in the Minimalist Program. PhD thesis, University of Maryland, College Park.
- Nunes, Jairo (2004): *Linearization of Chains and Sideward Movement*. MIT Press, Cambridge, Massachusetts.
- Ott, Dennis (2011): ‘A Note on Free Relative Clauses in the Theory of Phases’, *Linguistic Inquiry* **42**(1), 183–192.
- Pittner, Karin (1991): Freie Relativsätze und die Kasushierarchie. In: E. Feldbusch, ed., *Neue Fragen der Linguistik Vol. 1*. Niemeyer, Tübingen, pp. 341–347.
- Pittner, Karin (1995): ‘Regeln für die Bildung von freien Relativsätzen’, *Deutsch als Fremdsprache* **32**(4), 195–200.
- Riemsdijk, Henk van (2006): Free Relatives. In: M. Everaert & H. v. Riemsdijk, eds, *The Blackwell Companion to Syntax*. Blackwell, Oxford, pp. 338–382.
- Rouveret, Alain & Jean-Roger Vergnaud (1980): ‘Specifying Reference to the Subject: French Causatives and Conditions on Representations’, *Linguistic Inquiry* **11**(1), 97–202.
- Trommer, Jochen (2006): Plural Insertion is Constructed Plural. In: G. Müller & J. Trommer, eds, *Subanalysis of Argument Encoding in Distributed Morphology. Volume 84 of Linguistische Arbeits Berichte*. Institut für Linguistik: Universität Leipzig, pp. 197–228.
- Trommer, Jochen (2008): A Feature-Geometric Approach to Amharic Verb Classes. In: A. Bachrach & A. Nevins, eds, *Inflectional Identity*. Oxford University Press, pp. 206–236.
- Vogel, Ralf (2001): Case Conflict in German Free-Relative Constructions: An Optimality-Theoretic Treatment. In: G. Müller & W. Sternefeld, eds, *Competition in Syntax*. Mouton de Gruyter, Berlin, pp. 341–375.