

*Perspectives on Germanic Syntax*

*Università di Pavia*

# The Question of Fixed Base Orders in German: What We Can(not) Learn from Floating Quantifier *alles*

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# German word order

Rather flexible word order for arguments (and adjuncts)

Unless otherwise excluded, all orderings possible (though not equally felicitous in all contexts):

- (1) a. *Dummerweise hat der Walter dem Zeugen das Foto gezeigt.*  
unfortunately AUX the.NOM Walter the.DAT witness the.ACC photo shown
- b. *Dummerweise hat der Walter das Foto dem Zeugen gezeigt.*
- c. *Dummerweise hat dem Zeugen der Walter das Foto gezeigt.*
- d. *Dummerweise hat dem Zeugen das Foto der Walter gezeigt.*
- e. *Dummerweise hat das Foto der Walter dem Zeugen gezeigt.*
- f. *Dummerweise hat das Foto dem Zeugen der Walter gezeigt.*
- 'Unfortunately, Walter showed the photo to the witness.'

# German word order

## Two basic kinds of approaches:

- Arguments have to combine with predicate in fixed order, alternative orders via movements ('fixed base order', standard view)
- Arguments can combine with predicate in any order ('free base generation', minority view)

(2) a. [[*das Foto*] [[*dem Zeugen*] [[*der Walter*            *gezeigt.*]]]  
b. [[*das Foto*]<sub>i</sub>] [[*dem Zeugen*]<sub>j</sub>] [[*der Walter*] [<sub>t<sub>j</sub></sub>] [<sub>t<sub>i</sub></sub> *gezeigt.*]]]]  
the.ACC photo    the.DAT witness    the.NOM Walter            shown

Despite decades of research issue not settled. Overview article by Salzmann (2025):

- Empirical evidence for fixed base orders inconclusive for the most part
- One of the few arguments he considers convincing: intervention effects with indefinites and floating quantifier *alles* ('all') (Heck & Himmelreich 2017)

# Floating quantifier *alles*

Morphological invariant floating quantifier *alles* requires association with *wh*-phrase in same minimal clause (some other operators possible too, but no simple NPs, Reis 1992)

Indicates expectation that answer contains more than one individual and demands it to be exhaustive (Reis 1992, Zimmermann 2007)

- (3) *Wer / \*die Frau / \*eine Gruppe Männer hat euch alles geholfen?*  
who.NOM / the woman / a group men AUX you.DAT all helped

'Who all helped you?', intended: 'The woman all / a group of men all helped you.'

Acceptability of sentences containing it depends on its positioning relative to arguments (Pafel 1991)

- (4) (Heck & Himmelreich 2017: 51, their judgments)

a. *\*Wer hat einem Professor alles gratuliert?*  
who.NOM AUX a.DAT professor all congratulated  
'Who all congratulated a professor?'

b. *Wem hat ein Professor alles gratuliert?*  
whom.DAT AUX a.NOM Professor all congratulated  
'Whom all has congratulated a professor?'

(5) a. *Wer hat alles einem Professor gratuliert?*  
who.NOM AUX all a.DAT professor congratulated  
'Who all congratulated a professor?'

b. *?Wem hat alles ein Professor gratuliert?*  
whom.DAT AUX all a.NOM Professor congratulated  
'Whom all has congratulated a professor?'

# Heck & Himmelreich (2017)

Several phenomena in German and Czech where they see evidence for opaque intervention

Way they present patterns with *alles*:

- Stands in need of an associated *wh*-phrase (6)
- If associate subject, no indefinite object allowed to intervene (7a)
- Indefinite direct object may not intervene between indirect object *wh*-phrase and *alles* (7b)

(6) (Heck & Himmelreich 2017: 50, their judgments)

a. *Wer hat euch alles geholfen?*  
who.NOM AUX you.DAT all helped

'Who all helped you?'

b. *Wem habt ihr alles geholfen?*  
whom.DAT AUX you.NOM all helped

'Whom all did you help?'

(7) (Heck & Himmelreich 2017: 51, their judgments)

a. \**Wer hat einem Professor alles gratuliert?*  
who.NOM AUX a.DAT professor all congratulated

'Who all congratulated a professor?'

b. \**Wem hat sie einen Professor alles vorgestellt?*  
whom.DAT AUX she.NOM a.ACC professor all introduced

'Whom all did she introduce a professor to?'

# Heck & Himmelreich (2017)

Way H&H present patterns with *alles*:

- Subject can intervene (8a)
- Indefinite object can intervene if associate direct object (8b)
- With definites everything OK (9)

(8) (Heck & Himmelreich 2017: 51, their judgments)

- a. *Wem hat ein Professor alles geholfen?*  
whom.DAT AUX a.NOM professor all helped  
'Whom all has a professor helped?'
- b. *Wen hat sie einem Professor alles vorgestellt?*  
who.ACC AUX she.NOM a.DAT professor all introduced  
'Who all did she introduce to a professor?'

(9) (Heck & Himmelreich 2017: 52, their judgments)

- a. *Wer hat dem Professor alles gratuliert?*  
who.NOM AUX the.DAT professor all congratulated  
'Who all has congratulated the professor?'
- b. *Wem hat sie den Professor alles vorgestellt?*  
whom.DAT AUX she.NOM the.ACC professor all introduced  
'Whom all did she introduce the professor to?'

# Heck & Himmelreich's (2017) analysis

## Derivational framework with VP, vP, TP

- Object(s) merged within VP, (canonical) subject in Spec,v
- Internal arguments found outside VP must have passed through Spec,v
- Movement to Spec,v order-preserving, but external argument is merged after moved objects
- *alles*: adverb in lowest Spec,v position

(10)  $[_{VP} \text{NOM} [_{VP} \text{DAT}_1 [_{VP} \text{ACC}_2 [_{VP} \textit{alles} [_{V'} v [_{VP} t_1 [_{V'} t_2 V]]]]]]]]]$

- Association with *alles* requires c-commanding *wh*-phrase antecedent
- Via Agree. 2 relevant features, *alles* and associate must match on both when matching on one
- Indefinites (but not definites) in Spec,v can value one of them, blocking association with higher *wh*-phrase (no full match)

(11)  $[_{VP} \textit{wer} [_{VP} \textit{einem Professor}_1 [_{VP} \textit{alles} [_{V'} v \dots t_1 \dots]]]]]$  (adapted from Heck & Himmelreich 2017: (37,38))

# Heck & Himmelreich (2017) on base orders

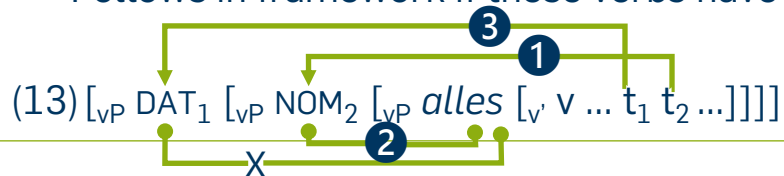
## Acceptability patterns interact with verb class

- Reversal in acceptability patterns with experiencer-object psych verbs (DAT-NOM, (12)) (and dative-object unaccusatives)

(12) (Heck & Himmelreich 2017: 86, their judgments)

- a. *\*?Was für Professoren könnte ein Berufswechsel alles gefallen?*  
what for professors.DAT could a.NOM career.change.NOM all appeal.to  
'What kind of professors could a career change appeal to?'
- b. *Was für Berufswechsel könnten einem Professor alles gefallen?*  
what for career.changes.NOM could a.DAT professor all appeal.to  
'What kind of career changes could appeal to a professor?'

- Follows in framework if these verbs have fixed DAT-NOM order within VP (as often assumed)



# Heck & Himmelreich (2017) on base orders

## Argument against free base-generation

How to exclude (14a.) if both arguments freely base-generated?

1. Assume base-generated order is *wem einen Professor alles*.  
→ **Hypothesis I** to exclude (14a.): Indefinites between *alles* and associate interrupt association
2. Does not work: base-generated *einen Professor wem alles* should also be possible, but after *wh*-movement one gets (14a.) then.  
→ **Hypothesis II**: *wh*-movement cannot cross indefinite without breaking association  
**We dispute that II is required: Base-generation approach need not assume that order of ACC and DAT arbitrary**
3. Then (8a) cannot be derived anymore

- (14) (Heck & Himmelreich 2017: 87, their judgments)
- a. \**Wem hat sie einen Professor alles vorgestellt?*  
whom AUX she a.ACC professor all introduced
  - b. *Wem hat sie alles einen Professor vorgestellt?*  
'To whom all did she introduce a professor?'

- (8a) *Wem hat ein Professor alles geholfen?*  
whom.DAT AUX a.NOM Professor all helped  
'Whom all has a professor helped?'

# Roadmap

## Today, we will:

- Introduce the issue and discuss H&H's analysis
- Discuss a number of issues with the proposal → no argument for fixed base orders
- Show that an alternative analysis assuming free base-generation can capture the data

## General line:

- Acceptability patterns have nothing to do with intervention effects
- *Alles* is stranded (Pafel 1991, Reis 1992, Doliana 2021, 2022)
- Acceptability of sentences with FQ *alles* corresponds acceptability of sentences with NP comparable to associate in position of *alles* (Pafel 1991)

# Issues with (Heck & Himmelreich 2017)

## Animacy effects

- Linearization preferences not solely predicate-specific
- Psych verb *gefallen* ('to appeal to') prefers DAT-NOM with inanimate subjects, but both DAT-NOM and NOM-DAT equally acceptable with animate subjects (Masloch et al. 2024)
- While H&H find difference with inanimate subject (12), disappears when both animate (15)  
→ **not** predicate-specific

- (15) a. *Was für enttäuschten Wählern könnte ein unabhängiger Kandidat alles gefallen?*  
what for disappointed voters.DAT could a.NOM independent candidate all appeal.to  
'What kind of disappointed voters could an independent candidate appeal to?'
- b. *Was für unabhängige Kandidaten könnten einem enttäuschten Wähler alles gefallen?*  
what for independent candidates.NOM could a.DAT disappointed voter all appeal.to  
'What kind of independent candidates could appeal to a disappointed voter?'

# Issues with (Heck & Himmelreich 2017)

## Optionality in Linearization

- H&H's analysis does not predict optionality in VP-internal order:
- All landing sites for movement are above *alles*, so only base order should be fine
- (16) shows equally acceptable orders (based on test item without *alles* from Ellsiepen & Bader 2018: 16–17)

- (16) a. *Wer hat alles einem Zeugen das Foto gezeigt?*  
who AUX all a.DAT witness the.ACC photo showed
- b. *Wer hat alles das Foto einem Zeugen gezeigt?*  
who AUX all the.ACC photo a.DAT witness showed

'Who all showed the photo to a witness?'

# Issues with (Heck & Himmelreich 2017)

## Precedence of *alles*

- H&H's analysis does not cover acceptable sentences with *alles* preceding subject because *alles* must be merged before external argument (see Doliana 2021: 52)
- (17) acceptable when professor focussed

(17) *Wem hat alles der Professor gratuliert?*  
whom AUX all the.NOM Professor congratulated  
'Whom all did the professor congratulate?'

# Issues with (Heck & Himmelreich 2017)

## Gradients vs. Categorical (Un-)Acceptability

- H&H treat subtle and gradient acceptability contrasts as indicative of categorical grammaticality differences, but they are subtle

## Pafel's (1991) Generalisation

- Similar acceptability differences occur in corresponding examples with full NPs and without *alles* (Pafel 1991; Doliana 2021,2022), for which an intervention analysis is not feasible.
- (18) shows this for (7b), but all examples so far behave this way.
- Remains mysterious on H&H's analysis

- (18) a. ?*Wem hat sie einen Professor alles vorgestellt?*  
whom AUX she a.ACC professor all introduced
- b. ?*Gestern hat sie einen Professor einem Studenten vorgestellt.*  
yesterday AUX she a.ACC professor a.DAT student introduced  
'Yesterday, she introduced a professor to a student.'

# Intermediate conclusion

Heck & Himmelreich's (2017) proposed analysis for data with floating quantifier *alles* faces severe empirical problems and misses a longstanding generalisation

→ Not the kind of grounds one will want to build an argument for fixed base orders on

# Alternative analysis

## Free base-generation approach, combining

- Stranding approach to FQ *alles*: *Alles* and associate form constituent which is left by associate through movement (Pafel 1991; Reis 1992; Doliana 2021,2022)
- Maximum Entropy Grammar (Goldwater & Johnson 2003): Contrasts between ordering variants modelled via interacting weighted violable constraints
- Stranded FQ counts in the same way as the whole NP would
- Acceptability differences independent of FQ *per se*, implementing Pafel's (1991) generalisation
- Blocking constraint II is not needed, undermining H&H's argument against free base-generation

# Linearisation Constraints

Long tradition of using violable constraints to model constituent order in German (i.a. Zubin & Köpcke 1985, Uszkoreit 1986, 1987, Jacobs 1988, Müller 1999, Heck 2000, Ellsiepen & Bader 2018)

E.g., HEAVY < LIGHT, ANIMATE < INANIMATE, AGENT < NON-AGENT, NON-FOCUS < FOCUS

We assume them to be weighted (like i.a. Zubin & Köpcke 1985, Jacobs 1988, Pafel 2009, Ellsiepen & Bader 2018)

Can be implemented in Maximum Entropy Grammar (Goldwater & Johnson 2003, Hayes 2022):  
Probabilistic variant of Optimality Theory

Sum of weighted constraint violations of candidate

Probability of candidate  $y$  in context  $x$

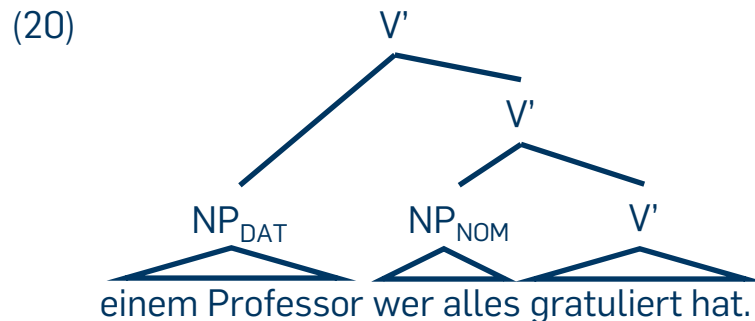
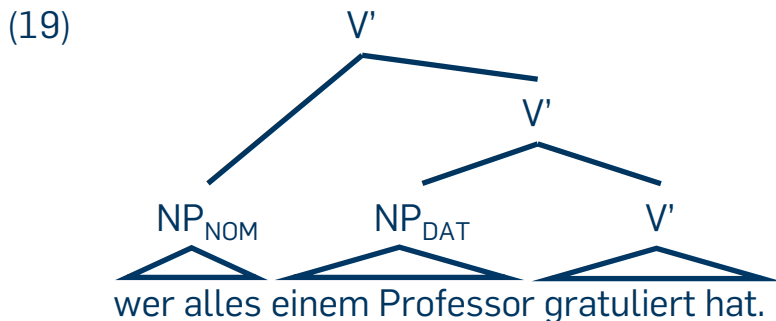
$$P(y|x) = \frac{\exp(\sum_{i=1}^m w_i f_i(y,x))}{\sum_{y \in Y(x)} \exp(\sum_{i=1}^m w_i f_i(y,x))}$$

Setting it into relation to values for all other candidates

$y$ : candidate  
 $Y(x)$ : candidate set  
 $x$ : context  
 $m$ : number of constraints  
 $w$ : weight of constraint  
 $f$ : constraint

# Linearisation Constraints

- All ordering variants can be base-generated
- Acceptability of sentence depends on probability relative to other candidates within set
- Phrase containing *alles* + associate evaluated with respect to constraints just like normal NPs, capturing Pafel's (1991) generalisation (We don't care today if this happens prior to movement etc.)
- Candidates for (7a): (19) will be preferred because it does not violate AGENT < NON-AGENT



# Linearisation Constraints

Definiteness effects explained away

*Wh*-phrase is indefinite, so with a definite other argument (9a), DEFINITE < INDEFINITE and probably GIVEN < NEW counterbalance AGENT < NON-AGENT.

(9) (Heck & Himmelreich 2017: 52, their judgments)

a. *Wer hat dem Professor alles gratuliert?*

who.NOM AUX a.DAT professor all congratulated

'Who all has congratulated the professor?'

b. *Wem hat sie den Professor alles vorgestellt?*

whom.DAT AUX she.NOM a.ACC professor all introduced

'Whom all did she introduce the professor to?'

# Linearisation Constraints

Dative experiencer object verbs like *gefallen* ('to appeal to'): Masloch et al. (2024) argue that only ANIMATE < INANIMATE relevant with inanimate subject but no constraint applies with animate ones: (12) vs. (15)

- (12) (Heck & Himmelreich 2017: 86, their judgments)
- a. *\*?Was für Professoren könnte ein Berufswechsel alles gefallen?*  
what for professors.DAT could a.NOM career.change all appeal.to  
'What kind of professors could a career change appeal to?'
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- b. *Was für unabhängige Kandidaten könnten einem enttäuschten Wähler alles gefallen?*  
what for independent candidates.NOM could a.DAT disappointed voter all appeal.to  
'What kind of independent candidates could appeal to a disappointed voter?'

# Conclusion

- Data involving floating quantifier *alles* do not favour a fixed-base-order account to German clausal syntax
- Acceptability contrasts observed with them are not due to intervention effects
- Pafel's generalisation naturally falls out when a stranding approach to floating quantifier *alles* is combined with violable linearisation constraints
- Possible while assuming free base generation as well as with fixed base orders

# Thank you for your attention!

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