

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

Tibor Kiss, Alicia Katharina Börner, Simon Masloch (Ruhr-Universität Bochum)
{tibor.kiss,alicia.boerner,simon.masloch}@rub.de

16 April, 2026. Workshop *Perspectives on Germanic Syntax*, Università di Pavia.

Abbreviations and Glosses **ACC:** accusative, **AUX:** auxiliary, **DAT:** dative, **FQ:** floating quantifier, **H&H:** Heck & Himmelreich (2017), **NOM:** nominative

1 German word order

German has a 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.'

Two basic kinds of approaches:

fixed base order Arguments have to combine with predicate in fixed order, alternative orders via movements (standard view, sketched in (2b))

free base generation Arguments can combine with predicate in any order (minority view, sketched in (2a))

- (2) a. [[das Foto] [[dem Zeugen] [[der Walter] gezeigt.]]]
 b. [[das Foto]_i] [[dem Zeugen]_j] [[der Walter] [_{t_j} [_{t_i} gezeigt.]]]]]
 the.ACC photo the.DAT witness the.NOM Walter shown

(German is an OV-language, we are not looking at verb-second related phenomena here.)

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)

We will concentrate on their argument, showing that it does not go through and that their approach faces severe empirical issues and misses a generalisation. Then we will show that an approach assuming free base generation can account for the data just as well.

2 Floating quantifier *alles*

The morphological invariant floating quantifier *alles* ...

- is to be distinguished from the inflected quantifier *alle(s)* ('all') (Reis 1992).
- requires association with a *wh*-phrase in the same minimal clause (some other operators possible too, but no simple NPs, Reis 1992).

- (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.'

- indicates the expectation that the answer contains more than one individual and demands it to be exhaustive (Reis 1992; Zimmermann 2007)

Acceptability of sentences containing *alles* depends on its positioning relative to arguments (Pafel 1991):

- (4) a. (Heck & Himmelreich 2017: 51, their judgments)
 *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?'

*When citing examples from (Heck & Himmelreich 2017), we will keep their *s. But note that 1. even on their account judgments are subtle and 2. on our account these examples are neither completely unacceptable nor ungrammatical.*

3 (Heck & Himmelreich 2017)

3.1 Data presentation

Heck & Himmelreich (2017) deal with several phenomena in German and Czech syntax where they see evidence for opaque intervention effects, floating-quantifier *alles* is only one of them (but the one relevant for the debate about base orders)

Way they see patterns with *alles*:

- Stands in need of an associated *wh*-phrase (6)

(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?'

- If associate subject, no indefinite object allowed to intervene (7a = 4a)
- Indefinite direct object may not intervene between indirect object *wh*-phrase and *alles* (7b)

- (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?’

- Subject can intervene (8a)
- Indefinite object can intervene if associate direct object (8b)

- (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?’

- With definites everything OK (9)

- (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?’

3.2 Analysis

Derivational framework with VP, *v*P, TP

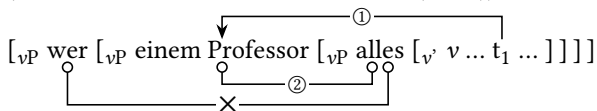
- Object(s) merged within VP, (canonical) subject in Spec,*v*
- Internal arguments found outside VP must have passed through Spec,*v*
 (due to Phase Impenetrability Condition, in Heck & Himmelreich’s 2017:58 version
 “The domain of a head H of a phase HP is not accessible to operations outside of
 HP. Only H and its edge domain are accessible.”)

- Movement to Spec,*v* order-preserving (driven by edge-feature that keeps searching even after fitting element is found. Elements to be moved are placed on a movement-stack that works like a push-down automaton: returns element last added first, Heck & Himmelreich 2017: 61–63)
- External argument is merged after moved objects (Heck & Himmelreich 2017: 58–59)
- *alles*: adverb in lowest Spec,*v* position (in cases relevant here, Heck & Himmelreich 2017: 66, section 5.1)
- In an example with a ditransitive verb with DAT-ACC base order with *alles* at the end of the midfield, we then get (10) when both objects move. Note that first target position for movement from VP is above *alles* and that the external argument is base-generated after moved objects.

(10) [_{VP} NOM [_{VP} DAT₁ [_{VP} ACC₂ [_{vP} *alles* [_{v'} *v* [_{VP} t₁ [_{V'} t₂ V]]]]]]]]]

- Association with *alles* requires c-commanding *wh*-phrase antecedent
- Association established via Agree
- Two relevant features. *Alles* and associate must match on both when matching on one (Heck & Himmelreich 2017: 67, Full Match Requirement: “A probe on H does not value a goal on H’ unless there is a full match between H and H’”)
- Indefinites (but not definites) in Spec,*v* can value one of them, blocking association with higher *wh*-phrase (no full match)

(11) (based on Heck & Himmelreich 2017: (37,38))



3.3 Verb classes with other base orders

Heck & Himmelreich (2017: 84–87) observe that patterns change with verb class.

Reversal in acceptability patterns with dative-object experiencer-object psych verbs (DAT-NOM, (11)) and dative-object unaccusatives: Now it is the order NOM *alles* that is less acceptable, while DAT *alles* is fine.

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.

4 Roadmap

We ...

- introduce the issue and discuss Heck & Himmelreich’s analysis (done)
- 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 floating-quantifier *alles* corresponds to acceptability of sentences with NP comparable to associate in position of *alles* (Pafel 1991)

5 Issues with (Heck & Himmelreich 2017)

5.1 Animacy effects

- Linearization preferences in German are not solely predicate-specific
- E.g., the experiencer-object psych verb *gefallen* (‘to appeal to’) prefers DAT–NOM with inanimate subjects, but both DAT–NOM and NOM–DAT are equally acceptable with animate subjects (Masloch & Poppek & Kiss 2024)
- While Heck & Himmelreich (2017) find a difference with an inanimate subject (12), there is *no* preference when both subject and object animate (15)
→ pattern is not *predicate*-specific

- (15) a. Was für enttäuschten Wählern könnte ein unabhängiger Kandidat
what for disappointed voters.DAT could a.NOM independent candidate
alles gefallen?
all appeal.to

‘What kind of disappointed voters could an independent candidate appeal to?’

- b. Was für unabhängige Kandidaten könnten einem enttäuschten
 what for independent candidates.NOM could a.DAT disappointed
 Wähler alles gefallen?
 voter all appeal.to

‘What kind of independent candidates could appeal to a disappointed voter?’

5.2 Optionality

- Heck & Himmelreich’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
- For some ditransitives, both possible orderings of the objects are equally acceptable once some of their properties are manipulated
- (16) is based on a plain test item from (Ellsiepen & Bader 2018: 16–17) where this is the case.
- *Both* orders are equally acceptable.

- (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?’

5.3 *Alles* preceding the subject

- Heck & Himmelreich’s analysis does not cover acceptable sentences in which *alles* precedes the subject because *alles* must be merged before external argument (see also Doliana 2021: 52; Gould 2023: 531 sq. attempts a fix)
- (17) acceptable when professor focussed, e.g. in a context like *A: The minister congratulated Daniels, Schmidt, Yildirim and Nowak. B: Fine, but ...*

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

5.4 Gradients vs. Categorical (Un-)Acceptability

Heck & Himmelreich (2017) treat subtle and gradient acceptability contrasts as indicative of categorical grammaticality differences, but they are subtle and may be better explained in a different way.

5.5 Pafel's (1991) generalisation missed

- Acceptability differences parallel to the ones in the sentences containing *alles* are observed in corresponding examples with full NPs and without *alles* (Pafel 1991; Doliana 2021; 2022)
- An intervention analysis is not feasible for them
- (18) shows this for (4a), but all examples so far behave this way (see Appendix).
- Remains mysterious on Heck & Himmelreich's analysis

- (18) a. ?Wem hat sie einen Professor alles vorgestellt?
 whom AUX she a.ACC professor all introduced
 'Whom all did she introduce a professor to?'
- 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.'

6 Intermediate conclusion

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

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

7 Alternative analysis

As a proof of concept, we will show how the data can be captured under an approach assuming free base generation

(This would work for fixed base orders in a similar way. The point is that an argument against free base generation cannot be build on these data.)

Ingredients:

- Stranding approach to floating-quantifier *alles*: *Alles* and associate form constituent which is left by associate through movement (Pafel 1991; Reis 1992; Doliana 2021; 2022). *Standard approach anyway*
- Maximum Entropy Grammar (Goldwater & Johnson 2003; Hayes 2022): Contrasts between ordering variants modelled via interacting weighted violable constraints

Then:

- Stranded floating quantifier counts in the same way as the whole NP would
- Acceptability differences independent of floating quantifier per se, implementing Pafel's (1991) generalisation
- Blocking constraint **Hypothesis II** is not needed, undermining Heck & Himmelreich's argument against free base-generation

7.1 Linearisation constraints

Acceptability differences reducible to general linearisation preferences, which we capture via linearisation constraints:

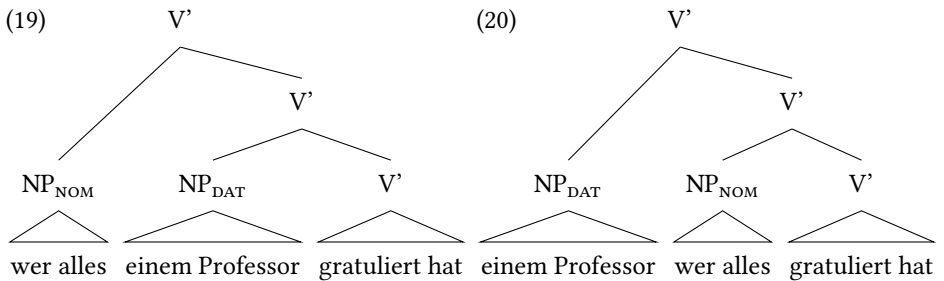
- There is a long tradition of using violable constraints to model constituent order in German (i.a. Zubin & Köpcke 1985; Uszkoreit 1986; 1987; Jacobs 1988; Müller 1999; Heck 2000; Ellsiepen & Bader 2018)
- E.g. HEAVY < LIGHT, ANIMATE < INANIMATE, AGENT < NON-AGENT, NON-FOCUS < FOCUS
- We assume them 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), a probabilistic variant of Optimality Theory:
(*We do not need any typological commitments etc., just the assumption that preferences between in principle syntactically well-formed candidates are determined by weighted violable constraints*)

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

Where: y : candidate, x : context, m : number of constraints, w_i : weight of i^{th} constraint, f_i : i^{th} constraint, $Y(x)$: candidate set

- All ordering variants can be freely base-generated

- Acceptability of sentence depends on probability relative to other candidates within set (cf. Ellsiepen & Bader 2018)
- 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 (4a)/(5a): (19), corresponding to (5a), will be preferred because it does not violate AGENT < NON-AGENT. (4a) is odd because there is a better candidate, *not* because of some intervention.



7.2 Definiteness effect explained

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

- (9) (Heck & Himmelreich 2017: 52, their judgments)
- Wer hat dem Professor alles gratuliert?
 who.NOM AUX a.DAT professor all congratulated
 ‘Who all has congratulated the professor?’
 - 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?’

7.3 Reversed judgments without diverging base orders

Masloch & Poppek & Kiss (2024) argue that once all other factors are equalled out, no thematic constraints like AGENT < NON-AGENT are relevant for verbs like *gefallen* (‘to appeal to’).

→ ANIMATE < INANIMATE relevant for (12) with inanimate subject, but no constraint applicable with animate subjects as in (15), hence no preference.

(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?’
- 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?’

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

8 Conclusion

- Acceptability contrasts observed with floating-quantifier *alles* 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
- This is possible while assuming free base generation as well as with fixed base orders

⇒ Data involving floating quantifier *alles* do not favour a fixed-base-order account to German clausal syntax

References

- Doliana, Aaron. 2022. Wh quantifier float in German. *Syntax* 25. 335–378. <https://doi.org/10.1111/synt.12239>.
- Doliana, Aaron Gianmaria Gabriel. 2021. *All about alles: The syntax of wh-quantifier float in German*. University of Maryland dissertation. <https://doi.org/10.13016/qekq-rghx>.
- Ellsiepen, Emilia & Bader, Markus. 2018. Constraints on Argument Linearization in German. *Glossa* 3(1). 1–36. <https://doi.org/10.5334/gjgl.258>.
- Goldwater, Sharon & Johnson, Mark. 2003. Learning OT constraint rankings using a Maximum Entropy model. In Spenader, Jennifer & Eriksson, Anders & Dahl, Östen (eds.), *Proceedings of the Stockholm Workshop on 'Variation Within Optimality Theory'*, 113–122. Stockholm.
- Gould, Isaac. 2023. Parasitic gap patterns and hierarchy preservation in German. *Poznań Studies in Contemporary Linguistics* 59(3). 523–549. <https://doi.org/10.1515/psicl-2022-1021>.
- Hayes, Bruce. 2022. Deriving the Wug-Shaped Curve: A Criterion for Assessing Formal Theories of Linguistic Variation. *Annual Review of Linguistics* 8. 473–494. <https://doi.org/10.1146/annurev-linguistics-031220-013128>.
- Heck, Fabian. 2000. Tiefenoptimierung. *Linguistische Berichte* 184. 441–468.
- Heck, Fabian & Himmelreich, Anke. 2017. Opaque Intervention. *Linguistic Inquiry* 48(1). 47–97. https://doi.org/10.1162/ling_a_00235.
- Jacobs, Joachim. 1988. Probleme der freien Wortstellung im Deutschen. *Sprache und Pragmatik* 5. 8–37.
- Masloch, Simon & Poppek, Johanna M. & Kiss, Tibor. 2024. Not so peculiar after all: On the normal position of arguments of German experiencer-object verbs. *Glossa* 9(1). 1–37. <https://doi.org/10.16995/glossa.10150>.
- Müller, Gereon. 1999. Optimality, markedness, and word order in German. *Linguistics* 37(5). 777–818. <https://doi.org/doi:10.1515/ling.37.5.777>.
- Pafel, Jürgen. 1991. Zum relativen Skopus von w- und Q-Phrasen (w/q-Interaktion). In Reis, Marga & Rosengren, Inger (eds.), *Fragesätze und Fragen*, 145–173. Tübingen: Niemeyer. <https://doi.org/10.1515/9783111356525.145>.
- Pafel, Jürgen. 2009. Zur linearen Syntax des deutschen Satzes. *Linguistische Berichte* 217. 37–79.
- Reis, Marga. 1992. The Category of Invariant alles in Wh-Clauses: On Syntactic Quantifiers vs. Quantifying Particles in German. In Tracy, Rosemarie (ed.), *Who Climbs the Grammar-Tree*, 465–492. Tübingen: Niemeyer.
- Salzmann, Martin. 2025. Word order in the German middle field – scrambling. <https://ling.auf.net/lingbuzz/006866>.

- Uszkoreit, Hans. 1986. Constraints on order. *Linguistics* 24(5). 883–906. <https://doi.org/10.1515/ling.1986.24.5.883>.
- Uszkoreit, Hans. 1987. *Word Order and Constituent Structure in German* (CSLI Lecture Notes 8). Stanford, CA: CSLI Publications.
- Zimmermann, Malte. 2007. Quantifying question particles in German: Syntactic effects on interpretation. In Puig-Waldmüller, E. (ed.), *Proceedings of Sinn und Bedeutung* 11, 627–641. Barcelona. <https://doi.org/10.18148/sub/2007.v11i0.669>.
- Zubin, David A. & Köpcke, Klaus-M. 1985. Cognitive constraints on the order of subject and object in German. *Studies in Language* 9(1). 77–107. <https://doi.org/10.1075/sl.9.1.04zub>.

Appendix

Illustrating Pafel’s (1991) generalisation: Parallel examples with full NPs and identical judgments for all examples by Heck & Himmelreich (2017) cited. (Pafel (1991) used definite NPs, in our judgment it only works with indefinite ones.) Judgments hold for out-of-the-blue contexts. All examples are grammatical and they are fully acceptable in an appropriate context.

- (4’) a. ? Gestern hat einem Professor eine Ministerin gratuliert.
yesterday AUX a.DAT professor a.NOM female.minister congratulated
‘Yesterday, a minister congratulated a professor?’
- b. Gestern hat ein Professor einer Ministerin gratuliert.
yesterday AUX a.NOM Professor a.DAT female.minister congratulated
‘Yesterday, a professor congratulated a minister.’
- (6’) a. Gestern hat euch ein Kellner geholfen.
yesterday AUX you.DAT a.NOM waiter helped
‘A waiter helped you guys yesterday.’
- b. Gestern habt ihr einem Kellner geholfen.
yesterday AUX you.NOM a.DAT waiter helped
‘You guys helped a waiter yesterday.’
- (7’) a. ? Gestern hat einem Professor eine Ministerin gratuliert.
yesterday AUX a.DAT professor a.NOM female.minister congratulated
‘Yesterday, a minister congratulated a professor.’
- b. ? Gestern hat sie einen Professor einem Studenten vorgestellt.
yesterday AUX she.NOM a.ACC professor a.DAT student introduced

‘Yesterday, she introduced a professor to a student.’

- (8') a. Gestern hat ein Professor einer Ministerin geholfen.
 yesterday AUX a.NOM professor a.DAT female.minister helped
 ‘Yesterday, a professor helped a minister’
- b. Gestern hat sie einem Professor eine Ministerin vorgestellt.
 yesterday AUX she.NOM a.DAT professor a.ACC female.minister introduced
 ‘Yesterday, she introduced a professor to a minister.’
- (9') a. Gestern hat dem Professor eine Ministerin gratuliert.
 yesterday AUX a.DAT professor a.NOM female.minister congratulated
 ‘Yesterday, a minister congratulated the professor.’
- b. Gestern hat sie den Professor einem Studenten vorgestellt.
 yesterday AUX she.NOM the.ACC professor a.DAT student introduced
 ‘Yesterday, she introduced the professor to a student.’
- (12') a. ??Nur selten könnte ein Berufswechsel einem Professor
 only seldom could a.NOM career.change.NOM a.DAT professor
 gefallen.
 appeal.to
- b. Nur selten könnte einem Professor ein Berufswechsel gefallen.
 ‘Only seldom could a change of career appeal to a professor.’
- (14') a. = (7'b)
- b. Gestern hat sie einem Studenten einen Professor vorgestellt.
 ‘Yesterday, she introduced a professor to a student.’