

# Extrapolation in German comparatives and the optionality of rightward movement

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## 1 Introduction

common assumptions about rightward movement in standard generative grammar:

- optional
- post-syntactic

problematic – Merge (rightward movement of phrases), strong features in core syntax (optionality)

factors determining preferences regarding rightward movement: prosodic and stylistic factors

question: how optionality can be modelled in extraposed German comparatives

proposal:

- optionality only partial – experimental evidence
- extraposition regulated by postsyntactic factors
- postsyntactic factors not stylistic or prosodic in nature – related to the way case assignment operates in the morphological component

→ no genuine optionality of a genuine core syntactic operation

## 2 Rightward movement

classical case: Heavy NP Shift in English

- (1) a. I met **Mary** on the street.  
b. \*I met on the street **Mary**.  
c. I met **my niece from London** on the street.  
d. I met on the street **my niece from London**.

properties:

- syntactic indicator: lexical verb adjacent to the direct object in syntax
- postsyntactic operation: prosodic factors (“heaviness”) decisive

German: underlying OV order (VP/vP/TP head-final) – clause-final verbs in the right sentence bracket

- (2) Gestern habe ich Ulrike **gesehen**.  
yesterday have.1SG I Ulrike seen  
‘I saw Ulrike yesterday.’

extraposition (in a descriptive sense): constituents appearing to the right of the right sentence bracket – right periphery (Nachfeld, NF)

various types:

- PP arguments of verbs
- adverbs
- attributes (of NPs)

extraposition of PP arguments:

- (3) a. Lina hat [mit Thea] [über die Kinder] **gesprachen**.  
Lina has with Thea on the children spoken  
‘Lina talked about the children with Thea.’  
b. Lina hat **gesprachen** [mit Thea] [über die Kinder].  
Lina has spoken with Thea on the children  
‘Lina talked about the children with Thea.’

extraposition of attributes:

- (4) a. Lina hat [eine Studentin [mit grünen Haaren]] **getroffen**.  
Lina has a.F female.student with green hairs met.PTCP  
‘Lina has met a student with green hair.’  
b. Lina hat [eine Studentin] **getroffen** [mit grünen Haaren].  
Lina has a.F female.student met.PTCP with green hairs  
‘Lina has met a student with green hair.’

analyses:

- post-syntactic extraposition in all cases – Truckenbrodt (1995), Féry (2013)
- syntactic base-generation in some cases and post-syntactic extraposition in others – Frey (2015)

differentiation (Frey 2015):

- base-generation to the right of the verb: adverbs (adjuncts) and PP arguments (inflectional properties, i.e. case, not dependent on the verb)
- post-syntactic extraposition: attributes and relative clauses (see also Inaba 2007)

question: how the extraposition of comparative subclauses can be conditioned

### 3 Comparatives

comparative clause base-generated as a complement of the degree (Deg) head (-er) in the matrix clause (Lechner 2004, Bacskai-Atkari 2018; see Hohaus & Zimmermann 2021 for a semantic analysis)

- (5)
- I am **as** tall [**as** Peter is].
  - \*I am **as** tall [**than** Peter is].
  - \*I am taller [**as** Peter is].
  - I am taller [**than** Peter is].

the comparative subclause is regularly elliptical:

- (6) I am taller [than Peter is].

attributive comparatives potentially ambiguous (Lerner & Pinkal 1995):

- DP-external reading
- DP-internal reading

ambiguous structures:

- (7) I saw a taller woman than my mother.  
External reading: ‘I saw a taller woman than my mother saw.’  
Internal reading: ‘I saw a taller woman than my mother is.’

different underlying structures (Bacskai-Atkari 2021):

- (8)
- I saw a taller woman than [<sub>FP</sub> my mother [<sub>TP</sub> *t* saw ~~x-tall a woman~~]].
  - I saw a taller woman than [<sub>FP</sub> my mother [<sub>PreDP</sub> *t* BE ~~x-tall~~]].

FP: functional projection hosting the remnant in elliptical constructions in its specifier (Merchant 2001)

remnant a subject in both cases underlyingly, but there are differences:

- underlying TP: remnant is assigned nominative case
- underlying PredP: remnant not assigned nominative case

complementiser not a case assigner

case differentiation in German:

- nominative masculine remnants: external reading
- accusative masculine remnants: internal reading
- feminine remnants: case-ambiguous

no default accusative remnant otherwise in German, unlike in English:

- (9) a. I am taller than **him**.
- b. \*Ich bin größer als **ihn**.  
I am taller than he.ACC  
'I am taller than him.'

→ accusative case due to the particular configuration in attributive comparatives

## 4 Experimental results

experiment:

- 48 speakers via the University of Potsdam (2020)
- online (written) via L-Rex (Starschenko & Wierzba 2021)
- rating acceptability – scale from 5 (best) to 1 (worst)
- items distributed over 12 lists
- altogether 64 test sentences for each participant
- 12 items testing the perfective condition – internal vs. external, full DP versus pronoun, case
- items presented in an unambiguous context
- follow-up: 48 speakers via the University of Konstanz (2021)

basic case distinction confirmed by experimental results

external reading:

- (10) Kontext: Ich habe mit [meiner Schwester / meinem Bruder] beschlossen, unseren Eltern dieses Jahr selbstgemalte Bilder zu schenken.

‘Context: I have decided with [my sister / my brother] to give self-painted pictures to our parents this year.’

- a. Ich male ein schöneres Bild als **sie**.  
I paint.1SG a.N nicer.N picture as she.NOM/ACC  
‘I am painting a nicer picture than her.’
- b. Ich male ein schöneres Bild als **er**.  
I paint.1SG a.N nicer.N picture as he.NOM  
‘I am painting a nicer picture than him.’
- c. Ich male ein schöneres Bild als **ihn**.  
I paint.1SG a.N nicer.N picture as him.ACC  
‘I am painting a nicer picture than him.’

results:

|                    | Case-ambiguous | Nominative | Accusative |
|--------------------|----------------|------------|------------|
| Mean               | 4.60           | 4.38       | 1.10       |
| Median             | 5              | 5          | 1          |
| Variance           | 0.61           | 0.86       | 0.93       |
| Standard deviation | 0.79           | 0.94       | 0.31       |

internal reading:

- (11) Kontext: [Deine Schwester / Dein Bruder] ist ganz schön groß, jedoch nicht [die größte Frau / der größte Mann] der Welt.

‘Context: [Your sister / Your brother] is fairly tall but not [the tallest woman / the tallest man] in the world.’

- a. Ich kenne eine größere Frau als **sie**.  
I know.1SG a.F taller.F woman as she.NOM/ACC  
‘I know a taller woman than her.’
- b. Ich kenne einen größeren Mann als **er**.  
I know.1SG a.M taller.M man as he.NOM  
‘I know a taller man than him.’
- c. Ich kenne einen größeren Mann als **ihn**.  
I know.1SG a.M taller.M man as him.ACC  
‘I know a taller man than him.’

results:

|                    | Case-ambiguous | Nominative | Accusative |
|--------------------|----------------|------------|------------|
| Mean               | 4.35           | 1.92       | 4.65       |
| Median             | 5              | 1          | 5          |
| Variance           | 0.98           | 1.74       | 0.44       |
| Standard deviation | 1.00           | 1.33       | 0.67       |

in both readings in the present-tense condition: no verb in the right sentence bracket to show whether there is extraposition to the NF

perfective condition: two surface positions for the *als*-XP: before or after the right sentence bracket

patterns for case-ambiguous *sie* – external reading:

- (12) Kontext: Meine Geschwister sind aufs Land gezogen und haben jeweils ein Haus gebaut. [Meine Schwester / Mein Bruder] hat keine Kinder.  
 ‘Context: My siblings have moved to the countryside and each has built a house. [My sister / My brother] has no children.’

- a. Mein Bruder hat [ein größeres Haus [als sie]] **gebaut**.  
 my.M brother has a.N bigger.N house as she.NOM/ACC built.PTCP  
 ‘My brother has built a bigger house than her.’
- b. Mein Bruder hat [ein größeres Haus] **gebaut** [als sie].  
 my.M brother has a.N bigger.N house built.PTCP as she.NOM/ACC  
 ‘My brother has built a bigger house than her.’

patterns for case-ambiguous *sie* – internal reading:

- (13) Kontext: [Meine Schwester / Mein Bruder] kümmert sich nie um den Haushalt. Sei froh, dass du nicht mit [ihr / ihm] verheiratet bist.  
 ‘Context: [My sister / My brother] never takes care of the household. Be glad you are not married to [her / him].’

- a. Du hast [eine tollere Frau [als sie]] **geheiratet**.  
 you have.2SG a.F greater.F woman as she.NOM/ACC married.PTCP  
 ‘You have married a greater woman than her.’
- b. Du hast [eine tollere Frau] **geheiratet** [als sie].  
 you have.2SG a.F greater.F woman married.PTCP as she.NOM/ACC  
 ‘You have married a greater woman than her.’

results:

|                    | <b>External</b> | <b>Ext. extraposed</b> | <b>Internal</b> | <b>Int. extraposed</b> |
|--------------------|-----------------|------------------------|-----------------|------------------------|
| Mean               | 4.42            | 4.58                   | 4.54            | 3.88                   |
| Median             | 5               | 5                      | 5               | 4                      |
| Variance           | 0.78            | 0.45                   | 0.62            | 1.44                   |
| Standard deviation | 0.68            | 1.32                   | 0.80            | 1.21                   |

not all differences are significant ( $P < 0.05$ ) → no one-to-one correspondence between the surface position and reading

specifically: only slight preference for extraposition in the external reading

significant results:

- internal reading: no extraposition preferred over extraposition ( $P = 0.0022$ )
- NF position: better for the external reading than for the internal reading ( $P = 0.0007$ )

patterns for case distinction with *er/ihn* – external reading:

- (14) Kontext: Meine Geschwister sind aufs Land gezogen und haben jeweils ein Haus gebaut. [Meine Schwester / Mein Bruder] hat keine Kinder.  
 ‘Context: My siblings have moved to the countryside and each has built a house. [My sister / My brother] has no children.’
- a. Meine Schwester hat [ein größeres Haus [als er]] **gebaut**.  
 my.F sister has a.N bigger.N house as he.NOM built.PTCP  
 ‘My sister has built a bigger house than him.’
- b. Meine Schwester hat [ein größeres Haus] **gebaut** [als er].  
 my.F sister has a.N bigger.N house built.PTCP as he.NOM  
 ‘My sister has built a bigger house than him.’

patterns for case distinction with *er/ihn* – internal reading:

- (15) Kontext: [Meine Schwester / Mein Bruder] kümmert sich nie um den Haushalt. Sei froh, dass du nicht mit [ihr / ihm] verheiratet bist.  
 ‘Context: [My sister / My brother] never takes care of the household. Be glad you are not married to [her / him].’
- a. Du hast [einen tolleren Mann [als ihn]] **geheiratet**.  
 you have.2SG a.M greater.M man as he.ACC married.PTCP  
 ‘You have married a greater man than him.’
- b. Du hast [einen tolleren Mann] **geheiratet** [als ihn].  
 you have.2SG a.M greater.M man married.PTCP as he.ACC  
 ‘You have married a greater man than him.’

results:

|                    | <b>External</b> | <b>Ext. extraposed</b> | <b>Internal</b> | <b>Int. extraposed</b> |
|--------------------|-----------------|------------------------|-----------------|------------------------|
| Mean               | 4.17            | 4.58                   | 4.04            | 4.46                   |
| Median             | 5               | 5                      | 4               | 5                      |
| Variance           | 1.34            | 0.58                   | 1.37            | 0.54                   |
| Standard deviation | 1.17            | 0.77                   | 1.18            | 0.74                   |

significant result for the external reading: extraposition preferred over no extraposition (P=0.0321)

specifically:

- internal reading: no significant preference for no extraposition over extraposition
- NF position: no significant preference for the external reading over the internal reading

→ changing the case-ambiguous remnant (*sie*) to a case-unambiguous one (*ihn*) in the NF significantly improves the acceptability of the sentence (P=0.0056)

## 5 Analysis

asymmetry between the readings in case-ambiguous patterns supports the view that there is an extraposition operation: not merely two base-generated patterns

asymmetry is also influenced by morphological factors (contextual inflection not a core syntactic property)

difference between positions:

- DP-edge position largely neutral
- NF position significantly worse for remnants in internal readings per se

but: difference between positions influenced if case is visibly marked:

- but: NF position significantly more acceptable for remnants in the internal reading if they are overtly accusative
- DP-edge position less preferable for overtly nominative remnants

case assignment: DP-edge position part of an accusative DP

accusative case for remnants in predicative clauses comes from the matrix verb (Bacskai-Atkari 2021) – instead of default nominative case, the remnant DP bears the accusative case assigned to the adjacent direct object in the matrix clause

rightward movement not fully optional: extraposition taking the DP away from the position-bound case position improves with overt morphological marking



order of operations in the post-syntactic component:

- first: morphological case assigned in the morphological module (MM) – late insertion (Distributed Morphology, see Halle & Marantz 1993, Embick & Noyer 2007)
- second: extraposition to NF (if at all)

relation to other extraposition operations:

- extraposition of the *als*-clause similar to the extraposition of attributes
- extraposition of the *als*-clause differs from the extraposition of PP arguments of verbs (base generation, case from P) – verb relevant for case marking of the remnant in comparatives

expected inasmuch as the *als*-clause is base-generated as part of an attribute and comparative clauses in general show parallel behaviour to relative clauses (Brandner & Bräuning 2013, Jäger 2018, Bacskai-Atkari 2018)

## 6 Conclusion

extraposition of (elliptical) comparative subclauses in German

- rightward movement to the NF
- rightward movement takes place after morphological case is expressed (MM)
- no genuine optionality – morphological case decisive

theoretical implication: a postsyntactic movement operation governed by postsyntactic (morphological) factors

## References

- Bacsikai-Atkari, Julia. 2018. *Deletion phenomena in comparative constructions: English comparatives in a cross-linguistic perspective*. Berlin: Language Science Press. doi: 10.5281/zenodo.2545509.
- Bacsikai-Atkari, Julia. 2021. *The syntax of functional left peripheries: Clause typing in West Germanic and beyond*: Universität Potsdam habilitation.
- Brandner, Ellen & Iris Bräuning. 2013. The particle *wo* in Alemannic: Only a complementizer? *Linguistische Berichte* 234. 131–169.
- Embick, David & Rolf Noyer. 2007. Distributed Morphology and the syntax/morphology interface. In Gillian Ramchand & Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces*, 289–324. Oxford: Oxford University Press.
- Féry, Caroline. 2013. Prosodic monsters and extraposition in German. Manuscript. Universität Frankfurt.
- Frey, Werner. 2015. Zur Struktur des Nachfelds im Deutschen. In Hélène Vinckel-Roisin (ed.), *Nachfeld im Deutschen: Theorie und Empirie*, 53–75. Berlin: De Gruyter.
- Halle, Morris & Alec Marantz. 1993. Distributed morphology. In Ken Hale & Samuel Jay Keyser (eds.), *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, 111–176. Cambridge, MA: MIT Press.
- Hohaus, Vera & Malte Zimmermann. 2021. Comparisons of equality with German *so...wie*, and the relationship between degrees and properties. *Journal of Semantics* 38. 95–143.
- Inaba, Jiro. 2007. *Die Syntax der Satzkomplementierung*. Berlin: Akademie Verlag.
- Jäger, Agnes. 2018. *Vergleichskonstruktionen im Deutschen: Diachroner Wandel und synchrone Variation*. Berlin: De Gruyter.
- Lechner, Winfried. 2004. *Ellipsis in comparatives*. Berlin: Mouton de Gruyter.
- Lerner, Jan & Manfred Pinkal. 1995. Comparative Ellipsis and variable binding. In Mandy Simons & Teresa Galloway (eds.), *Proceedings from the Conference on Semantics and Linguistic Theory (SALT), University of Texas, Austin*, 222–236. Ithaca: Cornell University, Department of Linguistics.
- Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
- Starschenko, Alexej & Marta Wierzba. 2021. L-Rex Linguistic rating experiments [software], version 0.8. GNU General Public License v3.0. <https://github.com/2e2a/1-rex/>.
- Truckenbrodt, Hubert. 1995. Extraposition from NP and prosodic structure. In Jill N. Beckman (ed.), *Proceedings of NELS 25: Vol. 1.*, 503–517. Amherst, MA: GLSA.