

Wh-quantifier float in German diagnoses \bar{A} -traces and successive cyclicity in vP

Aaron Doliana doliana@umd.edu
 University of Maryland, College Park
 NELS 50, October 25–27 2019, MIT

1 Introduction

- Wh-quantifier float in German: so-called “invariant *alles*” (Pafel, 1991; Giusti, 1991; Reis, 1992; Beck, 1996; Zimmermann, 2007; Heck and Himmelreich, 2017)

- (1) *Wen*₁ hast du *e*₁ **alles** angerufen? (2) [*Wen alles*]₁ hast du *e*₁ angerufen?
 who.ACC have_ϕ you all called who.ACC all have_ϕ you called
 ‘Who all did you call?’ ‘Who all did you call?’

(2) quantifier is *adjacent*, in one constituent with its *associate*, the XP it quantifies over.

(1) quantifier occurs *floated* at a distance.

A LONG STANDING QUESTION:

Q: Are floated quantifiers derived from a common source with their associate?

H1: *Same Source hypothesis* (SSH):¹

→ (Non-clausal) First-Merge constituency between *alles* and associate.

H2: *Different Source hypothesis*: (DSH)²

Floated quantifiers are not derived from a single source.

→ floated quantifiers are adverbs.

- DSH analyses exist in a wealth of technical implementations.

¹ This includes *floating* analyses, e.g., Dougherty (1970); Kayne (1975), and *stranding* analyses, e.g., Sportiche (1988); Shlonsky (1991); Merchant (1996); McCloskey (2000); Henry (2012)

² E.g., Dowty and Brodie (1984); Doetjes (1992); Bobaljik (1995); Koopman (2010); Heck and Himmelreich (2017)

CLAIMS:

Generalization: *alles* occurs in a subset of its associate’s chain-link positions, specifically \bar{A} -chain-link positions.

- Alles* is diagnostic of successive-cyclic movement through vP.
- Alles* is diagnostic of the position of \bar{A} -traces of its associate.

→ German floating “invariant” *alles* is best analyzed as derived from a single source that contains its associate.

Same Source hypothesis is superior in explaining generalizations about floated *alles*.

Structure of the talk:


§2 Immediate consequence of a same-source analysis of *alles*.

§3 Generalization 1: Distribution of *alles*.

§4 Generalization 2: \bar{A} -movement restriction.

2 Some predictions of Same Source hypothesis

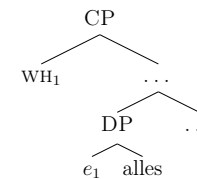
STARTING POINT:

- (3) 

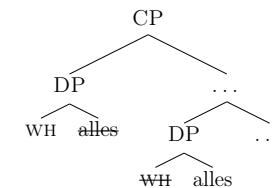
CONSEQUENCE:

→ A float derived from (3) necessarily involves movement, e.g. if “stranding” is just movement (4a), or movement plus some deletion (4b)³

(4) a. Movement = Stranding



b. Movement ∈ Stranding



³ Another known option is what falls under the rubric of “floating” (Dougherty, 1970), where the float is derived by moving the quantifier. This analysis will ultimately be inadequate for *alles*.

3 Distribution

- (5) $\begin{array}{c} \text{DP} \\ \swarrow \quad \searrow \\ \text{WH} \quad \text{alles} \end{array}$

A float derived from (5) necessarily involves movement.

→ Given a sentence, the distribution of *alles* is bounded by the distribution of its associate. (Assuming that *alles* cannot move on its own.)

a. Base position of the associate

- (6) a. $[_{CP} \text{wh}_1 \dots [_{VP} \dots [_{VP} [_{DP} e_1 \text{alles}] V]]]$
 b. $[_{CP} \text{wh}_1 \dots [_{VP} [_{DP} e_1 \text{alles}] [_{VP} \dots]]]$

b. Positions the associate can reach via scrambling

- (7) $[_{CP} \text{wh}_1 \dots [_{DP} e_1 \text{alles}]_2 \text{Adv} [_{VP} \dots [_{VP} e_2 V]]]$

c. Positions the associate can reach via raising

- (8) $[_{CP} \text{wh}_1 \dots [_{DP} e_1 \text{alles}]_2 [_{TP} \dots e_2 \dots]]$

d. Positions the associate can reach via successive-cyclic movement

- (9) $[_{CP} \text{wh}_1 \dots [_{VP} [_{DP} e_1 \text{alles}]_2 [_{VP} \dots [_{CP} \dots e_2 \dots]]]]$

e. **Not** in positions the associate cannot start from or reach via scrambling, raising, successive-cyclic movement

- (10) *Reis-Pafel Generalization*: (Reis 1992, building on Pafel 1991)
Alles can occur:

- a. Right-adjacent to its associate
 b. Floated, in the base position of the associate
 c. Floated, in positions its associate can reach via scrambling

• Generalizable to (11)

- (11) *Distribution generalization for floated alles*:
 Given a derivation, floated *alles* occurs in a subset of the positions that its associate occupied in that derivation.

(a) Base position of the associate (see section 3.1)

(b) **Positions the associate can reach via scrambling**

(c) Positions the associate can reach via raising (see example (29))

(d) **Positions the associate can reach via successive-cyclic movement**

3.1 Base position: *wh*-indefinites

- The movement options of *wh*-indefinites ('WND') in German are very restricted: no movement to Spec,C (12a), no scrambling (12b) (Haider, 1993: 200, fn2). (Raising OK (12c).)

- (12) a. *Wen habe ich gesehen.
 WND.ACC have.1SG I.NOM seen
Intended: 'I saw someone.'
 b. *dass wen keiner/'n Lehrer gesehen hat.
 that WND.ACC no-one/a.NOM teacher seen have.3SG
 'that no-one/a teacher saw someone.'
 c. dass was droht, anzubrennen.
 that WND.NOM threaten.3SG to.burn.at
 'that something threatens to get burnt.'

→ When raising is not an option, *wh*-indefinites mark their base position

→ *Alles* can occur below a *wh*-indefinite object (13a)

- *zeigen* 'show' is a DAT>>ACC verb: a negative quantifier can bind a pronoun from the DAT into the ACC, but not vice-versa (14), and *wh*-indefinites have DAT>>ACC word order (15).

- (13) A: Weißt du, $[_{CP} \text{was}_1 \text{der} \text{Lehrer} [_{VP} \text{wem} [_{e_1} \text{alles} \text{gezeigt} \text{haben} \text{soll}]]]$
 know.2SG you what.ACC the.NOM teacher WND.DAT ALLES
 gezeigt haben soll?
 shown have MOD.3SG
 'Do you know what all the teacher supposedly showed to someone?'
 B: Ne, nur, dass er wem 'ne Schlange gezeigt haben soll!
 no only that he WND.DAT a.ACC snake shown have MOD.3SG
 'No, just that he supposedly showed someone a snake!'

- (14) a. dass 'n Lehrer $[_{\text{keinem}} \text{Schüler}]_i \text{sein}_i \text{neues} \text{Klassenzimmer} \text{gezeigt}$
 that a teacher no.DAT student his new classroom shown
 hat.
 have.3SG
 'that a teacher showed no student their new classroom.'
 b. *dass 'n Lehrer sein-en_i Mitschülern $[_{\text{keinen}} \text{neuen} \text{Schüler}]_i \text{gezeigt}$
 that a teacher his-DAT.PL peers no.ACC new student shown
 hat.
 have.3SG
 'that a teacher showed no new student to their peers.'

- (15) Was ist passiert?
 what is happened
 'What happened?'

- a. Nur, dass 'n Lehrer *wem* was geZEIGT hat.
 only that a.NOM teacher WND.DAT WND.ACC shown have.3SG
 'Only that a teacher showed something to someone.'
- b. ??Nur, dass 'n Lehrer was *wem* geZEIGT hat.
 only that a.NOM teacher WND.ACC WND.DAT shown have.3SG

3.2 Positions reached by associate via scrambling

Alles can occur in positions that the associate can reach via scrambling.

- *Alles* can also occur outside the base position.
- Above a higher *wh*-indefinite, which marks its own base position in the absence of raising (see section 3.1) (gloss: WND)

- (16) Weißt du, [_{CP} *was*₁ der Lehrer {**alles**} [_{VP} wem] [_e₁
 know.2SG you what.ACC the.NOM teacher ALLES WND.DAT
 {alles} gezeigt haben soll?
 ALLES shown have MOD.3SG
 'Do you know what all the teacher supposedly showed to someone?'

- Or on either side of a definite DAT, which may itself have scrambled.

- (17) *Was* hat der Lehrer {**alles**} den Schülern {**alles**}
 what.ACC have.3SG the.NOM teacher ALLES the.DAT students ALLES
 gezeigt?
 shown
 'What (all) did the teacher show the students?'

- These are positions that the associate itself may reach via scrambling before *wh*-moving to Spec,C

- (18) Wer hat {*was* (**alles**)} den Schülern {*was* (**alles**)}
 who.NOM have.3SG what.ACC ALLES the.DAT students what.ACC ALLES
 gezeigt?
 shown
 'Who showed the students what (all)?'

Conversely: *Alles* **cannot** occur in positions that the associate **cannot** reach via scrambling.

- Weak object pronouns are de-stressed, and move to the so-called Wackernagel position, either the left edge of TP, or the left edge of vP; see Müller 2001; Anagnostopoulou 2008 on this difference.
- Subjects *can* occur to their left (19a), objects **cannot** (19b), and *wh*-phrase objects **cannot** either (19c)

- (19) a. dass {Maria} ihm {Maria} gerne was abgegeben hätte.
 that Maria him.DAT Maria gladly WND.ACC give.away have.COND.3SG
 'that Maria would have gladly given him something.'
- b. dass {*den Apfel} ihm {den Apfel} keiner *t* abgegeben
 that the.ACC apple him.DAT the.ACC apple noone.NOM give.away
 hätte.
 have.COND.3SG
 'that Maria would have given him the apple.'
- c. Wann/wo {*was} ihm {was} keiner *t* abgegeben
 when/where what.ACC him.DAT what.ACC noone.NOM give.away
 hätte, ist unklar.
 have.COND.3SG be.3SG unclear
 'It is unclear when/where no-one would have given him what.'

- *Alles* **cannot** occur to the left of *weak object pronouns* (DAT *ihm* 'him' or REFL *sich* '3.self') with an object associate (20), but it **can**, with a subject associate (21)

- (20) a. *Was*₁ hat {?***alles**} ihm {**alles**} keiner *e*₁ geben wollen?
 what.ACC have.3SG ALLES him.DAT ALLES noone.NOM give want
 'What all did no-one want to give him?'
- b. *Wem*₁ soll man {?***alles**} sich {**alles**} dabei *e*₁ vorstellen?
 who.ACC MOD.3SG one.NOM ALLES REFL ALLES that.by imagined
 'Who all is one supposed to think of based on that?'
- (21) (Und) *wer*₁ wollte {**alles**} ihm {**alles**} gestern *e*₁ 'ne Lektion
 and who.NOM wanted ALLES him.DAT ALLES yesterday a lesson
 erteilen?
 give
 '(And) who all wanted to teach him a lesson, yesterday?'

3.3 Successive-cyclic movement through vP

Alles can occur in positions reached via successive-cyclic movement.

- Reminiscent of conclusions reached by McCloskey (2000) and Henry (2012) for a number of West Ulster English varieties.

- *Alles* must be clausemate to a chain link of its associate:

- (22) * [_{CP1} *Wem*₁ hat der Peter *e*₁ erzählt, [_{CP2} dass die Maria **alles**₁ die
 who.DAT have.3SG the Peter told that the Maria all the
 Susi geholfen hat]]?
 Susi.DAT helped have.3SG
Intended: 'Who all did Peter tell that Maria helped Susi?'
- (23) * [_{CP1} Der Peter hat **alles**₁ gewusst, [_{CP2} *wen*₁ die Maria *e*₁ liebt]].
 the Peter have.3SG all known who.ACC the Maria love.3SG
Intended: 'Peter knew who all Maria loves.'

- Nonetheless, *alles* can occur (a) in matrix clause where long movement has taken place to; (b) the clause of origin from which long movement has taken place.

(24) [CP₁ *Wem*₁ hat der Peter [vP *e*₁ {**alles**} gemeint, [CP₂ dass die Maria
who.DAT have.3SG the Peter all said that die Maria
*e*₁ {**alles**} geholfen hat]]]?
all helped have.3SG
'Who all did Peter say/think that Mary helped?'

- *Alles* could not have moved there itself: scrambling is clause-bound in German.
- If instead *alles* was stranded in the position of an intermediate landing site of *wh*-movement, we expect it to be in a verbal projection outside of VP, e.g. vP assuming standard Phase Theory (Chomsky, 2000, 2001)
- *Alles* in matrix clause must occur outside the VP: it can no longer occur on either side of a *wh*-indefinite.

(25) *Context*: it's about what Peter did.

- a. Max: Die hat=s wem erzählt.
she have.3SG=it WND.DAT told
'Max: She's told it someone.'
- b. Maria: Und *was*₁ hat sie {**alles**} [vP wem {***alles**} erzählt,
and what have.3SG she ALLES WND.DAT ALLES told
[CP dass der Peter *e*₁ gemacht hat]?
that the Peter done have.3SG
'Maria: And what all has she told someone that Peter did?'

- Under the assumption that weak object pronouns are not as high as TP when they occur to the right of a subject (because, e.g., they occupy the leftmost edge of their projection (Müller, 2001)), then matrix *alles* can finally be placed into a projection above VP and below TP.

(26) *Was*₁ hat [TP der Peter [?_? {***alles**} [vP ihm [vP gestern [vP
what.ACC have.3SG the Peter ALLES him.DAT yesterday
{**alles**} erzählt, [CP dass die Maria *e*₁ gekauft hat]?
ALLES told that the Maria bought have.3SG
'What all did Peter tell him yesterday that Maria bought?'

3.4 Summary

SAME SOURCE HYPOTHESIS:

- *alles* is the sister of its associate in deep structure, float is derived with movement
- *alles* is the sister of a chain-link of its associate
- *alles* occurs in the positions of its associate's chain-links

DIFFERENT SOURCE HYPOTHESIS:

- Sensitivity to kind of associate (*viz* subject-object asymmetry) is challenging: DSH analyses expect *absolute* distribution statements of Q, rather than distribution statements that are *relative* to the associate. Relative statements are expected only if they follow from the locality restrictions on the Q-associate relation (e.g. Agree in Heck and Himmelreich 2017 or Construal in Bobaljik 1995)
- *alles* in base position is an issue (unless there is VP/vP-internal structure-preserving movement (Heck and Himmelreich, 2017), or massive roll-up movement (Koopman, 2010))

4 \bar{A} -restriction

(27) $\begin{array}{c} \text{DP} \\ \wedge \\ \text{WH} \quad \text{alles} \end{array}$

A float derived from (27) necessarily involves movement.

- *Alles* may be sensitive to the kind of movement involved in "stranding". I.e., there may be restrictions on what kind of movement can derive the float from the source in (3). (Either due to properties of the movement itself applying to the source, or perhaps due to consequences of the movement type to deletion.)

(28) *Distribution generalization for floated alles, Part 2:*

Given a derivation, *alles* can occur only in \bar{A} -trace positions of its associate.

- The movement step from the position in which *alles* occurs is the movement step directly related to the stranding procedure.
- *Alles* may not be stranded by A-movement.
- (McCloskey (2000) reaches the same conclusion for West Ulster English subject movement to TP (though some potential discrepancies with object shift); Fitzpatrick (2006) reaches the same conclusion for Russian, Korean and Japanese floats in \bar{A} -chains.)

RAISING:

- *alles* **cannot** occur in the base position inside the raising complement: (29)-low;
- *alles* can occur in the derived subject position: (29)-high.

(29) Krass, *was*₁ *e*₁ {**alles**} droht, [TP [dem Max]₂ *e*₁ {**alles**} *e*₂
crass what.NOM all threaten.3SG the.DAT Max all
das Leben zu versauen!|
the life.ACC to spoil.INF
'Astonishing, what all threatens to ruin Max's life!'

- Conversely, the object of a raising complement does not show such an asymmetry:

(30) Krass, *was*₂ [diese App]₁ (*e*₂) {?**alles**} droht, [TP *e*₁ dem Max
crass what.ACC this app.NOM all threaten.3SG the.DAT Max
*t*₂ {**alles**} zu versauen]!
all to spoil.INF
'Astonishing, what all this app threatens to ruin for Max!'

- The asymmetry between (29) and (30) makes sense given Generalization (28):
- In (29)-high, (30)-high, and (30)-low, *wh*-movement may have occurred directly from the position in which *alles* is floated.
- In (29)-low, however, the subject must raise (A-move) into the matrix clause.
 - If the subject *was* A-moves alone into matrix, it strands *alles* next to an \bar{A} -trace, violating generalization (28)
 - *Note*: An alternative derivation that leaves *alles* next to an \bar{A} -trace in (29)-low is not available: Squeezing in a step of \bar{A} -movement will cause an instance of *Improper Movement* whenever the step of A-movement is inevitable.

ABSTRACT PATTERN:

- *Notation*: A_1/A_2 , \bar{A}_1/\bar{A}_2 stand for A/\bar{A} -positions; $A-t/\bar{A}-t$ stand for traces of A-movement/ \bar{A} -movement.

- (a) * \bar{A} -stranding (=*(29)-low)
 (a') \checkmark \bar{A} -stranding (= \checkmark (30)-low)
 (b) \checkmark \bar{A} -pied-piping, followed by \bar{A} -stranding (= \checkmark (29)-high)
 (b') \checkmark \bar{A} -pied-piping, followed by \bar{A} -stranding (= \checkmark (24)-matrix)

(31) a.* [\bar{A}_2 wh₁ [\bar{A}_1 $\bar{A}-t'_1$ [A_2 $\bar{A}-t_1$ [A_1 $A-t_1$ alles]]]]
 a'. [\bar{A}_2 wh₁ [\bar{A}_1 $\bar{A}-t'_1$ [A_2 [A_1 $B-t_1$ alles]]]]
 b. [\bar{A}_2 wh₁ [\bar{A}_1 $\bar{A}-t'_1$ [A_2 [$\bar{A}-t_1$ alles]₂ [A_1 $A-t_2$]]]]
 b'. [\bar{A}_2 wh₁ [\bar{A}_1 [$\bar{A}-t'_1$ alles]₂ [A_2 [A_1 $\bar{A}-t_2$]]]]

ADDITIONAL TEST CASES:

- Any configuration in which the *wh*-phrase must A-move from the base position before *wh*-moving on to CP
 1. **Scrambling+WCO**: *alles* cannot occur to the right of a pronoun bound by its associate in a Weak Crossover (WCO) configuration [(b)-derivation]; *alles* can occur to the left of a pronoun bound by its associate in a WCO configuration.
 ⇒ Explained if: WCO requires A-movement to a position from which *pro* can be A-bound.

(32) b. *_{[CP wh₁ [TP [DP *pro*₁ DP] *e*₁ **alles**]]}
 b'. _{[CP wh₁ [TP [*e*₁ **alles**]₂ [DP *pro*₂ DP] *e*₂]]}

2. **Scrambling+Anaphor binding**: *alles* cannot occur to the right of an anaphor bound by its associate [(b)-derivation]; *alles* can occur to the left of an anaphor bound by its associate [(b')-derivation].
 ⇒ Explained if: Anaphor must be bound from an A-position, that can be reached only via A-movement.

(33) b. *_{[CP wh₁ [TP [DP *anaphor*₁] *e*₁ **alles**]]}
 b'. _{[CP wh₁ [TP [*e*₁ **alles**]₂ [DP *anaphor*₂] *e*₂]]}

3. **Scrambling of in-situ wh-phrase**: *alles* and its associate in-situ *wh*-phrase cannot be separated.
 ⇒ Explained if: in-situ *wh*-phrase is separated by *alles* via scrambling, and if scrambling is A-movement.

(34) b. *_{[CP wh₁ [TP wh₂ *adverb* *e*₂ **alles**]]}
 b'. _{[CP wh₁ [TP [*e*₂ **alles**]₃ *adverb* *e*₃]]}

- *Note*: This state of affairs forces the conclusion that the Scrambling that is involved in the configurations 1–3 above must be A-movement (if A-movement vs. \bar{A} -movement is a dichotomy)
- Actual examples for paradigms can be found here (section 3.4.2):
<https://aarondoliana.files.wordpress.com/2019/09/doliana888updated.pdf>

5 Conclusion

Floated “invariant” *alles* in German is best analyzed as derived from a single non-clausal constituent containing *alles* and its associate.

1. **Distribution**: The distribution of *alles* (a) is bounded by distribution of associate, (b) varies with the properties of its associate (e.g. subject-object asymmetries).
 ⇒ A distribution statement of *alles* must make reference to **the associate’s chain** – the derivational history of its associate, or the set of positions that the associate can in principle occur in in a given sentence.
 2. **\bar{A} -restriction**: *Alles* can be stranded by \bar{A} -movement, but not by A-movement.
 ⇒ Rather than relying on locality to the overall set of occurrences of its associate (A-chains and \bar{A} -chains alike), both the licensing and the distribution of *alles* selectively rely on locality to its associate’s \bar{A} -chain.
- In general: *alles*-associate relation shows a strong sensitivity to \bar{A} -chain properties
 → A single-source analysis/derivation must be possible

COROLLARY OF SAME SOURCE CONCLUSION:

(35) *Uniqueness relation between alles and associate*

Each occurrence *alles* A is uniquely mapped to an associate W.

(i) There can be no multiple *alles* per one associate (trivial to show):

*[W_i ... *alles*_i ... *alles*_i ...]

(ii) There can be no multiple associates per one *alles* (not trivial to show)

*[W_i ... W_i ... *alles*_i ...]

References

- Anagnostopoulou, Elena (2008). Notes on the Person Case Constraint in Germanic (with Special Reference to German). In: *Agreement Restrictions*, edited by Roberta D'Alessandro, Susann Fischer, and Gunnar Hrafn Hrafnbjarganson, Berlin/New York: Mouton de Gruyter, pp. 15–47.
- Beck, Sigrid (1996). *Wh-Constructions and Transparent Logical Form*. Ph.D. thesis, Universität Tübingen.
- Bobaljik, Jonathan (1995). *Morphosyntax: The Syntax of Verbal Inflection*. Ph.D. thesis, MIT, Cambridge, MA.
- Chomsky, Noam (2000). Minimalist Inquiries: The Framework. In: *Step by Step. Essays on Minimalist Syntax in Honour of Howard Lasnik*, edited by Roger Martin, David Michaels, and Juan Uriagereka, Cambridge, MA: MIT Press, pp. 89–155.
- Chomsky, Noam (2001). Derivation by Phase. In: *Ken Hale: A Life in Language*, edited by Michael Kenstowicz, Cambridge, MA: MIT Press, pp. 1–52.
- Doetjes, Jenny (1992). Floating Quantifiers Float to the Left. *The Linguistic Review*, 9, no. 4: pp. 313–332.
- Dougherty, Ray (1970). A Grammar of Coordinate Conjoined Structures. *Language*, 46: pp. 850–898.
- Dowty, David and Belinda Brodie (1984). The Semantics of ‘Floated’ Quantifiers in a Transformational Grammar. In: *Proceedings of the 3rd West Coast Conference on Formal Linguistics (WCCFL 3)*, Stanford: CSLI, pp. 75–90.
- Fitzpatrick, Justin Micheal (2006). *The Syntactic and Semantic Roots of Floating Quantification*. Ph.D. thesis, MIT, Cambridge, MA.
- Giusti, Giuliana (1991). The Syntax of Floating *Alles* in German. *Issues in Germanic Syntax*: pp. 327–350.
- Haider, Hubert (1993). *Deutsche Syntax – Generativ: Vorstudien zur Theorie einer Projektiven Grammatik*. Tübingen: Gunter Narr Verlag.
- Heck, Fabian and Anke Himmelreich (2017). Opaque Intervention. *Linguistic Inquiry*, 48, no. 1: pp. 47–97.
- Henry, Alison (2012). Phase Edges, Quantifier Float and the Nature of (Micro-) Variation. *Iberia*, 4, no. 1: pp. 23–39.
- Kayne, Richard S. (1975). *French Syntax: The Transformational Cycle*. Cambridge MA: MIT Press.
- Koopman, Hilda (2010). On Dutch *allemaal* and West Ulster English *all*. In: *Structure Preserved*, edited by Jan Wouter Zwart and Jan de Vries, Amsterdam: John Benjamins, pp. 267–275.
- McCloskey, James (2000). Quantifier Float and Wh-Movement in Irish English. *Linguistic Inquiry*, 31, no. 1: pp. 57–84.
- Merchant, Jason (1996). Object Scrambling and Quantifier Float in German. In: *Proceedings of NELS 27*, UMass Amherst: GSLA, pp. 179–194.
- Müller, Gereon (2001). Harmonic Alignment and the Hierarchy of Pronouns in German. In: *Pronouns – Grammar and Representation*, edited by Horst Simon and Heike Wiese, Amsterdam: Benjamins, pp. 203–232.
- Pafel, Jürgen (1991). Zum Relativen Skopus von w- und Q-Phrasen (w/Q-Interaktion). In: *Fragesätze und Fragen*, edited by Marga Reis and Inger Rosengren, Tübingen: Niemeyer, pp. 145–173.
- Reis, Marga (1992). The Category of Invariant *alles* in *wh*-Clauses: On Syntactic Quantifiers vs. Quantifying Particles in German. In: *Who Climbs the Grammar Tree?*, edited by Rosemary Tracy, Tübingen: Max Niemeyer Verlag, pp. 465–492.
- Shlonsky, Ur (1991). Quantifiers as Functional Heads: A Study of Quantifier Float in Hebrew. *Lingua*, 84: pp. 159–180.
- Sportiche, Dominique (1988). A Theory of Floating Quantifiers and Its Corollaries for Constituent Structure. *Linguistic Inquiry*, 19: pp. 425–449.
- Zimmermann, Malte (2007). Quantifying Question Particles in German: Syntactic Effects on Interpretation. In: *Proceedings of Sinn und Bedeutung 11*, edited by Estela Puig-Waldmüller, Barcelona: Universitat Pompeu Fabra, pp. 627–641.