

ABSTRACT

Title of Dissertation: ALL ABOUT ALLES: THE SYNTAX OF WH-QUANTIFIER FLOAT IN GERMAN

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This thesis offers an in-depth investigation of “*wh*-quantifier float” of the quantifying particle ‘*alles*’ in German. *Alles* (etymologically, ‘all’) appears in *wh*-questions like *Wen alles hat die Mare eingeladen?* (‘Who-all did Mare invite?’). The thesis focuses on the syntactic distribution of *alles*. *Alles* enjoys a wide distribution in the clause. It can occur both ‘adjacent’ to its ‘associate’ *wh*-phrase, and ‘distant’ from it, in various positions of the clause. I address three questions: What determines the **distribution** of *alles*? Are adjacent *alles* and ‘distal’ *alles* the **same category**? What **licenses** distal *alles*? I answer these questions by arguing for a *stranding analysis* of distal *alles*: *alles* and its associate form a first-Merge constituent, which is optionally separated in the course of the derivation through a process that involves movement ([WH *alles*] \Rightarrow [WH... [[WH *alles*]. . .]]). The conclusion is compatible with prior analyses that argued for or assumed (a) constituency, and (b) a movement dependency in overt syntax. The conclusion is at odds with *adverbial analyses*, which assume that distal *alles* is an adverbial. I provide two main empirical arguments. First, I argue against the idea that distal *alles* and adjacent *alles* are separate lexical items, or have different lexical content. Second, I argue that the “Chain Link Generalization” is the most accurate generalization for the distribution of *alles*: *Given a derivation involving alles and a licit associate, alles may appear in any position which hosts an \bar{A} -chain link of the associate, and in no other position.* I show that *alles* has “no distribution of its own in the clause”. Rather, the distribution of *alles* depends on the potential distribution of its associate and can be predicted by the associate’s category, the associate’s base-position, the derivation that the associate undergoes in a given sentence. Conceptually, I argue that a *stranding analysis* is favored by simplicity as most generalizations established in this dissertation are directly entailed by it.

ALL ABOUT *ALLES*:
THE SYNTAX OF WH-QUANTIFIER FLOAT IN GERMAN

by

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Dedication

For my parents, *sine qua non*, and for those I love, *sine qua* it's just not worth it.

Acknowledgments

Never had I thought I would become one of those people—one of those who write so many pages about, at the end of the day, a single word.

And yet this journey has kept me entertained, enthused, baffled, shocked, and has kept reminding me how much I love linguistics, and how much it teaches us about the human mind, ourselves, all the subtle ways in which we can be different and then unexpectedly the same.

The knowledge that I hope to have uncovered in this tome will accompany me – or haunt me (?) – forever. I hope it may lead you, too, who are reading these lines, on a journey, for a stretch or perhaps even the long haul. But more than that, the incredible people that have accompanied me during, and on the way toward this journey, will be forever with me. I cannot do justice with words to the bounty I have harvested, summer through winter, for these past 5 years, which has sustained me mind and spirit and has somehow made a different person out of me. So I will simply name these people and share a thought, to acknowledge them in gratitude, and I hope that if they read these lines some memories will come back alive.

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Table of Contents

Dedication	ii
Acknowledgments	iii
Table of Contents	vi
List of Tables	ix
List of Figures	x
List of Abbreviations	xi
Chapter 1: Introduction	1
1.1 Phenomenon	1
1.2 Questions raised, and answers	2
1.3 Overview	4
1.3.1 Distal <i>alles</i> is stranded	5
1.3.2 Further consequences	9
1.4 German syntax and some assumptions	10
Chapter 2: Basics: Adjacent vs. Distal <i>alles</i>	13
2.1 Introduction	13
2.2 Meaning	16
2.2.1 Divisibility presupposition	16
2.2.2 Dependence on one associate	18
2.2.3 Exhaustiveness	20
2.2.4 “Horizontal” vs. “vertical” answers	21
2.3 Associate <i>wh</i> -phrases	23
2.4 Environments: kinds of associate	26
2.5 Prosodic requirements	32
2.6 Co-occurring expressions	36
2.7 Conditions on multiple <i>alles</i>	40
2.8 Summary and conclusion	41
Chapter 3: Effects induced by distal <i>alles</i>	43
3.1 General picture	43
3.2 Intervention effects	45
3.2.1 <i>Q-alles</i> interactions	45
3.2.2 <i>Q/Focus-alles</i> interactions	48
3.2.3 Indefinite Intervention	50
3.3 Restitution blocking	55
3.4 Interim conclusion	57
3.5 Effects on acceptability	58
3.5.1 Pafel effect	58

3.5.2	Reis blocking	62
3.5.3	Consequences and outlook	64
Chapter 4: The distribution of distal <i>alles</i>		66
4.1	Introduction	66
4.2	Argument associates	72
4.2.1	Base position	72
4.2.2	Scrambling positions	80
4.2.3	Successive-cyclic movement	83
4.3	Adverbial associates	104
4.3.1	Placement of adverbials in German according to Frey and Pittner (1998)	104
4.3.2	Base position	108
4.3.3	Scrambling positions	112
4.3.4	Successive-cyclic movement	120
4.4	Against an adverbial analysis of distal <i>alles</i>	120
4.4.1	Is distal <i>alles</i> a frequency adverbial?	122
4.4.2	Matrix clauses of long-distance movement	123
4.4.3	Locality between associate and distal <i>alles</i>	124
4.4.4	Distal <i>alles</i> is subject to but does not cause intervention effects	124
4.4.5	Multiple <i>alles</i> and “across-the-board” movement	125
4.5	Conclusion and outlook	132
Chapter 5: Restriction to \bar{A} chain links		134
5.1	Introduction	134
5.2	Evidence for an A/ \bar{A} -split	138
5.2.1	(Anti-) Weak Crossover effects	140
5.2.2	(Anti-) Superiority effects	144
5.2.3	Case-movement: Restitutive Blocking again	147
5.2.4	Raising	148
5.2.5	Some small consequences	156
5.3	<i>Alles</i> and Scrambling	157
5.3.1	Adjunct scrambling	159
5.3.2	Argument scrambling	166
5.3.3	“Long-distance” scrambling	177
5.3.4	Some consequences of the TP-adjunction proposal	179
5.3.5	Some consequences for theories of Scrambling	186
5.3.6	One consequence for the A/ \bar{A} distinction: Safir (2019)	189
5.4	<i>Alles</i> -stranding in other \bar{A} -movement constructions	190
5.4.1	Relative clauses	191
5.4.2	Topicalization/“Pre-field filling”	197
5.4.3	Parasitic gaps	200
5.4.4	<i>Tough</i> -movement and comparatives	202
5.5	Summary and conclusion	203
Chapter 6: Dependency between <i>alles</i> and associate		206
6.1	Overview	206
6.2	Taking stock	206
6.3	What is the source?	209
6.3.1	Structural configurations for selection	210
6.3.2	Operator status of the associate	210
6.3.3	Semantics sketch	220
6.3.4	“Open set” property of the associate: exhaustivity and D-linking	222
6.3.5	The subset distribution of <i>alles</i>	228
6.3.6	Connection with previous proposals for sources of \bar{A} -QF	230

6.3.7	Summary	238
6.4	Separation procedure	239
6.4.1	Goals	239
6.4.2	Derivations entertained	240
6.4.3	Deriving the ABG	244
6.4.4	Barriers for extraction	252
6.4.5	Intermediate stranding	254
6.4.6	Open Questions	255
6.5	Complex associates	260
6.5.1	Pied-piping generalization	260
6.5.2	No sub-association by distal <i>alles</i>	266
6.5.3	“Internal” <i>alles</i>	270
6.5.4	Constituent-final <i>alles</i> and the complexity restriction	274
6.6	Summary and conclusion	285
Chapter 7: Conclusion		290
7.1	Findings for invariant <i>alles</i>	290
7.2	Other findings	296
7.3	Questions about Universal Grammar, learning, and variation	297
Bibliography		304

List of Tables

2.1	Simplex <i>wh</i> -interrogative associates	23
6.1	Stranding procedure matrix	287

List of Figures

1.1	Options of analysis entertained	4
1.2	Conservative clausal spine	12
4.1	Base position of adverbials in German	107
4.2	Base positions of <i>alles</i> if it was an adverbial	123
5.1	Proposals entertained for scrambling; Corver and van Riemsdijk (1994a: (14))	187
6.1	Overview of complex associates (not an exhaustive list)	263
7.1	Options of analysis entertained	292

List of Abbreviations

1	first person
2	second person
3	third person
A2C	chain-to- <i>alles</i> correlation
ACC	accusative case
ABG	\bar{A} -generalization
\bar{A} -QF	invariant <i>wh</i> -quantifier float
ADV	adverb(ial)
ALL	invariant <i>alles</i>
A-QF	inflecting A-chain quantifier float
CLG	chain link generalization
COM	comitative
DAT	dative case
DCH	different category hypothesis
DDA	direct dependency approach
DIST	distributive reading
DO	direct object
DRH	different root hypothesis
DSH	different source hypothesis
EwQ	echo <i>wh</i> -question
EXPL	expletive
F&P	Frey & Pittner (1998)
FC	Fitzpatrick's conjecture
H&H	Heck & Himmelreich (2017)
IDA	indirect dependency approach
INDF	indefinite
INST	instrumental
IO	indirect object
NDIST	non-distributive reading
LF	logical form
LF-CI	logical form and conceptual-intentional interface
LOC	locative
NOM	nominative case
NSA	ban on sub-association
PASS	passive voice
PBH	piggy back hypothesis
PF	phonological form
PF-SM	phonological form and sensory-motor interface
PL	plural
PLD	primary linguistic data
PPG	pied-piping generalization
PRS	present tense
PST	past
PTCL	particle
PTCP	(past) participle
QP	quantifying particle
R	raising verb

RC	relative clause
RD	restricted domain
REP	repetitive reading
REST	restitutive reading
R-PP	R-pronoun prepositional phrase
Σ	scrambling
SBJ	subject
SCH	same category hypothesis
SG	singular
SH	stranding hypothesis
SoQ	sequence-of-questions construction
SRH	same root hypothesis
SSG	subset generalization
SSH	same source hypothesis
TMP	temporal
UG	universal grammar
V2	verb-second
<i>wh</i> -ECHO	echo <i>wh</i> -phrase
<i>wh</i> -INDF	<i>wh</i> -indefinite phrase
<i>wh</i> -INT	<i>wh</i> -interrogative phrase

Chapter 1: Introduction

1.1 Phenomenon

This thesis investigates a phenomenon in German that is known as “invariant *alles*”, *I-alles*, *w-alles* (Beck, 1996; Beck and Rullmann, 1999; Giusti, 1991; Heck and Himmelreich, 2017; Pafel, 1991, 1996b; Reich, 1997; Reis, 1992a; Zimmermann, 2007). *Alles* appears in questions and other sentences that involve *wh*-expressions, characterized in German by their *w*- morphology.

- (1) a. *Wen* hat die Mare **alles** zu ihrem 80. eingeladen?
who.ACC has the.NOM Mare ALL to her 80th invited
‘Who-all did Mare invite to her 80th birthday?’
- b. *Weiß* der Andreas, *wen* die Mare **alles** zu ihrem 80. eingeladen hat?
knows the.NOM Andreas who.ACC the.NOM Mare ALL to her 80th invited has
‘Does Andreas know who-all Mare invited to her 80th birthday?’

I will henceforth refer to the expression just as ‘*alles*’, and as a ‘(quantifying) particle’ (Reis, 1992a; Zimmermann, 2007), or as a ‘*wh*-quantifier’ in analogy to the literature on Quantifier Float. The particle is pronounced [(ʔ)a.ləs] or [(ʔ)a.ləs].

Etymologically, *alles* translates to ‘all’. Indeed, its meaning contribution is related to that. *Alles* makes two contributions to the sentence. For sentences like (1), both the producer and the comprehender of the sentence understand that there is more than one set/grouping that the combination of ‘*wh*-phrase + *alles*’ points to. In the context of a question like (1a), one understands that a list of answers will be given.

The second contribution of *alles* is one of exhaustivity. If someone gives the answer in (2) to (1a/b), a comprehender of the answer in (2) will be inclined to infer that the answer is complete.

- (2) Die Christine, den Andreas, die Eva-Maria, den Christoph, ...

‘Christine, Andreas, Eva-Maria, Christoph, ...’

The primary focus of this dissertation is on the **syntactic distribution** of *alles*. On the one hand, *alles* enjoys a wide distribution in the sentence. In (3a) *alles* occurs adjacent and in one constituent with *wh*-phrase it is interpreted with – its ‘associate’. In (3b–d) it occurs in a variety of positions of the clause.

- (3) a. [*Wen* **alles**] hat die Mare zu ihrem 80. eingeladen?
who.ACC ALL has the.NOM Mare to her 80th invited
‘Who-all did Mare invite to her 80th birthday?’
- b. *Wen* hat **alles** die Mare zu ihrem 80. eingeladen?
- c. *Wen* hat die Mare **alles** zu ihrem 80. eingeladen?
- d. *Wen* hat die Mare zu ihrem 80. **alles** eingeladen?

On the other hand, the distribution of *alles* is not free.

- (4) a. **Die drei* hat sie **alles** eingeladen.
those three.ACC has she.NOM ALL invited
Intended: ‘Those three, she invited them all.’
- b. **Wer* hat (et)was **alles** gegessen?
who.NOM has something ALL eaten
Intended: ‘Who-all ate something?’
- c. ?**Was* wollte **alles** ihm gestern keiner geben?
what.ACC want.PST.3SG ALL him.DAT yesterday noone.NOM give
Intended: ‘What-all did no-one want to give him?’

1.2 Questions raised, and answers

The distribution of *alles* raises a series of questions. What determines the **distribution** of *alles* in the clause? How are sentences where *alles* forms a constituent with its associate **related** to sentences where *alles* occurs at a distance? What **licenses** the presence of *alles* in a sentence?

Two types of answers were previously given to these questions. One line of work assumes or explicitly argues that *alles* and its associate form a constituent at some level of representation. Distal *alles* and

its associate are in a movement dependency. This is the majority view and can be traced back to (Giusti, 1991; Pafel, 1991, 1996b; Reis, 1992a; Zimmermann, 2007). I will call this the *movement analysis*. The other side assumes that distal *alles* is an adverbial which either moves at LF (Beck, 1996) or is in a local Agree relation with its associate (Heck and Himmelreich, 2017). Accordingly, I will call this the *adverbial analysis*.

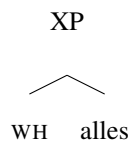
This dissertation reassess this debate and concludes that the *movement analysis* is correct. The main empirical argument for this conclusion is based on the syntactic distribution of *alles*. I argue that it is most accurately characterized by the following generalization:

- (5) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

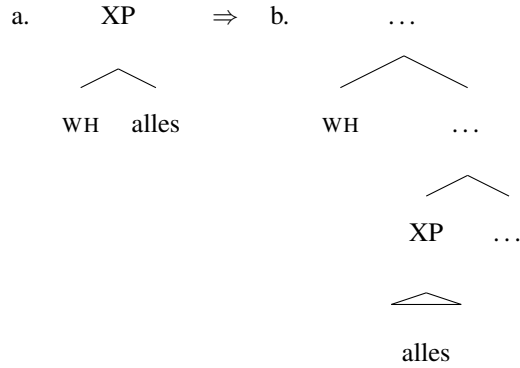
Metaphorically, I promote the notion that *alles* “lives on its associate’s \bar{A} -chain”. Based on the CLG, I argue that *alles* and its associate always form a first-Merge constituent at some point in the derivation.

- (6) *The only way to introduce alles into the derivation:*



Furthermore, I argue that, because according to the CLG the distribution of *alles* is a subset of the distribution of its associate, there is no reason to believe that *alles* can be moved. Thus, I conclude that distal *alles* is *stranded* by its associate, in the spirit of Sportiche (1988) *a.m.o.* In particular, I conclude that distal *alles* is either stranded by sub-extraction, or that stranding is a purely interpretive procedure, complementary pronunciation of the chain at the Phonological Form–Sensory Motor interface for externalization.

- (7) *Distal alles is derived via stranding:*



I argue for this conclusion from the bottom up, entertaining in turn the hypotheses depicted in fig. 1.1. I argue against the left branches of the decision tree, one hypothesis at the time, and reach the conclusion that there is a syntactic dependency between distal *alles* and its associate, and that distal *alles* and adjacent *alles* are related by **stranding**. The advantage of the stranding analysis is one of empirical

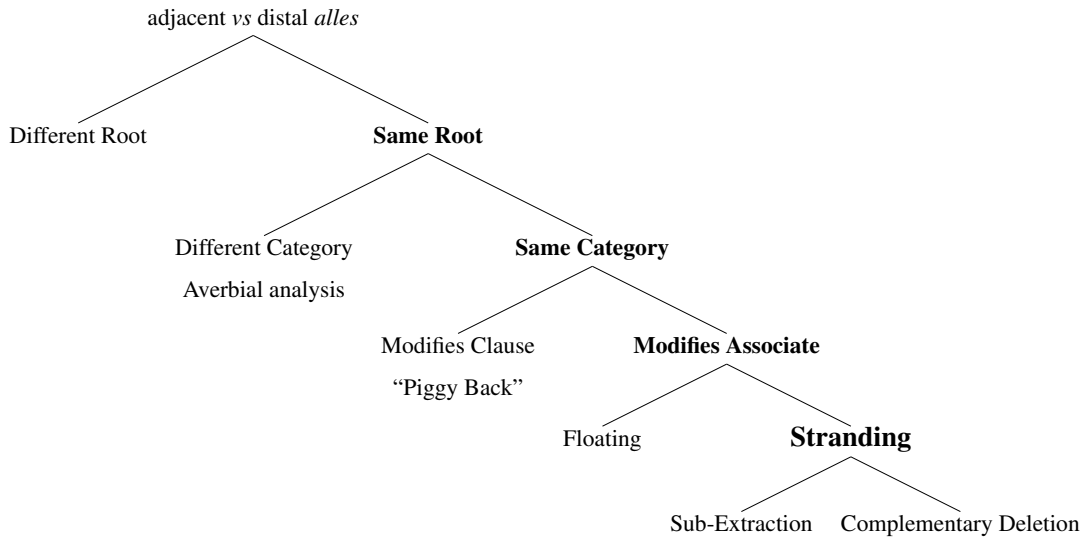


Figure 1.1: Options of analysis entertained

coverage, but also of simplicity. The stranding analysis entails the generalizations that I argue force us to reject the left branches of the diagram.

1.3 Overview

This dissertation has two main results. The first result is the conclusion that *alles* and its associate are in a movement, and specifically a stranding dependency. The second result concerns the applicability of

alles as a diagnostic to probe into the derivation of *wh*-dependencies in German and thus natural language.

I provide an overview of the two results, in turn.

1.3.1 Distal *alles* is stranded

I argue for the stranding hypothesis step by step, following the analytical options depicted in fig. 1.1.

In **chapter 2**, I argue that distal *alles* and adjacent *alles* have the same lexical content. The two instances of *alles* make the same meaning contribution, and they are licensed by the same kinds of associates. Within the class of *wh*-interrogative associates, the two instances of *alles* can occur with the same range of associates, and they can co-occur with the same range of *wh*-modifiers (broadly speaking). I argue that, while it appears that adjacent *alles* is subject to more severe prosodic restrictions than distal *alles*, the two instances obey the same kind of prosodic restrictions, and the differences are due to the prosodic differences of their environments. Finally, I show that adjacent *alles* and distal *alles* cannot co-occur with each other.

In **chapter 3**, I argue against the idea that distal *alles* is different from adjacent *alles* in the way in which it can affect Logical Form. I focus in particular on intervention effects between distal *alles* and (a) the universal quantifier *jeder* ('every/each'), (b) focus operators, and (c) existentially interpreted indefinites. I argue that the effect is not induced directly by distal *alles*, but rather, always directly by the associate. I show that the associate independently induces the same effects when it is overtly in the position in which distal *alles* suffers intervention effects. I propose that *alles* requires its associate to be in a very local configuration with it, at the point in the derivation that is overtly marked by *alles*. I support this conclusion by showing that the same patterns extend to effects that distal *alles* has on word order preferences of verbs ('canonical word order'). The conclusion already suggests that *alles* and its associate form a constituent at the relevant point in the derivation, but, strictly speaking, it would also be compatible with the conclusion that *alles* must be minimally c-commanded by its associate.

In **chapter 4**, I consider in more detail the distribution of distal *alles*. The main conclusion of the chapter is that distal *alles* is not an adverbial, or another clausal category. I primarily reach this conclusion by arguing for the generalization in (8):

- (8) *Subset Generalization for distal alles (SSG):*

Given a derivation D involving distal *alles* and a licit associate, *alles* may appear in any position its associate has occupied at some point in the derivation, and in no other position.

The SSG has two parts. Generally, the set of positions in which distal *alles* can occur is a subset of the positions in which its associate can occur. More specifically, the statement only makes sense when it is understood relative to the particular associate of *alles* in a given sentence. In agreement with the conclusion from chapter 3 about locality, distal *alles* thus closely tracks the derivation of its associate. In addition, the SSG means that distal *alles* does not have “a distribution of its own”. If distal *alles* were a direct member of the clause, we would expect that its syntactic category would determine its distribution. However, its distribution is entirely determined by (a) the category of its associate, (b) the base position of its associate, and (c) the derivation that its associate can and does undergo.

The SSG is supported the fact that *alles* can occur in the base position of its associate, and in intermediate positions that its associate can reach via movement. I show this both for “scrambling” and for successive-cyclic movement in long-distance *wh*-movement. The facts apply both to argument associates, and to adverbial associates like *wo* (‘where’). At the end of the chapter, I also argue more explicitly against an adverbial analysis of *alles*.

In chapter 5, I revise the SSG in (8) in favor of the more restrictive generalization in (9):

(9) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation D involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

The revision is necessary because I show that *alles* can only occur in positions from which its associate has \bar{A} -moved, stating the following generalization:

(10) *\bar{A} -generalization (ABG):*

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

In other words, I argue that *alles* cannot be stranded by A-movement. The arguments are based on deriva-

tions in which A-movement is necessary. Where that is the case, *alles* cannot occur in the tail of such A-movement. The configurations are: scrambling to an A-binding position in (anti-)Weak Crossover configurations, scrambling to obviate Superiority, movement to license abstract accusative Case, and subject-to-subject raising. I further show that *alles* is indeed licensed by \bar{A} -movement rather than just, say, “*wh*-interrogative” movement. *Alles* can be stranded by CP-topicalization, and relativization, though it might not be licensed in parasitic gaps and comparatives, and is not licensed inside the infinitival of *tough*-movement. The chapter further examines scrambling in closer detail and shows that *alles* is licensed by adjunct-scrambling but not freely by argument scrambling.

In **chapter 6**, I further explore consequences of the conclusion that *alles* is stranded from a source it shares with its associate. I argue that *alles* is not floated, i.e. moved before it is stranded. Floating analyses (Dougherty (1970) and in particular Kayne (1975)) rested partly on the idea that the quantifier could be moved out of its associate, most importantly the observation that a floated quantifier can appear at some distance to the left of its associate; the Subset Generalization, however, gives no reason to believe that *alles* can be moved. I then explore three issues, going back and forth between them: (i) what property of a “licit associate” licenses *alles*?, (ii) what is the separation procedure—is it sub-extraction or complementary deletion?, (iii) what do “complex associates” teach us about the syntax of *alles*?

(i) I discuss the two aspects that are at play in the licensing relation. First, the associate must have a particular property, and second, *alles* and the associate must be in structural configuration that allows *alles* to *select* its associate. For the first aspect, I propose to pin the licensing to a particular piece of structure in the associate. By comparing the syntactic behavior of *wh*-indefinites, which do not license *alles*, with *wh*-interrogatives and echo *wh*-phrases, which both do, I propose that the former have a subset of the structure of the latter. As for the second aspect, I conclude that *alles* can either take the associate as its complement, or it can modify it.

(ii) I outline two primary stranding procedures, sub-extraction of the associate, and complementary deletion, and set three empirical goals that the interplay of these procedures with the internal structure of the source [WH *alles*] must be able to meet: First, it must be able to explain the \bar{A} -generalization. Second, it must be able to explain why *alles* can be stranded by what are, or can otherwise be, barriers

for extraction (subject and adjuncts). Third, it must be able to account for the possibility of stranding in intermediate movement steps. While barriers for sub-extracts are clearly a problem for a sub-extraction option, a complementary deletion approach struggles to find a natural way to derive the \bar{A} -generalization.

(iii) I observe and formulate three generalizations that apply to *alles* when it comes to “complex associates”. Complex associates are either DPs or PPs. Their defining property is that their head nominal projection is branching, i.e. non-pronominal. The first two generalizations are syntactic, while the latter, I argue, is primarily prosodic. I show that there is a close relation between pied-piping and *alles*-stranding with complex associates. First, *alles* can associate with any size constituent that can *wh*-move to selected *wh*-interrogative Spec,Cs. I call this the Pied Piping generalization:

(11) *Pied-piping generalization (PPG):*

If an XP can occur in selected interrogative Spec,C, then it is a licit associate for distal *alles*.

Second, I argue that when distal *alles* associates with a complex *wh*-phrase that has a *wh*-phrase embedded inside it *alles* can only be interpreted with respect to the full *wh*-phrase.

(12) *Ban on sub-association for distal alles:*

In a structure [_{XP} YP ZP], where both XP and YP are in-principle licit associates of *alles*, distal *alles* may not be narrowly interpreted for YP to the exclusion of XP.

I show that (12) is particularly interesting for *wh*-phrase possessors given that they are what is typically assumed to contribute the *wh*-ness of the complex structure. I argue that both (12) and (11) follow from a stranding analysis and may lend support for a sub-extraction analysis. Lastly, I discuss a restriction that affects adjacent *alles* with complex associates. Speakers generally do not allow *alles* to occur constituent-finally when the associate is “complex” in the above sense. I evaluate merits of analysis the restriction as syntactic, and conclude against it. Rather, I propose that the restriction is due to an interplay between syntax and prosody.

1.3.2 Further consequences

The second main result of this dissertation is that *alles* can be used a tool to investigate the finer details of the underlying A- and \bar{A} -derivation of its associates, and the nature of A- vs. \bar{A} -movement chains.

In **chapter 4**, I argue that vP is a phase in German given that *alles* can occur there in the path of long-distance *wh*-movement. Assuming that phase-hood of a category is not something that the child learner can extrapolate from its limited primary data during acquisition, the implication is that vP is a phase universally. In the same chapter, I reach a similar conclusion based on the so-called *wh*-scope marking construction (or partial *wh*-movement). I argue that given that some speakers allow *alles* to be both adjacent or distant in the matrix clause of these long-distance questions, a movement analysis seems to be the only way forward. If the dependency in the construction is movement, then there is additional evidence for the phase-hood of vP .

In **chapter 5**, I conclude that scrambling is not a unitary phenomenon in German, and that it should be understood as two separate types of movement for arguments: low movement to vP and perhaps TP which is always A-movement, and movement to a TP-peripheral position which is associated with topicality in some sense, and is always \bar{A} -movement. This conclusion has consequences for theories of scrambling, Reconstruction, the A/ \bar{A} -distinction, clause-boundedness in German, and potential implications for Superiority. I address these issue in the chapter. The chapter also offers support for scrambling-based analysis of obviation of Superiority and Weak Crossover in German, assuming that scrambling is movement.

Finally, the chapter draws the connection with work on other \bar{A} -stranding in other languages. In particular, it appears that *alles*-stranding is compatible with the conjecture made in [Fitzpatrick \(2006\)](#), which we may state as follows:

(13) *Fitzpatrick's Conjecture (FC)*:

The distribution of *non-exhaustive quantifiers* is universally restricted to their associate's \bar{A} -chain.

The work of [Fitzpatrick \(2006\)](#); [Henry \(2012\)](#); [Johnson \(2016\)](#); [McCloskey \(2000, 2020\)](#) is starting to put together a number of languages which appear to obey Fitzpatrick's conjecture: West Ulster varieties of

English, Japanese, Korean, Russian, Kentucky varieties of English, varieties of German. [McCloskey \(2020\)](#) further discusses Finnish, Swedish. Whether the latter two also obey the \bar{A} -generalization or not, we are starting to have a critical mass of languages where stranding is only possible via \bar{A} -movement.

In **chapter 6**, I further explore consequences of the conclusion that *alles* is stranded from a source it shares with its associate. A central question that comes out of this chapter, and dissertation in general, is how chains are interpreted by the interfaces. Two challenging domains in that regard are the \bar{A} -generalization, and how it may connect to a complementary deletion analysis, and intervention effects. The chapter also connects in important ways with the literature on question particles in Japanese, and with ‘Q’ of [Cable \(2007\)](#).

Finally, **chapter 6** explores consequences of this dissertation for Universal Grammar, language acquisition, language variation. I raise the question of whether both a movement and an adverbial analysis are entertained by the learner, and on what basis they might be distinguished if they both are.

1.4 German syntax and some assumptions

Here I sketch a rough model of German syntax. This serves as a point of reference. Divergences and further details are discussed wherever necessary, and relevant generalizations are presented or repeated as much as possible. See [Haider \(1993, 2017\)](#), as well as parts of [Müller \(2011\)](#), for helpful reviews of German syntax.

German is a verb-final language, except for finite verbs of certain clauses, known as “verb-second” (or also “V2”) clauses. In V2 clauses, the finite verb occupies a position on the left of the sentence, which is standardly assumed to be preceded by at most one constituent, which can be any XP. This position is traditionally referred to as the “pre-field” (*Vorfeld*).¹ In all other clauses, the finite verb is typically clause final. Non-finite verbs stack on the right edge of the clause, except when the object is clausal, in which case the clausal object can and often must appear to the right of the verbal complex.

- (14) a. Andrew **hat** mal wieder Tortizzas *gemacht*.
 Andrew have.3SG.PRS once again Tortizzas make.PTCP
 ‘Andrew made Tortizzas again.’ VERB SECOND

¹ See [Müller \(2018\)](#) for a recent review of the basis for this generalization.

- b. weil Andrew mal wieder Tortizzas *gemacht* **hat**.
 because Andrew once again Tortizzas make.PTCP have.3SG.PRS
 ‘because Andrew made Tortizzas again.’ VERB FINAL
- c. Wir **haben** uns schon *gedacht* [dass Andrew mal wieder Tortizzas *gemacht*
 we can.1PL.PRS us already think.PTCP that Andrew once again Tortizzas make.PTCP
hat].
 have.3SG.PRS
 ‘We already knew that Andrew made Tortizzas again.’

German is a “Scrambling” language, a term introduced by Ross (1967) to denote the “free word order” property of the language. This means that, when conditions are favorable, arguments are freely ordered between them within the so-called “middle field” (*Mittelfeld*), the portion of the clause to the right of the inflected verb in V2 clauses, or to the right of a complementizer in verb-final clauses. Details are introduced as necessary.

- (15) a. weil mal wieder Andy Tortizzas gemacht hat
 because once again Andy.NOM tortizzas.ACC made has
 b. weil Andy mal wieder Tortizzas gemacht hat
 c. weil Tortizzas Andy mal wieder gemacht hat

Functional projections: The model I assume as a practical template is conservative with respect to clause structure. I assume that there are four functional projections, using the known labels *CP*, *TP*, *vP*, *VP*, as illustrated in fig. 1.2. I use them respectively to denote the projections that introduce (i) information about clause type and force, (ii) information about tense and finiteness, (iii) the external argument, and (iv) the verb with its internal argument(s).

“Specifiers” and phrase structure: I assume that *CP* can host only one constituent to the left of its head, while *TP*, *vP* and *VP* can host multiple ones, broadly remaining agnostic about the status of “Substitution” into projected specifiers vs. Adjunction to an \bar{X} -projection or “Chomsky-adjunction” to an *XP*-projection—the details are painstaking to disentangle in a scrambling language and will not matter for most of the argumentation in this dissertation. I thus use the label \bar{X} descriptively to denote the first projection of a functional category, but broadly assume a Bare Phrase Structure model of phrase structure, with binary branching structures built by applications of the operations (external) Merge and Move (seen

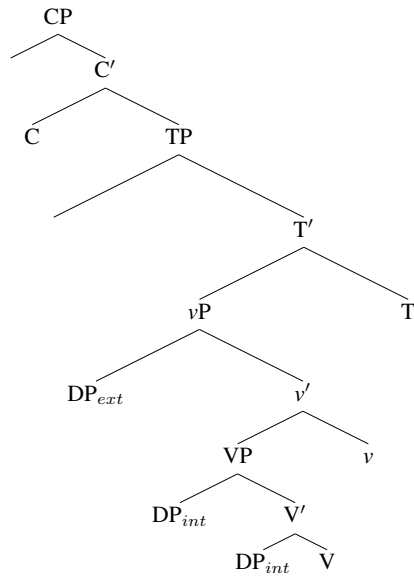


Figure 1.2: Conservative clausal spine

as internal Merge) (Chomsky, 1995).

Case: I will broadly work under the assumption that arguments need not move in German basic clauses to be licensed, for instance to receive abstract Case, given that, on first principles, subjects can stay in their base position.

Chapter 2: Basics: Adjacent vs. Distal *alles*

2.1 Introduction

In this dissertation I argue that sentences with distal *alles* and sentences with adjacent *alles* share a stage in the derivation where they form a constituent with their associate. Metaphorically, *alles* always “lives on its associate’s chain”. The hypothesis that the two sentences are derived transformationally from a common First-Merge configuration entails that the two instances of *alles* are one and the same syntactic object. That in turn entails that adjacent *alles* and distal *alles* have the same syntactic category, and share the same lexical content.

In this chapter I review and discuss evidence in support of analyzing adjacent *alles* and distal *alles* as having fundamentally the same lexical content. By ‘adjacent *alles*’ I mean not merely instances of *alles* that are linearly adjacent to the associate, but ones that form a surface constituent with it.

- (1) a. [CP [... WH ... **alles** ...] [C' ...]]
- b. [CP [... WH ...] [C' ... **alles** ...]]

On the way to arguing that the same lexical item is involved in both configurations, I will distinguish between the following two hypotheses.

- (2) *Same Root Hypothesis* (SRH):

Adjacent *alles* and distal *alles* contain the same lexical root.

- (3) *Different Root Hypothesis* (DRH):

Adjacent *alles* and distal *alles* do not contain the same lexical root.

I test the two hypotheses primarily by discussing the selectional properties of *alles* and asking whether the formal and semantic contexts enforced by *alles* are parallel between adjacent *alles* and distal *alles*.

In previous work it is generally accepted that adjacent *alles* and distal *alles* make the same contribution to sentence-meaning. Both [Reis \(1992a\)](#) and [Zimmermann \(2007\)](#), for instance, discuss this explicitly. [Reis \(1992a\)](#) makes the most significant contribution in this direction. For instance, she points out that both instances of *alles* create the expectation that non-singleton answers will be given, and the two instances of *alles* go with the same kinds of associates. The Same Root Hypothesis (SRH) is thus an obvious candidate. In fact, if there is pressure on the Lexicon to be as economical as possible – a widely accepted and desirable assumption – the SRH should be the null hypothesis on conceptual grounds as well.

However, some work has shown that the Logical Forms of sentences with adjacent *alles* and distal *alles* are not necessarily always the same. [Pafel \(1991\)](#) and [Beck \(1996\)](#) discuss interactions between *alles* and quantificational expressions (more on this in section 3.2). In section 3.3 I argue that distal *alles*, but not adjacent *alles* can block the restitutive reading of *wieder* ‘again’ when it occurs in a specific position of the clause. While distal *alles* thus appears to cause interactions that eliminate certain readings, adjacent *alles* does not. These effects appear to argue against an analysis where adjacent *alles* and distal *alles* are identical. Similarly, much work on Quantifier Float (QF) with definite, referential associates calls into question whether floated quantifiers have the same category as quantifiers that act as determiners of nominal expressions; sometimes this work even argues that they do not make the same fundamental meaning contribution. See in particular [Bobaljik \(2003\)](#); [Ott \(2012\)](#) for review.

Finally, [Giusti \(1991\)](#) observes that two other instances of *alles* should be taken into account: (i) *alles* that is properly analyzed as *all-es*, that is the N.SG inflected floating quantifier *all*– which associates with definite, referential DPs; (ii) *alles* that is the subject of non-finite imperatives (4); (iii) *alles* that occurs in copular contexts and can associate with definite, referential DPs that do not match in ϕ -features (4).¹

- (4) a. **alles/alle** umsteigen/ weitergehen
 ALLES/all change.INF go.INF further
 ‘Everybody change trains/go on!’ ([Giusti, 1991](#): (20a))

¹ [Giusti \(1991\)](#) mostly gives examples that contain a N.SG associate, as part of her argumentation. However, the internet provides some examples such as (4) where the ϕ -feature mismatch is more direct; these sound natural to me.

- b. **Alles** aufgepasst!
 ALLES pay.attention.PTCP
 ‘Everybody pay attention!’ (cf. Giusti, 1991: (21))

- (5) a. Johan, Maria, Karl und Therese sind **alles**/alle arme Leute
 Johan Maria Karl and Therese are ALLES/all poor people
 ‘Johan, Maria, Karl, and Therese are all poor people.’ (Giusti, 1991: (30))

- b. die sind **alles** sehr freundlich
 DEM.PL are ALLES very friendly
 ‘They’re all very friendly.’ [Google search “die sind alles”; June 16, 2021]

Giusti argues that both imperative *alles* and copular *alles* modify a silent expletive *pro* subject. Given that the overt expletive subject in German is singular neuter (*es*), the inflection of *alles* is explained, and the two instances of *alles* can be unified with inflecting *all-*. Reis (1992a) argues extensively, and conclusively in my opinion, that inflecting *all-* cannot be unified with “invariant *alles*”, the topic of this dissertation. I thus ignore these instances of “*alles*” here. This discussion, however, highlights that the identity of adjacent and distal *alles* ought to be established with care.

This chapter concludes that there is overwhelming evidence in favor of the Same Root Hypothesis (SRH). The environments that the two instances of *alles* are compatible with, and parasitic on, are identical with but one exception, which will be argued to follow from independent factors:

- (6) *Selective properties shared by adjacent alles and distal alles:*
 - a. The associate’s domain of quantification is presupposed to be ‘divisible’ (section 2.2.1)
 - b. Reactions to the utterance containing *alles* are expected to be exhaustive in relation to the associate of *alles* (section 2.2.3)
 - c. Questions are obligatorily interpreted as “horizontal” (section 2.2.4)
 - d. The associate must be an operator(-containing) phrase that (a) takes scope in CP, and (b) does not anaphorically refer to an established reference set (i.e. is functionally indefinite) (section 2.4)
 - e. The *wh*-phrases a given speaker allows to associate with *alles* in *wh*-interrogatives (section 2.3)
 - f. The expressions that *alles* can occur with in a *wh*-interrogative (section 2.6)

The two instances of *alles* also both appear to obey similar prosodic restrictions, such that they are both generally de-accented, and are degraded when there is no accented material between them and the left edge of their intonational phrase. I show this in section 2.5.

Finally, in section 2.7 I show that the two expressions cannot co-occur in a clause as long as there is only one compatible associate.

- (7) a. [CP [WH **alles**] [C' ... (***alles**) ...]]
 b. [CP [WH (***alles**)] [C' ... **alles** ...]]

The only way in which the two expressions truly differ is, therefore, the way they can impact the derivation. This will be the topic of chapter 3. Looking ahead, there I argue that the effects that distal *alles* apparently induces are actually induced by the associate of *alles*, and that the locality between *alles* and its associate required to support this conclusion argues for constituency of the two expressions.

2.2 Meaning

Building extensively on Reis (1992a), Zimmermann (2007) argues that invariant *alles* in general has two meaning components: a pluralizing one, and an exhaustifying one.²

2.2.1 Divisibility presupposition

The pluralizing meaning contribution of *alles* manifests in the restrictions that adding *alles* to a question enforces on answers. *Alles* can only associate with questions whose domain of quantification is ‘divisible’. This can be seen with *wh*-phrases that are understood to be singular by world-knowledge. For instance, the questions in (8) about a mother (of a heterosexual couple) or the catholic pope (of which there is only one in the world, and only one can be elected) are infelicitous with distal *alles* (adapted from Zimmermann, 2007: (16–17)).³

² Both Reis and particularly Zimmermann (as well as Pafel (1991) and Reich (1997)) also discuss unstressed *so* in the same contexts. Both conclude that *so* belongs to the same class of syntactic elements as *alles* (as well as does Pafel, but not Reich). Reis claims that *so* adds a pluralizing and non-exhaustive meaning component, and calls the syntactic class ‘quantifying particles’; Zimmermann argues that *so* adds merely a pluralizing component, and calls the class ‘quantifying question particles’.

³ The same result can be seen with formally singular *welch*-phrases (cf. Reis, 1992a; Zimmermann, 2007). However, complex *wh*-phrases do not support adjacent *alles*, the one systematic asymmetry between adjacent and distal *alles*. I return to this issue in section 2.3 and in depth in section 6.5.4.

- (8) a. Wer ist gestern (# *alles* / so) zum neuen Papst gewählt worden?
 who is yesterday all SO to-the new pope chosen been
 ‘Who-ALL/SO has been elected for pope yesterday?’
- b. Wer ist (# *alles* /so) die Mutter von Johanna?
 who is all SO the mother of Jeanne
 ‘Who-ALL/SO is the mother of Jeanne?’

The same restriction applies to adjacent *alles*:

- (9) a. #Wer *alles* ist gestern zum neuen Papst gewählt worden?
 b. #Wer *alles* ist die Mutter von Johanna?

Relatedly, the reaction to an *alles*-utterance must be a non-singleton list. As Zimmermann (2007: 631) puts it “[*alles*] require[s] that the answer specify a *divisible* plural individual”. In particular (11), with the reciprocal, is telling in that regard given that the answer *contains* a plurality of individuals (*Klaus* and *Maria*), but the answer itself is a singleton. The examples are adapted from Zimmermann (2007: (18–19)), to which I add that the result is the same for adjacent and distal *alles*.

- (10) Q: Wen {*alles*} hast du {*alles*} zu deiner Party eingeladen?
 who all have you all to your party invited
 ‘Who-ALL have you invited to your party?’

A1: #Klaus.

A2: Nur Klaus
 only Klaus

- (11) Q: Wer {*alles*} hat {*alles*} einander geheiratet?
 who all has all each.other
 ‘Who-ALL married each other?’

A: #Klaus und Maria.
 Klaus and Mary

In addition to the felicity of reactions to *alles*-utterances, I believe that the divisibility restriction also manifests itself for the utterer of the sentence containing *alles*. When an utterer of (10) or (11) knows ahead of time that the answer is going to be a singleton-answer, then would be equally infelicitous to use *alles*.

With the second answer to (10) Zimmermann shows that the divisibility requirement is presupposi-

tional given that it can be (easily) canceled by explicitly negating it with *nur* ‘only’.

2.2.2 Dependence on one associate

In connection to the divisibility condition, Zimmermann (2007) also notes that the divisibility condition for any given instance of *alles* must be satisfied by a particular associate.⁴ This becomes visible in multiple-*wh* questions. In the same context as above – papal elections –, (12a) is acceptable because *alles* associates with the subject *wh*-phrase, while (12b) is infelicitous because *alles* associates with the *wh*-phrase whose answer is known to be atomic (examples (28a,b)).⁵

- (12) a. Wer_i hat alles_i bei der gestrigen Wahl für wen gestimmt?
 who has all at the yesterday’s election for whom voted
 ‘Who-all voted for whom in yesterday’s election.’ [*w-alles* + SUBJ]

A: Cardinal X voted for *Ratzinger*, Kardinal Y for *the African candidate*, ...

- b. #Wer hat bei der gestrigen Wahl für [wen alles] gestimmt?
 who has at the yesterday’s election for whom all voted
 ‘Who voted for whom-all in yesterday’s election?’ [*w-alles* + OBJ]

⁴ Beck (1996: fn 73) notes that “I am not quite sure about the acceptability of [(i)]”:

- (i) ?Welches Mädchen hat alles welches Pferd geritten?
 which girl has all which horse ridden
 ‘Which girl rode which horse?’

I agree that the example is not quite as bad as one would expect given the general claim since Reis (1992a) that *alles* is incompatible with grammatically singular associates. Indeed, in section 6.5.3 I show that *alles* is at least compatible with a possessive associate with a singular head noun. See also 5. Thus I believe that examples like (i) do not argue against the notion that any one *alles* is dependent on one particular associate as Beck further suggests in the footnote. Rather, I believe that these examples show that under favorable circumstances, the contribution of grammatical number is lifted. Thus, with *welch*-phrases, the kind-interpretation that is necessary for *alles* can come out better in (i). The question then is what the conditions are that would favor *alles* with grammatically singular associate. (ii), for instance also strike me as “not as bad as expected”, but still very marginal:

- (ii) a. ??Welche Torte konnte alles einen Preis gewinnen?
 which cake could ALL a prize win
 ‘What (kinds of) cake(s) was(were) able to win a prize?’
 b. ??Welcher Freund von dir hat sich alles lieb?
 which friend of yours has SELF ALL fond
 Intended: ‘What-all friend(s) of yours like themselves?’

⁵ Zimmermann, following Reis (1992a), also claims that formally singular possessor phrases are generally impossible with *alles*. I find different results: as long as the singularity presupposition of the mother DP is granted by world knowledge, that each possessor has only one token of NP, then *alles* is compatible with it. This is for instance the case with a car, parallel to possessor-*all* float in Eastern Kentucky (Johnson (2016) as described in McCloskey (2020: (26))).

- (i) A: DENEN/DEREN ihre Autos wurden gestohlen.
 ‘THEIR cars got stolen.’
 a. Wem sein(e) Auto(s) wurde(n) alles gestohlen?
 who.DAT his.NOM(PL) car(s) PASS.3(PL) ALL stolen
 ‘Whose car(s) all got stolen?’

A: Cardinal X voted for *Ratzinger and the African candidate*, cardinal Y voted for *the two Asian candidates*, ...

I add for completion that the same result applies if we change how the elections work such that a voter gets multiple votes, but only one voter is selected. For instance, as is the case with presidential elections where the one elected president chooses multiple candidates for their cabinet. A question like (13) obtains the mirror image results of (12), such that we see that distal *alles* is just as dependent on a particular associate.⁶

⁶ This is important. Zimmermann argues that Beck's (1996) treatment of *alles* as an expression that LF-moves to compose with the whole question denotation cannot capture these facts. Thus, I take the argument to be conclusive and will not return to the issue whether *alles* LF-moves. I thus simply note in passing that the following consideration might be viewed as additional evidence against LF-movement by *alles*.

It is a common observation since at least McDaniel (1989); Müller (1997) that long-distance *wh*-movement differs from the WHAT-construction in the degree to which they violate certain islands; see Müller (1997: section 2.8) for an overview and references to original discussion of each island. I focus on non-“inner islands” here for reasons that will become apparent. Müller (1997: (19–20)) shows that while long-distance *wh*-movement out of a complex noun phrase constraint (CNPC) island (ia) or a subject island (iia) is degraded, the WHAT-construction is completely impossible, cf. (ib)–(iib).

- (i) a. ??Wen₁ hast du [NP ein Gerücht t₃] gehört [CP t'₁ dass Ede t₁ mag]₃ ?
whom.ACC have you a rumour heard that Ede likes
‘Who did you hear a rumor that Ede like?’
b. *Was₁ hast du [NP ein Gerücht t₃] gehört [CP wen₁ Ede t₁ mag]₃ ?
[+wh] have you a rumour heard whom.ACC Ede likes
- (ii) a. ??[PP Mit wem]₁ ist es schade [CP dass Hans t₁ gesprochen hat]?
with whom is it too bad that Hans spoken has
‘For what person is it a pity that Hans has spoken with them?’
b. *Was ist es schade [CP_{subj} [PP mit wem]₁ Hans t₁ gesprochen hat]?
what is it too bad with whom Hans spoken has

A common conclusion from these contrasts is that the WHAT-construction has more severe island violations because its derivation involves an additional step of LF-movement of the thematic *wh*-phrase into the matrix clause. In other words, the WHAT-construction violates the islands twice, while long-distance *wh*-movement does so only once.

If this conclusion is correct, we can extend this paradigm to *alles*-stranding, with the following prediction: if *alles* LF-moves into the matrix clause where its associate moved to, then placing distal *alles* inside a weak island should make the sentence clearly worse than placing it into the matrix sentence (or not having it at all).⁷

- (13) Wer {#alles} hat {#alles} wen (alles) nominiert?
who.NOM has who.ACC nominated
‘Who nominated who (all)?’

The prediction is not confirmed, however. While these island violations with *alles* are a little worse than without *alles*, there is no clear difference between whether *alles* is inside the island or not:

- (14) a. ?*Wen₁ hast du (alles) [NP ein Gerücht t₃] gehört [CP t'₁ dass Ede t₁ mag]₃ ?
whom.ACC have you ALL a rumour heard that Ede likes
b. ?*Wen₁ hast du [NP ein Gerücht t₃] gehört [CP t'₁ dass Ede t₁ alles mag]₃ ?
whom.ACC have you a rumour heard that Ede ALL likes
‘Who-all did you hear a rumor that Ede like?’
- (15) a. ??[PP Mit wem]₁ ist es schade [CP dass Hans t₁ gesprochen hat]?
with whom is it too bad that Hans spoken has
b. ??[PP Mit wem]₁ ist es schade [CP dass Hans t₁ alles gesprochen hat]?
with whom is it too bad that Hans ALL spoken has
‘For what person is it a pity that Hans has spoken with them?’

2.2.3 Exhaustiveness

The exhaustiveness meaning-component that *alles* adds to an utterance can be seen in the way questions with *alles* must be answered (example from Zimmermann (2007: (20)); I add the fact for adjacent *alles*). For both instances of *alles*, a partial answer is infelicitous given the knowledge that there were more than two presenters at *Sinn und Bedeutung 11*.

- (16) Q: Wer {*alles*} hat {*alles*} bei SuB11 vorgetragen?
 who all has all at SuB11 presented
 ‘Who-ALL presented at *Sinn und Bedeutung 11*?’

A: #Ein MIT-Student und Gennaro Chierchia.
 a MIT-student and Gennaro Chierchia

Zimmermann shows that the exhaustiveness of *alles* also interacts with properties of the matrix predicate when the *alles*-clause is an embedded interrogative. In (17), the matrix verb *auflisten* (‘list’) is modified by the adverbial *lückenhaft* (‘incompletely’) (Zimmermann, 2007: (21)).

- (17) Peter listet *lückenhaft* auf, wen er (??*alles*) getroffen hat.
 Peter lists incompletely PRT whom he all met has
 ‘Peter gives an incomplete list of all the people that he met.’

Again, the same fact holds for adjacent *alles*. The sentence is more natural, however, if the complement CP is fronted. I believe that has to do with prosodic requirements—the associate of adjacent *alles* needs to bear some amount of stress which is, intuitively, dispreferred in embedded *wh*-interrogatives.

- (18) [wen *alles* er getroffen hat] listet Peter (??*lückenhaft*) auf.
 whom he all met has lists Peter incompletely PRT
 ‘Of all the people that he met Peter gives an incomplete list.’

As for the divisibility condition, Zimmermann (2007: (44)) argues that the exhaustiveness condition is not part of the propositional content. While the condition can be canceled (see again (10)), a negated utterance that contains *alles* cannot conjoined with the same utterance minus *alles* without giving rise to a

I do not believe that the absence of a difference is due to a ceiling effect, either. The presence of *alles* in the two examples makes the thoughts more complex, in particular with the complex noun phrase. However, the effect of the WHAT-construction is drastic, in comparison, suggesting that “ceiling” is clearly not reached in these *alles*-questions. The lack of an effect by *alles* becomes even clearer if the sentences are intonated and understood as echo questions (keeping overt movement to make sure there still is an island violation).

feeling of contradiction. I add to his example adjacent *alles*, for which the same fact holds.

- (19) #Maria weiß nicht, wen {*alles*} Klaus {*alles*} eingeladen hat, aber sie weiß immerhin, wen
Mary knows not whom all Klaus all invited has but she knows at least whom
Klaus eingeladen hat.
K. invited has
intended reading: ‘Mary does not know all the people that Klaus invited, but she knows at least
some of the people that Klaus invited.’

Zimmermann claims that the exhaustiveness is presuppositional. Reich (1997), in contrast, holds that the exhaustivity of *alles* is a conversational implicature. He notes, for instance (p. 94), that the responder to a question containing particles such as *alles* cannot be made beholden to the completeness of the answer, but that rather the completeness is conventionally inferred by the asker (or I might add, more generally, witness) of the response. I return to this issue in section 6.3.4.

2.2.4 “Horizontal” vs. “vertical” answers

Reich (1997) distinguishes between two types of readings of a question: a “horizontal” one, and a “vertical” one. The vertical reading is one along a dimension of precision, from which the answerer picks a contextually adequate one. Reich thus notes that on the vertical reading, (20a–e) are potential *alternative* answers that vary in detail (cf. Reich, 1997: (4)).

- (20) Where do you live?
- a. In the US.
 - b. In the DMV.
 - c. In Takoma Park.
 - d. In Sligo Creek Hills.
 - e. ...

Reich observes that the level of detail can be influenced with the German particles *genau* and *ungefähr* (‘exactly’ and ‘roughly’)—the former demands that the level of detail not be “under-served”, and the latter that it not be “over-served”.

Reich further observes that this vertical reading is exactly *not* the reading that is relevant for quantifying particles, one of them being *alles*. If we construct the relevant case in (21) (for speakers who find *wo* (‘where’) a natural associate; see the next section), we see that only the answer in (21a) that responds to a horizontal reading of (21) can be given. The horizontal answer lists members that answer the question “at the same level”.⁸ In contrast, the vertical answer is impossible, even though in principle compatible with the demand of *alles* that the answer not be atomic. The unavailability of giving a “multi-level vertical answer” with *alles* is further witnessed by the fact that the question is bizarre out of the blue—based on world knowledge one typically assumes that people live in only one place. I mark this with the pound-key sign in parentheses.

(21) (#) *Wo {alles} wohnst du {alles}?*
 where ALL live.2SG you.NOM ALL
 ‘(#) Where-all do you live?’

a. #Ich wohne in den USA, in der DMV, in Takoma Park, und im Sligo Creek Hills neighborhood.

‘I live in the US, in the DMV, in Takoma Park, and in Sligo Creek Hills neighborhood.’

b. Ich wohne überwiegend in Berlin, 2-3 Monate im Jahr in München, und einige Zeit auch in Köln.

‘I live mostly in Berlin, 2-3 months of the year in Munich, and a bunch of time in Cologne.’

Importantly in the context of deciding between the SRH and DRH, this restriction on how an *alles*-question is interpreted is parallel between distal *alles* and adjacent *alles*. We can thus overall conclude that the two instances of *alles* have the exact same content as far as its meaning contributions are concerned. The SRH is clearly favored given general assumptions about economy of the lexicon and lexical parsimony in first language acquisition.

⁸ As Reich notes, the horizontal reading also happens to be the natural reading for questions about people and objects. We might conjecture, then, that the variation discussed in the next section in regards to what *wh*-phrases are viable associates, in particular excluding ‘why’, ‘how’ and ‘when’ may have to do with the degree to which the horizontal reading can be accessed with a given *wh*-phrase. The availability may be pragmatically and perhaps also grammatically restricted. As Zimmermann (2007) also notes, while *alles* is not compatible with reason interrogatives *warum/wieso*, it is compatible with *aus welchen Gründen* (‘for what reasons’) given an appropriate context.

a. Wer {alles} ist {alles} zur Party gekommen?	Who.NOM-all came to the party?
b. Wen {alles} hat sie {alles} eingeladen?	Who.ACC-all did she invite?
c. Wem {alles} hat er {alles} geholfen?	who.DAT all did he help?
d. Was {alles} erinnert dich {alles} an die Toskana passiert?	What.NOM-all reminds you of Tuscany?
e. Was {alles} hat sie {alles} gegessen?	What.ACC-all did she eat?
f. Wo {%alles} ist er {%alles} gewesen?	Where-all has he been?
g. Mit wem {alles} warst du {alles} im Kino?	With who-all were you at the movies?
h. Wann {*alles} hast du nächste Woche {?*alles} Zeit?	When-all do you have time next week?
i. Wie {*alles} hat er {*alles} die Aufgaben gelöst?	How-all did he solve the exercises?
j. Warum/Wieso {*alles} ist er {*alles} gekommen?	Why-all did he come?

Table 2.1: Simplex *wh*-interrogative associates

2.3 Associate *wh*-phrases

The range of licit *wh*-phrase associates is largely parallel between distal *alles* and adjacent *alles*. It is completely parallel for associates that contain a *wh*-pronoun. The list in table 2.1 builds on Reis (1992a) and Zimmermann (2007: (13)). I extend it by adding the comparison between adjacent and distal *alles* and by adding the facts for DAT *wem*, subject *was*, and comitatives. I correct the result for locative *wo*, for which I have found speakers who find it a natural associate, myself included, and speakers who generally dislike it; Reich (1997); Reis (1992a) also report it as acceptable. Importantly, speakers who accept *wo*, accept it with both types of *alles*, and speakers who do not accept *wo*, do not accept with either type of *alles*.

The parallel comes apart slightly with process-related *wie* (‘how’). (For discussion of “process-related’ *wie* vs. “event-related” *wie* see Frey and Pittner 1998; see also section 4.3.2). Process-related *wie* marginally supports distal *alles* in a question like (22a) or (23a), but it does not support adjacent *alles* either, see (22b)–(23b).

(22) Du sag noch mal,

Say again,

Q: ?*wie* sollte ich dieses Hemd gleich nochmal **alles** bügeln?
how should.1SG I.NOM this.ACC shirt shortly again ALL iron
‘how should I iron this shirt again?’

Q’ ??? *wie* **alles** sollte ich dieses Hemd gleich nochmal bügeln?

A: Ganz heiß und mit ganz viel Dampf!
very hot and with very much steam

(23) Du sag noch mal,

Say again,

Q: ?*wie* hattest du dieses Hemd **alles** gebügelt?
how had.2SG you.NOM this.ACC shirt ALL ironed
'how did you iron this shirt (again)?'

Q' ?/?? *wie* **alles** hattest du dieses Hemd gebügelt?

It seems, however, that *wie* can support both *alles* to pretty much the same degree in echo contexts (perfect or one ?), which are identical to (22)–(23) except that *wie* is stressed (*WIE*...).

The second, more significant way in which adjacent *alles* and distal *alles* come apart is with “complex” *wh*-associates. These are *welch*-phrases (24a), possessor-interrogatives (standard *wessen*-phrases (25a), and (southern) colloquial *wem sein*-phrases (25b)), *was-für*-phrases (26), and *wo-(r)-P*-phrases (27). For all of these, distal *alles* is natural, but constituent-final adjacent *alles* is strongly degraded.⁹ Note that, as Reis (1992a) extensively argued, *welch*-phrases with *alles* have to be answered for *kinds* rather than individuals (though they are compatible with individuals as answers as long as they, intuitively, subsume kinds). This is shown in the answers in (24).

- (24) a. [*Welche Freunde* {***alles**}] hast du t {**alles**} angerufen?
what.ACC friends ALL have.2SG you.NOM ALL called
'What friends all did you call?'

A: Die vom Fussball, die vom Judo, und die vom Ballet

'The ones from soccer, the ones from judo, and the ones from ballet'

A': #Die vom Fussball.

'The ones from soccer'

- (25) a. [*Wessen Freunden* {***alles**}] würdet ihr t {**alles**} beim Umzug helfen?
whose friends.DAT ALL would you ALL by.the move help
'The friends of who-all would you guys help move?'

- b. [*Wem seine Freunde* {***alles**}] soll ich t {**alles**} einladen?
who.DAT his.ACC.PL friends ALL shall I.NOM ALL invite
'The friends of who-all shall I invite?'

A: Der Mina ihre, dem Rodrigo seine, und die von der Anouk.

⁹ Reis (1992a) marks *alles* constituent-final in *was-für*-phrases natural (e.g., ex. (2b)). However, while the status of constituent-final *alles* in these phrases does overall seem to be better than, e.g., in *welch*-phrases, I have not been able to replicate this result. See section 6.5.4 for more discussion.

‘Mina’s, Rodrigo’s, and Anouk’s.’

A’: #Der Mina ihre.

- (26) [Was für Torten {??alles}] hast du t {alles} bestellt?
what for cakes ALL have.2SG you.NOM ALL ordered
‘What kind of cakes (all) did you order?’
- (27) Wozu {?*alles} konntest du ihn {alles} ermutigen?
to.what ALL can.PST.2SG you.NOM him ALL encourage
‘For what purposes all were you able to encourage him?’

For the purposes of deciding between the SRH and the DRH, I conclude that adjacent *alles* is not *directly incompatible* with these *wh*-associates. Rather, there must be some other restriction in place that prevents *alles* from appearing in this surface-constituent final position. I discuss this fact in more detail in section 6.5.4. The reason I believe it is independent is that *alles* is able to appear within the surface constituent of at least some of these associates, namely the ones that have a (regular) *wh*-pronominal part: the colloquial possessive construction and the *was-für* construction. With these, *alles* can be adjacent to the *wh*-pronoun inside the associate, as shown in (28)–(29).

- (28) [Wem **alles** seine Freunde] soll ich t einladen?
who.DAT ALL his.ACC.PL friends shall I.NOM invite
- (29) [Was **alles** für Torten] hast du t bestellt?
what ALL for cakes have.2SG you.NOM ordered
‘What kind of cakes (all) did you order?’

Speakers understand these examples as synonymous with the version with distal *alles* above. In particular the colloquial possessor construction is interesting in this regard. While *alles* appears to associate with the DAT *wh*-pronoun – the possessor, directly –, *alles* remains sensitive to the divisibility condition as it pertains to the *wh*-phrase as a whole. Adjacent *alles* is incompatible with the singular *wh*-phrase *wem seine Partei* (‘whose party’) just as distal *alles* is.¹⁰

¹⁰ The example is an embedded *wh*-interrogative to block an echo *wh*-question reading (echo *wh*-interrogatives cannot type a clause as interrogatives in the way that is necessary for selected *wh*-interrogative CPs; see for example Reis (1992b), as well as section 5.3.1.1). In fact, **adjacent** *alles* is compatible with a singular *wem-sein*-phrase if *wem-alles* is an echo question:

- (30) Ich wüsste gerne, [_{CP} [_{wh} {*alles} seine Partei] in den Wahlen {*alles}
 I know.COND.1SG gladly who.DAT ALL his.NOM.SG party in the elections ALL
 vorne liegt].
 in.front lies
Intended: ‘I’d like to know: the political party of who-all is leading in the elections?’

I take away from the in-principle availability of adjacent *alles* in “complex” *wh*-associates that there is an independent factor preventing *alles* from appearing surface-constituent finally in this class of phrases. Given the meaning parallels, I believe that this difference should thus not tilt the scale in favor of the DRH against the SRH.

2.4 Environments: kinds of associate

Alles is licensed in the following contexts. As far as I could establish this, (31) ought to be close to an exhaustive list.

- (31) a. *Wh*-interrogatives (matrix/unselected and embedded/selected)
 b. Echo *wh*-questions
 c. (Free choice) free relatives
 d. Restrictive relatives
 e. *Wh*-exclamatives
 f. *Wh*-conditionals

In contrast, *alles* is *not* licensed in at least the following relevant contexts:

- (32) a. Topicalized or focused non-*wh* phrases
 b. Appositive relatives
 c. *Wh*-indefinites
 d. Causal *wh*-expletives¹¹

(i) [_{WEM} {alles} seine Partei] liegt in den Wahlen {?*alles} vorne].
 who.DAT ALL his.NOM.SG party lies in the elections ALL in.front
 ‘The political party of WHO-all is leading in the elections?’

¹¹ For discussion of this construction see d’Avis (2000). The *wh*-phrase *was* (‘what’) appears in Spec,C and, surprisingly, adds a reason interpretation to the question. Particularly, I would describe such utterances as almost rhetorical questions which have the function of denouncing the described event as gratuitous, lacking reasons that would support such actions according to the utterer’s

From (31a,d–f)–(32a–b), [Reis \(1992a\)](#) concludes that the class of phrases that license *alles* are operators with the following two properties: (a) they can occur in Spec,C; (b) they are indefinite in the sense that they denote ‘open sets’ such that “there is no anaphoric or deictic/situational link to an independently established antecedent set” (she bases this notion of definiteness on [Hawkins 1978, 1991](#)). Reis defends this conclusion based on the difference between restrictive and appositive relatives. She notes that, in contrast to restrictive relatives, appositive relatives are definite in the relevant sense, as they “semantically function as anaphoric pronouns/[phrases]”, citing [Zimmermann \(1991: 264\)](#). *Alles* in appositive relatives is plainly unacceptable, but it is (marginally) acceptable in restrictive relatives; compare (33a–b) (respectively, [Reis, 1992a](#): (20’,24a); glosses and translation added).

- (33) a. ?*Diese Studenten, die **alles** den Test nicht bestanden haben, ...
 these students REL.NOM.PL ALL the.ACC test not passed have.3PL
 ‘all these (kinds of) students, who have not passed the test. . .’
 b. ?Diejenigen Studenten, die **alles** den Test nicht bestehen, müssen ihn
 these students REL.NOM.PL ALL the.ACC test not pass.3PL must.3PL him
 wiederholen.
 repeat
 ‘All the (kinds of) students that do not pass the test have to retake it.’

Echo *wh*-phrases show that an interrogative *wh*-feature is not a necessary part of the structural description of the context in which *alles* is licensed—echo *wh*-phrases cannot occupy Spec,C of selected *wh*-interrogative CPs (cf. [Reis, 1992b](#)). In addition, echo *wh*-phrases *can* but need not be in Spec,C. Rather, what they seem to have in common with interrogative *wh*-phrases is that they take scope in CP; they have generally highest scope (cf. [Sobin, 2010](#)).

Free relatives might be a problem for the “definiteness”. It is unclear whether examples such as (34a), where there is clearly a deictic/situational link to an independently established reference set, are acceptable. They seem less good to me than free choice free relatives such as (34b), but judgments vary.

- (34) a. %Das ist [_{DP} *was* du **alles** mitgebracht hast].
 that is what.ACC you.NOM ALL brought.with have.2SG
 ‘That’s what you brought with you.’

judgment; see (45). [D’Avis \(2000\)](#) argues that *was* has expletive status in this construction.

- b. [DP [Wen auch immer **alles**] du gestern t kennengelernt hast]—ich
 who.ACC also always ALL you.NOM yesterday got.to.know have.2SG—I.NOM
 lad’ die nicht ein.
 invite.1SG them.ACC not in
 ‘Whoever all the people are you met yesterday—I’m not inviting them.’

From *wh*-indefinites, and indefinites in general, the take away must be that “being able to occur in CP” is too inclusive a description of the class. Rather, taking into consideration the takeaway from echo *wh*-phrases, ‘scoping from CP’ must be at issue, and crucially ‘obligatorily scoping from CP’. No matter what the treatment of indefinites (as quantifiers (e.g. May, 1985) or as variables (cf. Heim, 1982)), indefinites *need* not take scope from CP. We can thus rule them out as potential associates (*contra* the proposal by Heck and Himmelreich (2017) who conclude that indefinites are in-principle viable associates of *alles* given that they create intervention effects; more on this in section 3.2.3). We can thus hold on to the following updated version of Reis’s Generalization:

(35) (Updated) Reis’s Generalization—category selected by *alles*:

Alles selects operator phrases that

- a. must take scope from CP, and
- b. denote an open set.

In the remainder of this section I show how, by-and-large, both adjacent *alles* and distal *alles* follow Reis’s generalization. I show that adjacent *alles* is overall more limited in its distribution, but argue that the restrictions follow from independent requirements.

Matrix *wh*-interrogatives have been the topic of investigation so far and so I will take the parallel for adjacent *alles* and distal *alles* as established. The results are parallel with embedded *wh*-interrogatives, but it is worth mentioning one asymmetry between distal and adjacent *alles* in this context. Consider (36).

- (36) Ich wüsste schon gerne, [CP wen {??alles} du t {alles} eingeladen
 I know.COND.1SG PTCL gladly who.ACC ALL you.NOM ALL invited
 hast].
 have.2SG
 ‘I’d sure like to know who-all you have invited.’

In (36), the embedded subject is *du*, a weak subject pronoun. Weak subject pronouns in German appear, essentially, encliticized to the finite verb of V2 clauses or the complementizer of verb-final clauses. This is an old generalization that goes all the way back to Wackernagel (1892); the position is hence often called the “Wackernagel position”. A consequence is that weak subject pronouns are diagnostic of constituency of the material that is to their left within the same clause. Thus, (36) appears to show that while distal *alles* is available with the embedded interrogative, adjacent *alles* is not. Two things should be taken into consideration. First, *alles* can be inside an associate in embedded CPs, as in (37). Given that the meaning remains the same (see again the conclusion of the previous section), this means that adjacent *alles* is possible in this syntactic context.¹²

- (37) a. Ich wüsste schon gerne, [_{CP} [*wem* {(?)*alles*} seine Kinder] du *t*
 I know.COND.1SG PTCL gladly who.DAT ALL his.ACC.PL children you.NOM
 {*alles*} eingeladen hast].
 ALL invited have.2SG
 ‘I’d sure like to know: the children of who-all you have invited.’
- b. Ich wüsste schon gerne, [_{CP} [*was* {(?)*alles*} für Leute] du *t* {*alles*}
 I know.COND.1SG PTCL gladly who.ACC ALL for people you.NOM ALL
 eingeladen hast].
 invited have.2SG
 ‘I’d sure like to know what-all sorts of people you have invited.’

In addition, when the embedded CP of (36) is fronted, as in (38), adjacent *alles* becomes perfectly acceptable.

- (38) [_{CP} *wen* {*alles*} du *t* {*alles*} eingeladen hast] wüsste ich schon
 who.ACC ALL you.NOM ALL invited have.2SG know.COND.1SG I.NOM PTCL
 gerne.
 gladly
 ‘I’d sure like to know who-all you have invited.’

This amelioration is significant. There is no syntactic (or semantic) difference between the embedded CPs of (38) and (36). The difference is thus plausibly prosodic. On the one hand, this shows that distal *alles* and

¹² In section 6.5, in particular sections 6.5.3 and 6.5.4, I will actually argue that in syntactically interrogative sentences as in (37) ‘internal *alles*’ is the result of a PF-process because *alles* can only associate with the fully pied-pipable constituent and for a conspiracy of factors *alles* can not occur at the right edge of the constituent, but marginally inside the constituent. With echo associates this restriction does not apply, but the meaning of internal *alles* is different. Thus, it will not be possible to show that internal/final/distal *alles* can occur with the exact same surface constituents without interfering factors. The conclusion will remain, however, that all of these instances are one and the same *alles*, with independent factors controlling its distribution and interpretation.

adjacent *alles* are the same elements in terms of selective properties—interrogative *wh*-phrases in matrix (unselected) or embedded (selected) contexts. On the other hand, this paradigm also highlights a potential difference between adjacent *alles* and distal *alles*, which may have to do with their overall category (the Category Question). It will be important to examine whether distal *alles* actually displays the same kind of prosodic restriction(s). I return to this issue later in the dissertation (sections 6.5.3 and 6.5.4).

Free relatives, *wh*-exclamatives, restrictive relatives, and *wh*-conditionals exhibit the same asymmetry. Adjacent *alles* is dispreferred in free relatives, exclamatives (cf. Reis, 1992a: 470), and in what Reis (1992a: 470) calls the “unconditional construction”; it is impossible in restrictive relatives.

Consider the free relative example in (39).

- (39) Ich kaufe [DP [*was* {??*alles*}] DU {*alles*} kaufst].
 I.NOM buy.1SG who.ACC ALL you.NOM ALL buy.2SG
 ‘I buy what(ever) you buy.’

Adjacent *alles* is clearly worse. Perhaps it is even impossible here. However, it gets significantly better in constituent-final position if we change *was* to *was auch immer* (‘whatever’):

- (40) Ich kaufe [DP [*was* {??*alles*} auch immer {(?)*alles*}] du {*alles*} bringst].
 I.NOM buy.1SG who.ACC ALL also always ALL you.NOM ALL bring.2SG
 ‘I buy whatever you bring.’

Further still, I find that when the free relative is fronted, *alles* is preferred immediately adjacent to the *wh*-phrase:

- (41) [DP [*was* {(?)*alles*} auch immer {?*alles*}] du {(?)*alles*} bringst] kaufe ich *t*.
 who.ACC ALL also always ALL you.NOM ALL bring.2SG buy.1SG I.NOM
 ‘I buy whatever you bring.’

It seems plausible again that the syntax is largely constant in these examples and that therefore the source of variation ought to be prosodic. In particular the contrast between (40) and (41) is suggestive.

Similar facts hold for *wh*-conditionals. (42) is an example where both adjacent and distal *alles* are acceptable. However, the prosody that supports each of the two *alles*’s is different, as shown in (42a–b).

- (42) ganz egal [*wen* {**alles**} du {**alles**} einlädst—ich komme auf gar keinen Fall
 totally same who.ACC ALL you.NOM ALL invite.2SG I.NOM come.1SG on GAR no case
 zu deiner blöden Party!
 to your stupid party
 ‘It doesn’t matter who-all the people are that you invited—there’s no way I’m coming to your
 stupid party!’
- a. ganz egAL [*wen* du **alles** EINlädst] ...
- b. ganz egal [*WEN* **alles** du EINlädst] ...

The same happens with exclamatives. (43) is an example with a PP, which seems to help in modulating the prosody.

- (43) a. *Mit wem* IHR schon wieder {**alles**} ANgetanzt KOMmt. ...!
 with who.DAT you.PL.NOM already again ALL danced come.2PL
 ‘(All) the people you’re waltzing in with...!’
- b. *Mit WEM* {(?)**alles**} IHR/ihr schon WIEder ANgetanzt KOMmt. ...!

It thus seems that adjacent *alles* is compatible with the associates just as distal *alles* is, and that there are independent prosodic restrictions on adjacent *alles*. The conspiracy of factors that (a) adjacent *alles* relies on an accented associate and (b) *wh*-words are often unreliable hosts, also aligns with the argument by Truckenbrodt (2012) that *wh*-words are typically unaccented. In the next section I discuss that distal *alles* is also subject to prosodic restrictions, suggesting that even this property does not break the parallels between the two expressions.

The one exception to this rule are restrictive relatives. They do not support adjacent *alles* in any way. However, in section 5.4.1, where I discuss restrictive relatives in more detail, I argue that this fact is a conspiracy of two factors: (a) *alles* cannot associate with heads; (b) relative pronouns that appear to be simplex are actually underlyingly complex and prevent *alles* from surfacing with them in the same way that *welch*-phrases do (see above; section 6.5.4).

The following examples illustrate that the following associates do not support *alles*: topics or foci (depending on stress) in Spec,C (44) (adapted from Reis, 1992a: (19’)), or the causal expletive *was* con-

struction (45).¹³

- (44) a. [Die/Diese/Unsere/Pauls Studenten/Sie {***alles**}] [_{C'} hatten {***alles**} eine Vorliebe
those/these/our/Paul's students/they.NOM had.3PL a preference
für Syntax].
for syntax
- b. [Studenten {***alles**}] [_{C'} hatten {***alles**} eine Vorliebe für Syntax].
students.NOM had.3PL a preference for syntax
- c. [Keine/Manche/Viele Studenten {***alles**}] [_{C'} hatten {***alles**} eine Vorliebe für
no/some/many students.NOM had.3PL a preference for
Syntax].
syntax
- (45) Was {***alles**} mishandelst du {***alles**} deinen Hund so?!
what mistreat.2SG you.NOM your dog so
'What are you mistreating your dog like this for?'

2.5 Prosodic requirements

Adjacent *alles* requires some amount of stress on its associate. The stress needs to be immediately to the left of *alles*, it appears. This becomes visible in what we might call “reassurance questions”—a kind of echo question that has the sole purpose of getting confirmation that one understood a word or phrase correctly. For instance, given a question like (46), I can reassure myself that I heard the right question by repeating (46a) with adjacent *alles*, but much less so by repeating (46b). (46a) asks for reassurance that I correctly heard the question to be about people, while (46b) asks for reassurance that the question is about company (as opposed to causes or purposes, for example).

- (46) A: Mit *wem* **alles** wolltest du das Auto reparieren?
with who.DAT ALL wanted.2SG you.NOM the.ACC car repair
'With who-all did you want to repair the car?'
- B: Mit WEM **alles**?
- B': MIT *wem* (??**alles**)

While distal *alles* does not seem to be *as* sensitive to sentence prosody as adjacent *alles*, it does

¹³See again footnote 11 for details about the causal expletive *was* construction.

seem that there are certain parallels. Extraposed infinitival complements show the sensitivity of distal *alles* to prosody more clearly. Zimmermann (2007: fn. 1) gives the following example. He notes that “the embedded [particle] is (*marginally*) able to associate with the fronted *wh*-item” (emphasis added).¹⁴

- (47) ?*Wem*₁ hat Peter versucht [t₁ **alles** zu helfen]?
 who.DAT has Peter tried.3SG ALL to help
 ‘Who-all did Peter try to help?’

In fact, the marginal status improves when *alles* does not occupy the left edge of the extraposed infinitival.

(48) shows the contrast with an adverbial, while (49) shows the contrast with a DAT object.

- (48) a. *Wem*₁ hat der Peter bereut [{?/?**alles**} damals {**alles**} geholfen zu haben]?
 who.DAT has the.NOM Peter regretted.3SG ALL thence ALL helped to have
 ‘Who-all did Peter regret to have help that time?’
 b. *Wem*₁ hat der Peter {**alles**} damals {**alles**} geholfen?
 who.DAT has the.NOM Peter ALL thence ALL helped
 ‘Who-all did Peter help that time?’
- (49) a. *Wen*₁ hat die Maria versucht [{?/?**alles**} [dem Peter] {**alles**}
 who.ACC have.3SG the.NOM Maria tried ALL the.DAT Peter ALL
 vorzustellen]?
 to.introduce
 ‘Who-all did Maria try to introduce to Peter?’
 b. *Wen*₁ hat die Maria {**alles**} [dem Peter] {**alles**} vorgestellt]?
 who.ACC have.3SG the.NOM Maria ALL the.DAT Peter ALL introduced
 ‘Who-all did Maria introduce to Peter?’

The paradigm shows that what is at issue is not the position of *alles* relative to the adverbial or the DAT object: inside the main clause, both word orders are acceptable, see (48b)–(49b). Rather, what matters is *alles* being at the left edge of the infinitival. Extraposed infinitivals in German form their own prosodic unit. This is clear from the fact that an intonational pause, even a long one, can be added at the clause boundary. The infinitival is thus a clear environment where *alles* is at the edge of an intonational phrase and has a degraded status.

More generally, Reis (1992a) already noted that *alles* is never stressed, see (50) (adapted from Reis,

¹⁴ Zimmermann goes on to note that “...[this] argu[es] for a tight structural relation at some level of representation”. This will become important again in chapter 4 where I argue that *alles* “lives on its associate’s chain”, i.e. that *alles* and its associate always form a First-Merge constituent.

1992a: (7–8)). As Reis shows more generally, this is also one of the properties that sets *alles* apart from inflecting floating *all*–.

- (50) a. *Was* hat er **alles**/***ALLES** für dich getan?
 what.ACC has he.NOM ALL for you done
 ‘What-all did he do for you?’
- b. *Wer* ist **alles**/***ALLES** interessiert?
 who.NOM is ALL interested
 ‘Who-all is interested?’
- c. *Das* hat er **alles**/**ALLES** für dich getan.
 that.ACC has he.NOM all.ACC for you done
 ‘All that he did for you.’
- d. *Die Leute* sind **alle**/**ALLE** interessiert.
 the.NOM people are all.NOM interested
 ‘The people are all interested.’

Adjacent *alles* can also not be stressed, not even for contrastive purposes (other than corrections of phonological content, of course).¹⁵ (51) illustrates this in a context where Speaker A knows that Speaker B met multiple people but is avoiding giving a full answer.

- (51) A: *Wen* **alles** hast du getroffen?
 who.ACC ALL have.2SG you.NOM met
 ‘Who-all did you meet?’
- B: Peter.
- A: ???*Wen* **ALLES** hast du getroffen?

Secondly, based on facts like the above, Reis describes *alles* as having “clitic properties”. I believe that this statement might be too strong. While there is a clear preference to de-accent *alles*, so that it is prosodically sub-ordinate to some other phrase in its intonational phrase, *alles* can bear some amount of pitch accent. This property becomes clearest in that “getting the prosody right” becomes harder and harder

¹⁵For instance, some Austrian varieties do not have *alles* at all. Rather, they have *aller*, ending in a rhotic. If a speaker is surprised by another speaker using *aller* in an utterance, I can imagine the following correction being possible with stress on *alles*.

- (i) A: *Wen* **aller** hast du gestern getroffen?
 who ALLER have you yesterday met
 ‘Who-all did you meet yesterday?’
- B: *Wen* **ALLES** hab’ ich gestern getroffen?!
 ‘(You mean,) who-ALLES did I met yesterday?’

the more de-accented material is to the left of *alles*. I illustrate what I mean by this on ditransitives. In a ditransitive clause with maximal focus, the smallest VP shell bears pitch accent on the DP if it is present. Pitch accent on the verb would signal narrow focus. An intransitive bears pitch accent on the lexical verb and is ambiguous between maximal and narrow focus. Every XP within the maximal focus receives pitch accent (capitalized) and the last pitch accent is acoustically most prominent (underlined).¹⁶

(52) *What happened?*

- a. Die SUsi hat der MAra dieses BUCH gezeigt /#dieses Buch geZEIGT.
the.NOM Susi has the.DAT Mara this.ACC book shown /this book shown
‘Susi showed Mara this book.’
- b. Sie hat geFURZT.
she.NOM has farted
‘She farted.’

However, if the complement of the lexical verb cannot bear accent, like *wh*-indefinite pronouns, the minimal VP’s pitch accent goes on the verb, without necessarily signaling narrow focus.

- (53) Die SUsi hat der MAra *was* geZEIGT /*WAS gezeigt.
the.NOM Susi has the.DAT Mara what.INDF.ACC shown /what.ACC shown
‘Susi showed Mara something.’

The same happens with *alles* in ACC position with an ACC associate:

(54) *What did you want to you?—I wanted to know*

- was* die SUsi der MAra **alles** geZEIGT hat /*ALLes gezeigt hat.
what.ACC the.NOM Susi the.DAT Mara ALL shown has /ALL shown has
‘what-all Susi showed Mara.’

When a *wh*-indefinite DAT is added, the sentence is still acceptable, but some more effort is required to get the prosody right. Both the *wh*-indefinite and *alles* now bear minimal accent for an optimal result. I mark this with small-caps.

(55) *What did you want to you?—I wanted to know*

¹⁶ For more overview on German prosody see, for example, [Büring \(2001a,b\)](#); [Steube \(2001\)](#); [Steube and Sudhoff \(2013\)](#); [Truckenbrodt \(2012\)](#).

- a. *was* *die* *SUsi* *WEM* **ALLES** *geZEIGT* *hat*.
 what.ACC the.NOM Susi who.INDF.DAT ALL shown has
 ‘what-all Susi showed someone.’
- b. ?*was* *die* *SUsi* *wem* **alles** *geZEIGT* *hat*.

The effect increases as more de-accented material is added, for instance if the subject is a pronoun:

(56) *What did you want to know about her?—I wanted to know*

- a. *was=se* *WEM* **ALLES** *geZEIGT* *hat*.
 what.ACC=she.NOM who.INDF.DAT ALL shown has
 ‘what-all she showed someone.’
- b. ??*was=se* *wem* **alles** *geZEIGT* *hat*.

I conclude by noting that, clearly, a more detailed account of the prosodic requirements of both adjacent and distal *alles* will be useful to further investigate the syntax of *alles*-sentences. At this point, however, I conclude that there is no serious reason to doubt that the two instances of *alles* have the same lexical content, and therefore still reject the DRH. The parallels of this section may in fact already suggest that the two instances of *alles* have the same category.

2.6 Co-occurring expressions

Another point of parallel between adjacent and distal *alles* is in the expressions that they can co-occur with. These are:

(57) *List of co-occurring expressions:*

- a. “non-exhaustive”/“pluralizing”/“vague” unstressed *so*¹⁷
- b. *für NP*
- c. *von*-restriction
- d. *locative*-restriction; ?*hier*-restriction
- e. *aus*-restriction

¹⁷ This *so* is always unstressed, like *alles*. Its contribution to meaning, however, is debated. Beck (1996); Beck and Rullmann (1999); Reis (1992a) argue that *so* is anti-exhaustive; Zimmermann (2007) argues that it is merely pluralizing and compatible with exhaustiveness; Reich (1997) sees it as non-exhaustive but more generally suspects that it merely contributes an expectation for vagueness or imprecision (hence I named Reich’s take on unstressed *so* “vague”).

f. ?*adjectival*-restriction

g. *genau* ('exactly')

h. **zum Beispiel* ('for example')

i. *Modifiers of typical quantifiers like inflecting floating *all*–:

{*fast (alle)* 'almost', *so gut wie (alle)* 'almost', (*alle*) *bis auf einen* 'except one' }

I start from the expression that *cannot* co-occur with *alles*. Reis (1992a: 467) lists out the examples in (57i) and contrasts them with unstressed *so*, as in (58); I add the facts for adjacent *alles*, as well as glosses and translations and typefacing.¹⁸

- (58) a. *Diese Kollegen möchte er fast alle/*so ALLe kennenlernen.*
these colleagues want.3SG he.NOM almost all/ SO all get.to.know
'He wants to meet almost all of these colleagues.'
- b. [*Wen {*fast alles/so alles}*] möchte er {**fast alles/so alles*} kennenlernen?
who.ACC almost ALL/SO ALL want.3SG he.NOM almost ALL/SO ALL get.to.know
'Who X+all does he want to meet?'

While Reich (1997); Reis (1992a) believe that *alles* and *zum Beispiel* ('for example') belong to the same class of elements, Reich (1997: 87f) claims that the two expressions are incompatible with each other, noting that this is plausibly due to semantic reasons: he suggests that *zum Beispiel* invites to infer anti-exhaustiveness but *alles* invites to infer exhaustiveness. Reich illustrates the contrast with the example in (59a), noting that it can only be understood as (59b), a prominent reading of which I make more precise in (59c).¹⁹

- (59) a. *Wer war denn gestern abend zum Beispiel alles auf der Party?*
who.NOM was DENN yesterday evening for example ALL at the party
b. 'For example: who-all was at the party last night?'

¹⁸Reis notes that *so* is impossible with *all*– especially if *all*– is stressed. This is connected to the issue whether *so* is a particle that actually just adds vagueness and that is compatible with declaratives. Elena Herburger (p.c.), for instance, brought this example to my attention. See again footnote 17.

- (i) *Der forscht so an Quantoren.*
he.NOM researches SO at quantifiers
'He researches quantifiers [*but I shall remain vague about additional details because I don't know or I don't want to talk about that further*].'

¹⁹ In fact, it seems that *zum Beispiel* can be added to any focused "contentful" constituent. It can be added to *gestern abend* in (59) signaling a slightly different perspective toward what's at issue in the conversation.

- c. ‘Since we are on the topic of last night, let me ask you about the party, for example: who-all was there?’

In contrast, making explicit what I believe Reich leaves implicit, the following two logically possible readings are not available for (59a):

- (60) a. ‘Give me an example of a plausibly full list of people who were at the party last night.’
b. ‘Give me an example of a member of the complete set of people who were at the party last night.’

With the particles in adjacent, surface constituent position, it appears that the readings of (59b–c) are no longer available when *zum Beispiel* appears between *alles* and the associate *wer*. When *zum Beispiel* is constituent final, with a small intonational break before it, if the sentence is acceptable at all, it seems that a reading of the nature in (59b–c) arises again, though it is harder to pin point it. It might be something like the following in (62).

- (61) *Wer* {?***zum Beispiel**} *alles* {/?***zum Beispiel**} war denn gestern abend auf der
who.NOM for example ALL for example was DENN yesterday evening at the
Party?
party

- (62) ‘Since we are on the topic of last night, let me ask you about, for example, who was there: who-all was there?’

The following examples illustrate that adjacent and distal *alles* can co-occur, with similar (if not always identical) status, with the following expressions (see also Giusti (1991)). There is speaker variation in the judgments about the preferred order between *alles* and the co-occurring expression. I thus add both orders and mark them with the variation sign ‘%’.

- (63) *Group-of restriction:*

- a. %[Wen {**von denen**} *alles* {**von denen**}] hast du gestern eingeladen?

- b. %[Wen hast du gestern {von denen} alles {von denen} eingeladen?
 who.ACC have.2SG you.NOM yesterday of them ALL of them invited
 ‘Of those people: Who-all did you invite?’

(64) *Group-in restriction:*

- a. %[Wen {in dieser Gruppe} alles {i.d.G.}] hast du gestern eingeladen?
 who.ACC have.2SG you.NOM yesterday in this group ALL in this group
 eingeladen?
 invited
 ‘In this group: Who-all did you invite?’

(65) *Group-from restriction:*

- a. %[Wen {aus dieser Gruppe} alles {a.d.G.}] hast du gestern eingeladen?
 who.ACC have.2SG you.NOM yesterday from this group ALL from this group
 eingeladen?
 invited
 ‘From this group: Who-all did you invite?’

(66) *Here restriction:*

- a. %[Wen {hier} alles {hier}] hast du gestern eingeladen?
 who.ACC have.2SG you.NOM yesterday here ALL here invited
 ‘Of the people here: Who-all did you invite?’

(67) *Kind restriction:*

- a. %[Was {für Leute} alles {für Leute}] hast du gestern eingeladen?
 what have.2SG you.NOM yesterday for people ALL for people invited
 ‘What-all sorts of people did you invite?’

(68) *Exactly:*

- a. %[Wen {genau} alles {genau}] hast du gestern eingeladen?
 who.ACC have.2SG you.NOM yesterday exactly ALL exactly invited
 ‘Who-all, exactly, did you invite?’

(69) *Adjectival restriction:*

- a. %[Wen {, **Berühmtes**,} *alles* {, **Berühmtes**,}] hast du gestern eingeladen?
 b. %[Wen hast du gestern {, **Berühmtes**,} *alles* {, **Berühmtes**,} eingeladen?
 who.ACC have.2SG you.NOM yesterday famous ALL famous invited
 ‘Who-all did you invite that is famous?’

2.7 Conditions on multiple *alles*

The sentences so far had only one instance of *alles*. Generally, it is possible to have multiple instances of *alles*:

- (70) *Wer alles hat damals wen alles furchtbar ernst genommen?*
 who.NOM ALL has then who.ACC ALL terribly serious taken
 ‘Who-all took who-all very serious back then.’ (Reis, 1992a: ex. 64a; glosses and translation added)

However, this is only possible as long as there are multiple associates. In fact, it seems that the maximum number of *alles* in a sentence corresponds to the number of compatible associates in that sentence. Compare (71) with (70) (see also Zimmermann 2007).

- (71) **Wer alles hat damals alles jemand furchtbar ernst genommen?*
 who.NOM ALL has then ALL someone.ACC terribly serious taken
Intended: ‘Who-all took someone very seriously back then.’

We can state the following corresponding generalization:²⁰

(72) *Alles-to-associate Correspondence Generalization:*

In any given sentence, there can be no more *alles*’s than compatible associates.

²⁰Challenging claims related to (72), an anonymous reviewer for GLOW43 suggested that *alles* can actually be iterated and provided the following example:

- (i) *Was₁ hat er denn alles gemeint, [CP dass sie t₁ alles gelesen habe]?*
 what.ACC has he.NOM DENN ALL reckoned that she.NOM ALL read have.SBJV.3SG
 ‘What-all did he say/think that she read?’

Indeed, (i) is far better than the examples in (71) with multiple *alles*. (i) thus deserves closer scrutiny. I address this issue in more detail in section 4.4.5 and conclude that *alles* can merge with *denn* directly given that *denn* is the right kind of operator to serve as an associate for *alles*; the generalization in (72) stands. I ignore this fact for the purposes of this section given that adjacent and distal *alles* align in their behavior in single clauses.

Crucially, adjacent and distal *alles* cannot co-occur in one sentence with just one compatible associate, see (73a).

- (73) a. *Wen alles hast du (*alles) gestern eingeladen?*
 who.ACC ALL have.2SG you.NOM yesterday invited
 ‘Who-all did you invite yesterday?’
- b. *Wen hast du alles gestern (*alles) eingeladen?*
 who.ACC have.2SG you.NOM ALL yesterday invited
 ‘Who-all did you invite yesterday?’

Parallel to that, two distal *alles*’s are also impossible for one associate, see (73b). This strongly suggests independently of the selectional properties that adjacent *alles* and distal *alles* at the very least *contain* the same lexical content.

The facts would follow if there was only one lexical item *alles* which can only enter a derivation by merging with its associate so that instances of distal *alles* are transformationally derived from instances of adjacent *alles*. That is indeed what I will be arguing for in the course of this dissertation. However, these co-occurrence facts are also compatible with a weaker conclusion, so that, for now, I only conclude that the two expressions *contain* the same content in line with the SRH. For instance, if both items add the same meaning to the sentence, the co-occurrence restriction might follow from a general avoidance of redundancy in natural language. For example, adjectives that don’t lend themselves to being emphasized, for instance non-intersective ones, are generally pretty bad when repeated:

- (74) a. ???The fake fake (fake) watch.
 b. #The former former former president.
 c. The pretty pretty (pretty) watch.

2.8 Summary and conclusion

In this chapter, I argued that distal *alles* and adjacent *alles* have the same lexical content, defending the following hypothesis:

- (75) *Same Root Hypothesis (SRH):*

Adjacent *alles* and distal *alles* contain the same lexical root.

I argued in favor of the SRH based on the following facts: The two instances of *alles* make the same meaning contribution, and they are licensed by the same kinds of associates. Within the class of *wh*-indefinite associates, the two instances of *alles* can occur with the same range of associates, and they can co-occur with the same range of *wh*-modifiers (broadly speaking). I argued that, while it appears that adjacent *alles* is subject to more severe prosodic restrictions than distal *alles*, the two instances obey the same kind of prosodic restrictions, and the differences are due to the prosodic differences of their environments. Finally, I showed that adjacent *alles* and distal *alles* cannot co-occur with each other.

The stranding hypothesis, according to which *alles* is always first-Merged in a common source with its associated and optionally stranded in the course of the derivation, entails that the two instances of *alles* are the same lexical item. The conclusions of this chapter thus set the foundations for the stranding analysis that I ultimately argue for.

Chapter 3: Effects induced by distal *alles*

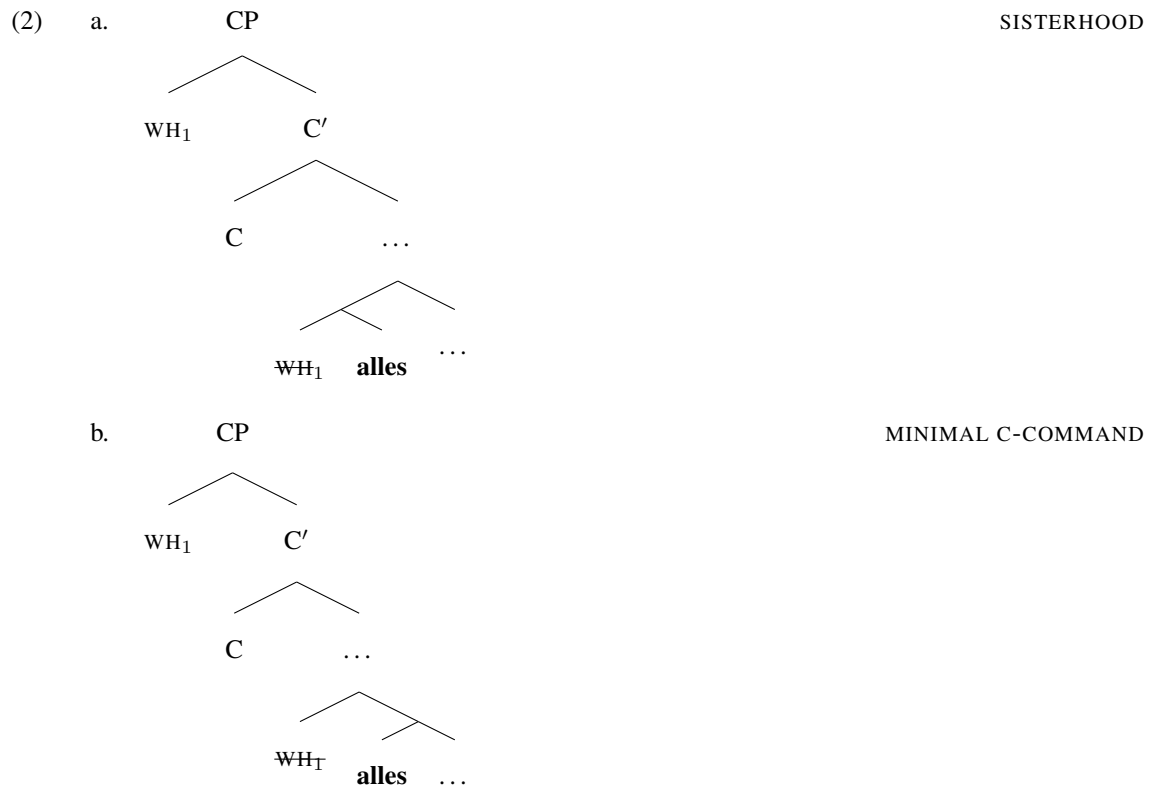
3.1 General picture

In this chapter, I discuss old and new evidence that suggests that distal *alles* behaves differently from adjacent *alles*. On the face of it, these facts may argue that distal *alles* is a *sui generis* clausal category. Instead, I argue that what these facts show is that there is an intimate syntactic relation between distal *alles* and its associate. The evidence comes from syntactic effects that are induced by the placement of *alles* in the clause. *Alles* can block an interpretation of a sentence when it occurs in particular configurations: intervention effects in sections 3.2.1 to 3.2.3, and loss of the restitutive reading in section 3.3.

The form of the argument is straightforward. There are configurations in which *wh*-phrases induce unacceptability or cause the loss of an interpretation. When the *wh*-phrase is fronted, the effect is lost. However, when the *wh*-phrase is the associate of *alles*, and *alles* occurs in the same configuration where the *wh*-phrase induces the effects, the effects re-appear. Thus, *alles* can induce the effects “in the *wh*-phrase’s stead”. While details of analysis matter in each case, at a general level of analysis, in this chapter I promote the conclusion that *alles* never induces the effects directly, and that instead it is the associate that uniformly induces the effects. In a configuration like (1a), the associate obviously induces the effect directly; in (1b), however, where *alles* seemingly induces the effect in its associate’s stead, *alles* forces a parse of the sentence in which the associate occupies the critical syntactic position, *at the relevant point in the derivation*, as in (1c). Strike-through indicates non-pronunciation.

- (1) a. *... X WH₁ Y
b. *WH₁ ... X **alles** Y =
c. *WH₁ ... X ~~WH₁~~ **alles** Y

The main conclusion from this chapter is that *alles* and its associate co-exist in an extremely local configuration at some stage of the derivation. The locality is more narrow than phase-mates, suggesting that either *alles* and its associate form a constituent at the relevant stage of the derivation, as in (2a), or that the associate must minimally c-command *alles* at the relevant stage of the derivation, as in (2b).



(2a) follows the tradition started by [Pafel \(1991\)](#), [Giusti \(1991\)](#), and [Reis \(1992a\)](#), while (2b) follows the work by [Heck and Himmelreich \(2017\)](#). The hypothesis in (2a) is compatible with *stranding* and *floating analyses* of quantifier float, while the hypothesis in (2b) is compatible with *adverbial analyses* of quantifier float.

This chapter thus confirms the result from the previous one, that distal *alles* and adjacent *alles* have the same lexical content. It also already suggests a stronger conclusion, namely that sentences with adjacent *alles* and sentences with distal *alles* are transformationally related. That is, one is derived from the other. Which is derived from which will be the topic of the following chapter, where I discuss the distribution of distal *alles* in the sentence and conclude that there is no evidence that it distributes like an adverbial or

any other known clausal category and conclude that (2a) is the correct hypothesis. I begin tapping into the distributional facts by reviewing two further “effects” of distal *alles* that were previously mentioned in the literature: canonical word-order effects in section 3.5.1, and scrambling restriction by the verb *aussetzen* (‘expose’) in section 3.5.2. The two effects impact acceptability relative to word order and information structural restrictions and set the stage for the following chapter.

3.2 Intervention effects

3.2.1 Pafel (1991) and Beck (1996): ‘every’-*alles* interaction

Pafel (1991) is the first work that addresses the impact of distal *alles* on the Logical Form of the sentence. A *wh*-question can interact with universal quantifiers to yield two distinct interpretations. As Pafel (p. 145) discusses, the question in (3) can be given a ‘distributive’ reading (DIST), and a ‘non-distributive’ reading (NDIST).

- (3) Welche Aufgabe hat jeder gelöst?
 which assignment has everyone solved
 ‘Which assignment did everyone solve?’ DIST; NDIST

The non-distributive reading is exemplified by the answer in (4a), while the distributive reading is exemplified by the answer in (4b).

- (4) a. Die Aufgabe, in der nach den De Morganschen Gesetzen gefragt wurde.
 the assignment in REL after the De Morgan’s law asked was
 ‘The assignment which asked about De Morgan’s law.’
 b. Maria hat die erste, Peter die zweite und Johanna die dritte Aufgabe gelöst.
 Maria has the first Peter the second and Johanna the third assignment solved
 ‘Maria solved the first, Peter the second, and Johann the third.’

Pafel goes into great detail to show what factors contribute to the presence vs. absence of the two readings. One of the contributing factors is whether the *wh*-phrase is separated from an expression that it can form a constituent with, including *alles*.¹ With *alles* below and to the right of the quantifier, the sentence becomes

¹ The other constructions are the *was...für*-split, *an*-partitive, adjectival restriction (*was...Neues* ‘what, which is new’), and extraposed complements of the head noun.

unambiguous—only the distributive reading survives (36a).

- (5) *Wen hat jeder gestern alles in der Kneipe getroffen?*
 who.ACC has everyone.NOM yesterday ALL in the pub met
 ‘Who-all did everyone meet in the pub yesterday?’ DIST; *NDIST

The contrast is perhaps not always immediately clear to naive consultants.² Beck (1996: (44–45)) attributes to Pafel a diagnostic for how the contrast can be made more tangible. If the word order of *alles* has an effect on the interpretation, then it should be able to affect whether a conjoined statement feels contradictory or not. Beck notes that (6a), where *alles* is low in the sentence twice, feels contradictory, while (6b), where *alles* is adjacent to its associate, can be felicitous. I agree with the intuition. In particular, she notes that, according to Pafel, *jeder* is focused in (6b), and that this generally tends to disrupt the distributive reading.

- (6) *Ich will nicht von jedem₁ wissen, wen er₁ alles gesehen hat, sondern...*
 I want not of everyone know who he ALL seen has instead
 ‘I don’t want to know of everyone who-all s/he met,...’
- a. #... *ich will wissen, wen jeder alles gesehen hat.*
 I want know who everyone ALL seen has
 ‘...I want to know who-all everyone met.’ #DIST+DIST
- b. ... *ich will wissen, wen alles jeder gesehen hat.*
 I want know who ALL everyone seen has
 ‘...I want to know who-all everyone met.’ DIST+NDIST; #DIST+DIST

Based on these facts, Pafel proposes the following generalization (ex 124; my translation):

- (7) *Principle for establishing the syntactic position relevant for the calculation of scope:*

For the calculation of scope, (i) and (ii) are relevant:

- (i) the S-structural position of the (*wh*-)quantifier (= unmarked case), or
- (ii) the “base position” of the quantifier (= marked case).

The marked case applies whenever the “base position” contains lexical material.

² One anecdotal kind of evidence for the effect is that sometimes speakers found sentences like (5) unacceptable at first. It would make sense if those speakers read the sentence with an expectation for a non-distributive reading and “got stuck”. One linguist consultant intuitively recovered from this effect and commented that only the distributive (“pair-list”) reading was available.

Indeed, as Pafel suggests (fn 10) the distributive reading is forced when the associate appears in the base position directly, as in a *wh*-in-situ question. As Pafel notes, intuitively the non-distributive reading would require some stress on *jeder*, but the resulting sentence doesn't seem to be well-formed at all.

- (8) Es hat jeder welche Aufgabe gelöst?
 EXPL has everyone which assignment solved
 'Which assignment did everyone solve?' DIST; *NDIST

I suggest another paradigm to strengthen the conclusion. Pafel (ex 4) gives the following examples to illustrate the difference between the distributive and the non-distributive reading:

- (9) a. Welche Aufgabe hat jeder, der sie gestellt bekam, gelöst?
 which assignment has everyone REL her posed got solved
 'Which assignment was solved by everyone who received it?' NDIST; *DIST
- b. Welche von den Aufgaben, die er gestellt bekam, hat jeder gelöst?
 which of the assignments REL he posed got has everyone solved
 'Which of the assignments that each person received did each person solve?' DIST; *NDIST

Now it becomes interesting to note that the position of *alles*, in a way, marks the position in which its associate is interpreted with respect to the quantifier *jeder*. That is, Pafel's "base position" conclusion is more general.³

- (10) a. Welche Aufgaben_i hat {alles} [jeder, der sie_i gestellt bekommen hat], {?*alles} gelöst?
 which assignment has everyone REL them posed gotten has solved
 'What-all assignments were solved by everyone who received them?' NDIST
- b. [Welche von den Aufgaben, die er_i gestellt bekommen hat], hat {*alles} jeder_i {alles} gelöst?
 which of the assignment REL he posed gotten has has everyone solved
 'Which of the assignments that each person received did each person solve?' DIST

³ Note that in chapter 5 I argue that *alles* cannot occur in positions from which its associate A-moved. The low position of *alles* in (10a) would thus run afoul of that generalization (the ABG in (7)) because the associate must have A-moved over the subject to A-bind the bound pronoun *sie* inside the subject (10a). I will argue for exactly this pattern on the basis of similar (anti-)Weak Crossover effects in section 5.2.1. However, borrowing a trick from Lasnik (2014), I believe that the same facts hold when the non-distributive reading is suggested by world knowledge. Note that for examples like (i), the "distributive"/"non-distributive" distinction can be misleading. *Alles* still forces to give a list of answers such that, in a sense, there still is distributivity. However, in (i) *jeder* receives a group interpretation, such that for each of the piano (kinds, e.g. brands) that is listed, the group of everybody carried it: *Answer*: 'The Yamahas, the Bösendorfer, and the Fazioli (were carried by all of us/them).'

- (i) Welche Klaviere hat {alles} jeder (zusammen) {?*alles} getragen?
 which pianos has everyone together carried
 'Which pianos did everyone carry (together)?'

I conclude that, while *alles* does have an effect on the interpretation of the sentence, it does so by forcing its associate to be interpreted from the position that is overtly marked by *alles*. It is thus, the associate that causes the difference in meaning, but distal *alles* cues the parser to adopt a representation in which the associate occupies its position. While this is not a theory of why its associate *must* be ‘interpreted’ there, it is sufficient to conclude that, in order to be interpreted there, it must have occupied the position in the course of the derivation. *Alles* must therefore force its associate to be in a (very) local configuration with it at the point in the derivation that is marked overtly by *alles*.

3.2.2 Beck (2006): Focus-intervention

Beck (2006) takes a step back and examines what expressions count as interveners. She proposes that the determining factor is whether an expression is a focus operator or not. The empirical focus of Beck (2006) is on *wh*-in-situ in *wh*-in-situ languages and in multiple-*wh* interrogation of languages that front only one *wh*-phrase. She notes that the descriptive generalization in (11) applies (ex 9-10):

- (11) A quantificational or focusing element may not intervene between a *wh*-phrase and its licensing complementizer.

[Q_i [... [intervener [... *wh*-phrase_i...]]]]

(12) exemplifies the effect with a multiple-*wh* question in German. In (12a), the in-situ *wh*-phrase creates an intervention effect because it is to right and in the c-command domain of the focus operator *nur* (*den Dirk*).

- (12) a. **Wen hat nur der Dirk wo gesehen?*
 whom has only the Dirk where seen
 ‘Who did only Dirk see where?’ (Beck, 2006: (60a))
 b. *Wen hat wo nur der Dirk gesehen?*

Without going into the details of the semantic analysis, the effect in (12a) results because the LF for the portion of the clause that contains the *wh*-in-situ is not compatible with the semantic type that *nur* composes

with.

The effect is also induced by *alles*.

- (13) a. ?**Wen* hat nur der Dirk **alles** gesehen?
who.ACC has only the Dirk ALL seen
'Who-all did only Dirk see?'
- b. *Wen* hat **alles** nur der Dirk gesehen?
- c. *Wen* **alles** hat nur der Dirk gesehen?

Beck addresses this concern with the split partitive in (14). In (14a) split partitive *von den Musikern* ('of the musicians') is in the c-command domain of the focus-expression *nur (der Dirk)*. The sentence is unacceptable. In (14b), in contrast, when the partitive occurs in one constituent with the *wh*-phrase, the effect goes away.

- (14) a. **Wen* hat nur der Dirk [von den Musikern] gesehen?
whom has only the Dirk of the musicians seen
- b. [*Wen von den Musikern*] hat nur der Dirk gesehen?
whom of the musicians has only the Dirk seen
'Which of the musicians did only Dirk see?' (Beck, 2006: (86))

The effect goes away when the focus particle is absent, (15a). Similarly, the contrast goes away when the partitive is split in a position to the left of the intervener, as in (15b).

- (15) a. *Wen* hat der Dirk von den Musikern gesehen?
whom has the Dirk of the musicians seen
'Which of the musicians did Dirk see?' (Beck, 2006: (87))
- b. *Wen* hat **von den Musikern** nur der Dirk gesehen?
whom has of the musicians only the Dirk seen

(15) is the same pattern as with *alles* above. Unfortunately, as Beck acknowledges, her proposal offers no immediate insight as to why there should be an intervention effect for separation constructions, as in (14a) (or *alles* above for that matter, though she does not discuss *alles* here). She concludes that the *wh*-phrase must be interpreted in the position of its constituent material at LF (p 30):

"From the perspective developed in this paper, the example shows that the interpretive contri-

bution of the wh-phrase must take effect in the position of the remnant, not in the position of the moved part of the wh-phrase. I suggest that the two parts of the wh-phrase must be interpreted together, and that for this purpose the moved part behaves as if it occupied its original position. The LF associated with (14a) then looks as in (16), and we expect the intervention effect.”

(16) [Q1 [[X nur_C [C [[der Dirk]_{F2} [wen₁ von den Musikern] gesehen hat]]]]]]

In other words, the conclusion suggests itself again, that *alles* forces its associate to be in the position that *alles* occupies, at the point in the derivation that corresponds to the surface position of *alles*. Beck proposes that it is LF. However, unless the associate LF-moves to this position, the associate must have occupied the position at some point in narrow syntax in order to be accessible there at LF. The conclusion thus stands that *alles* forces its associate to be in a (very) local configuration with it at least at the point in the derivation that is marked overtly by *alles*.

3.2.3 Heck and Himmelreich (2017): indefinite intervention

As a sub-case of the effects discussed in Beck (1996), distal *alles* can also be degraded when it occurs to the right of plainly existential indefinites. (Heck and Himmelreich (2017: (6)); judgments as reported.)⁴

- (17) a. *Wer₁ hat einem Professor alles₁ gratuliert?
 who.NOM has a professor.DAT all congratulated
 ‘Who-all congratulated a professor?’
 b. *Wer₁ hat einen Professor alles₁ vergöttert?
 who.NOM has a professor.ACC all idolized
 ‘Who-all idolized a professor?’
 c. *Wem₁ hat sie einen Professor alles₁ vorgestellt?
 who.DAT has she a professor.ACC all introduced
 ‘Who-all did she introduce a professor to?’

⁴ As they note, the judgments are claims about the grammar given relative acceptability judgments against the definite baselines, and different word order.

3.2.3.1 Heck and Himmelreich’s analysis of *alles*

Heck and Himmelreich (2017) (henceforth H&H) argue for the following descriptive generalization:

(18) *Generalized intervention asymmetry*: (H&H: ex (4))

An antecedent α can establish a relation with an associate β in the presence of a coargument γ that precedes β if and only if γ is higher on the hierarchy $nom \succ dat \succ acc$ than α .

Based on the discussions in Beck (1996) and Reis (1992a), H&H propose to derive the generalization as an intervention effect. They propose that *alles* is susceptible to intervention by indefinites because they are licit associates of *alles*. They implement the idea by postulating that *alles* contributes semantically by associating with a licit associate through an Agree relation (Chomsky, 2000) that passes the associate’s index for later co-interpretation. The Agree relation is initiated by a feature on indefinites [$u_{WH}:\pm$]. *Wh*-phrases also have an index feature [$u_{WH-IND}:i$], which initiates probing for interpretation. *Alles* has the counterparts for the two features, without values. When non-*wh* indefinites associate with *alles* by agreeing with it, they cause “intervention” because, while they have the correct feature-composition to initiate Agree, they do not have the correct feature-composition to license *alles*. *Alles* requires specifically a [$u_{WH}:+$]-associate. I ignore the index in what follows given that the primary effect is the intervention by the indefinite.⁵

- (19) a. *alles*: AdvP, [$_{WH}:\square$]
b. *wh*-phrase: [$u_{WH}:+$]
c. indefinite: [$u_{WH}:-$]
- (20) a. [$_{Y} [u_{WH}:+] [_{X} alles[_{WH}:+] \dots]$]
b. $*[_{Y} [u_{WH}:-] [_{X} alles[_{WH}:-] \dots]]$

Empirically, H&H argue that the generalization in (18) is part of a broader pattern of order-preserving movement that holds in German and Czech. Theoretically, they propose that these order-preserving deriva-

⁵ H&H further argue that the index system accounts for what *wh*-phrase *alles* is associated with, given a derivation.

tions are the natural consequence of how edge-feature driven movement within Phase Theory works: Edge-feature movement places the moving category on a stack in memory, and so is any additional category that is to move to the edge, in the order in which the structure is scanned, from the phase head into its c-command domain. The stack is emptied in the reverse order in which it was filled, like a push-down automaton, and therefore yield the effect that whenever any two XPs move to a phase edge via edge-movement, they move in a way that preserves their relative c-command relations (and typically word order). At the center of attention, however, is that in the strictly derivational system that H&H propose, they predict that the order in which categories are taken off the stack can impact the derivation because it will affect the order of which category will get to Agree with something as soon as they come off the stack. One such element is *alles*, which they assume is an adverbial with the special property of being always merged in the first specifier of *v*—the desired consequence of that is that anything that edge-moves to *v*P will c-command *alles*.⁶ Thus the core of the proposal is that wherever there are two XPs within *v*P, one an indefinite and one a *wh*-phrase, when the *wh*-phrase c-commands the indefinite before edge movement, *alles* remains unlicensed and an “intervention effect” arises. I illustrate this for the NOM–DAT pair in (21) (derivations adapted from H&H: (37,38;42,43)).⁷

- (21) a. *Wer₁ hat einem Professor alles₁ gratuliert?
 who.NOM has a professor.DAT all congratulated
 ‘Who-all congratulated a professor?’
- b. *[_vP who.NOM_[uWH: +]² [_{v'} INDF.DAT_[uWH: -]¹ [_{v'} alles[WH: -] [_{v'} ... t¹ ...]]]]
- (22) a. Wen₁ hat ein Professor alles₁ beleidigt?
 who.ACC has a professor.NOM all insulted
 ‘Who-all did a professor insult?’

⁶ While this effect is surely technically doable, it presumably requires that *v* is specified for merging precisely the lexical item *alles* right after merging with VP, and before merging with anything else, for instance as an ordered feature specification like (i); indeed

(i) $v \text{ } [< \bullet V \bullet, \bullet \text{alles} \bullet, \bullet D \bullet >]$

However, it is not clear to me how to ensure that this is a property of a *language*, that is for all morphemes of the category *v*, assuming that there are many in German, for example causatives, etc. This would have to be a massive coincidence that an entire population of learners learns that *alles* is selected this way.

⁷ Note that for subjects, which are base-generated in *v*P, the phasal projection, H&H need to assume that the subject is merged last, after all edge movement applies. While they assume this on independent grounds (the *Intermediate Step Corollary*; see Müller (2011)), they also need this assumption to get the facts right. However, we have already seen examples where *alles* occurs to the left of subjects. It is not clear to me how H&H’s proposal should be amended to cover this fact. However, given that I will more generally argue against an adverbial analysis of *alles*, this need not further concern us here. See in particular section 4.4.

- b. $[_{VP} \text{ INDF.NOM}_{[uWH:-]}^1 [_{V'} \text{ who.ACC}_{[uWH:+]}^2 [_{V'} \text{ alles}_{[WH:+]} [_{V'} \dots t^2 \dots]]]]$
- c. $[_{CP} \text{ who.ACC}_{[uWH:+]}^2 \dots [_{VP} \text{ INDF.NOM}_{[uWH:-]}^1 [_{V'} t'^2 [_{V'} \text{ alles}_{[WH:+]} [_{V'} \dots t^2 \dots]]]]]]$

3.2.3.2 Effect equally active for associate

In the context of this chapter, I want to paint a different picture of the effect. First, it seems overwhelmingly clear that the same phenomenon is in place for a number of split constructions, and caused by a number of “interveners”. In particular, the set of ‘victims’ also includes the *WHAT*-construction, a form of long-distance question where the scope of the question is marked with the invariant *wh*-form *was*, and the embedded clause is marked at its edge by the thematic *wh*-phrase (Beck, 1996: (70a))

- (23) ?*Was* glauben vier Linguisten $[_{CP} \text{ wer ihr Projekt finanzieren wird}]$?
 what believe four linguists who their finance will
 ‘Who do four linguists believe will finance their project?’

Beck marks the sentence with one ‘?’, but discusses that examples where the indefinite is the intervener seem to completely resist the purely existential reading. Rather, indefinite interpretations, or generic ones are the only ones available. What is interesting about the example above is that, the two expressions that are affected by intervention are not co-arguments. Thus, they fall outside out H&H’s descriptive generalization. Second, the *wh*-phrase presumably does not enter into an Agree relation with the indefinite. In fact, the larger patterns described by Beck are of the kind in (23), where the victims of the intervention effect are at some level of representation a constituent (see section 4.2.3.2 for discussion of the *WHAT*-construction in that regard).

More to the point of this chapter, a theme in Beck (1996) is that for most of the interveners she discusses, she shows that the effect also applies to the a *wh*-in-situ phrase (as discussed above). I have not found such an example in her dissertation. However, as far as I can tell, the effect applies to *wh*-in-situ of multiple-*wh* questions just the same.⁸

- (24) a. ??*Wer* hat einem Professor **wen** empfohlen?
 who.NOM has a.DAT professor who.ACC recommended

⁸ As implicit in all of this literature, the questions should be read as “regular questions” in the sense that they should not be echo-questions in any way as that circumvents the intervention effect. In fact, where it does not matter that the sentence be a regular question or not, especially in section 4.2.1, I will thus ignore the issue of intervention.

‘Who recommended who to a professor?’

- b. ??Wer hat wem **wen** empfohlen?
who.NOM has who.DAT.INDF who.ACC recommended
‘Who recommended who to a professor?’

If the indefinite is interpreted as a plain existential, and the question as a regular multiple-*wh* interrogative, then the sentences above can only be interpreted with extreme difficulty, if at all. However, the strings are perfectly compatible with an echo question for the in-situ *wh*-phrase, a *wh*-indefinite interpretation of the in-situ *wh*-phrase, and a little more difficult but fully acceptable still, a reading of the indefinite that is not plainly existential (e.g. a specific reading for (24a)). Similarly, and parallel to the *alles* facts, the sentences are perfect if the indefinite is a definite instead, or if the victim precedes the intervener. In (25), the indefinite can be interpreted as a plain existential.

- (25) a. Wer hat **wen** einem Professor empfohlen?
who.NOM has who.ACC a.DAT professor recommended
‘Who recommended who to a professor?’
b. Wer hat **wen** wem empfohlen?
who.NOM has who.ACC who.DAT.INDF recommended
‘Who recommended who to a professor?’

The same applies for the other argument combinations.

- (26) a. ??Wo hat einen Professor **wer** vergöttert?
where has a professor.ACC who.NOM idolized
‘Where did who idolize a professor?’
b. ??Wann hat sie einen Professor **wem** vorgestellt?
when has she a professor.ACC who.DAT introduced
‘When did she introduce a professor to who?’
(27) a. Wo hat **wer** einen Professor vergöttert?
where has who.NOM a professor.ACC idolized
‘Where did who idolize a professor?’
b. Wann hat sie **wem** einen Professor vorgestellt?
when has she who.DAT a professor.ACC introduced
‘When did she introduce a professor to who?’

In conclusion, the intervention effect by indefinites, between *alles* and its associate, is completely

parallel to intervention effects to the associate directly. Thus, rather than *alles* being the offending expression that causes the intervention, I suggest that it merely cues a derivation which places the associate in a position in the representation that will have consequences downstream, specifically the same consequences that there are when the associate occurs in that position overtly. See the end of section 6.4.6.1 for a suggestion of how to cash this out for focus intervention.

3.3 Restitution blocking

The next piece of evidence that suggests that distal *alles* is different from adjacent *alles* comes from the ambiguity associated with the adverb *wieder* ‘again’. I will show that distal *alles* affects the availability of the ambiguity but adjacent *alles* does not. Once again, I will argue that the effect is due primarily to the associate, and only indirectly due to distal *alles* because it somehow marks the associate’s placement in the derivation.

There are two readings associated with the adverb *again*: the so-called *repetitive* reading, and the so-called *restitutive* reading. In both readings an initial state is brought about anew. For example, in the sentence in (28) the sponge was wet, then it becomes dry, and then it is brought back to its wet state again (with potentially multiple iterations thereof).

(28) She made the sponge wet again.

The restitutive reading is the reading that limits itself to the return to the original state – what is repeated is merely the initial state. The repetitive reading, instead, adds that the person who brought about the (potentially many) return(s) to the original state is the same person who brought about the initial state.⁹ Von Stechow (1996) shows that interestingly in German the relative word order of *wieder* ‘again’ and the ACC object affects the availability of the restitutive reading. While with the order ACC>AGAIN in (29a) both readings are available, with the order AGAIN>ACC in (29b) only the repetitive reading is available.

⁹ Von Stechow (1996) proposes to analyze the difference in readings in terms of difference in scope. The adverb can occupy one of two positions: one that has scope only over the state, and one that has scope over the event, which includes the agent of the event; the former corresponds to the restitutive reading (AGAIN>STATE), the latter to the repetitive reading (AGAIN>CAUSE-BY-AGENT-X>STATE). See also section 5.2.3.

- (29) a. dass sie *den* *Schwamm* **wieder** nass gemacht hat.
 that she.NOM the.ACC sponge again wet made have.3SG
 ‘that she made the sponge wet again’REP, REST
- b. dass sie **wieder** *den* *Schwamm* nass gemacht hat.
 that she.NOM again the.ACC sponge wet made have.3SG
 ‘that she made the sponge wet again’REP, *REST

I add that the asymmetry is equally induced by an ACC *wh*-phrase of a multiple-*wh* question:

- (30) a. Wer hat *was* **wieder** nass gemacht?
 who.NOM have.3SG what.ACC again wet made
 ‘Who made what wet again?’REP, REST
- b. Wer hat **wieder** *was* nass gemacht?
 who.NOM have.3SG again what.ACC wet made have.3SG
 ‘Who made what wet again?’REP, *REST

The details of von Stechow’s analysis will be ignored here. The asymmetry as a phenomenon is sufficient to establish that *alles* can induce effects that its associate can induce. So *alles* behaves as if it was in a constituent with the associate. First consider the fact that when *wh*-movement applies from the direct object position, both readings remain available:

- (31) *Was* hat sie **wieder** nass gemacht?
 what.ACC have.3SG she.NOM again wet made
 ‘What did she make wet again?’REP, REST

When *alles* is added to the sentence, an asymmetry can be observed again. With the word order *alles*>AGAIN in (32a) both readings are available, while with the word order AGAIN>*alles* in (32b) only the repetitive reading is available.¹⁰

¹⁰ This asymmetry holds for 3 out of 4 people tested, plus for myself. The task was to determine for each word order which reading is available, so that there were four possible outcomes per word order (both OK, only REP OK, only REST OK, sentence unacceptable).

The one speaker that accepted both readings with both word orders is an interesting point of variation, in particular given that they do lose the restitutive reading in the standard cases of *wieder*>ACC word order outside of *wh*-questions. It is not clear how this point of variation ought to be treated. One possibility is that this speaker has an adverbial grammar for *alles* where in addition *alles* can adjoin at various heights. The prediction then is that this speaker will also not conform to other contrasts discussed in this dissertation. If that was true, the consequences for the learnability of quantifier float in *wh*-dependencies would be non-trivial. Looking ahead, it presumably means that a learner has to distinguish between an adverbial and a stranding analysis based on its primary linguistic data (PLD). That raises interesting questions: are adverbial analyses distinguished from non-adverbial analyses based on there non being vs. there being a syntactic dependency? If that is correct, what is positive, or indirect negative, evidence is there for a syntactic dependency between *alles* and its associate? Finally, if UG makes adverbial analyses available where the associate and the floating adverbial are in a syntactic dependency, how does a learner tease apart what kind of syntactic dependency there is? From this chapter and chapter 4, it should become clear that the type of evidence that a learner would need to achieve that task is unlikely to be a part of the learners PLD. We thus either expect free variation regarding the locality conditions between *alles* and the associate, which would need to be tested more systematically, or in case there isn’t such free variation, we must conclude that UG fixes what kind of syntactic dependency there is between an associated and a floated (quantificational) modifier, e.g. movement as I argue in the course of this

- (32) a. Was hat sie *alles wieder* nass gemacht?
 what.ACC have.3SG she.NOM ALL again wet made
 ‘What-all did she make wet again?’ (?)REP, REST
- b. Was hat sie *wieder alles* nass gemacht?
 what.ACC have.3SG she.NOM again ALL wet made
 ‘What-all did she make wet again?’ REP, ??/*REST

The associate of *alles* is the ACC object in this sentence. If we identify *alles* with its associate, the asymmetry emerges as reflecting the same asymmetry that we observed for the ACC object itself in (29). In other words, if we understand *alles* as marking a chain link of its associate, then there is but a single asymmetry and we can extend the same explanation.

In principle, an adverbial analysis of distal *alles* could account for the facts if *alles* were an adverbial that cannot be in VP: Von Stechow proposes the following structures for the two readings of *wieder* (where I use vP as the projection denoting the event and introducing the causer).

- (33) a. [vP AGENT [VP *wieder* [VP STATE]]] ‘low scope: restitutive’
- b. [vP *wieder* [vP AGENT [VP STATE]]] ‘high scope: repetitive’

If *alles* could occur in VP, then *wieder*>*alles* would be compatible with the restitutive reading (33a), contrary to fact. If *alles* occurs in vP and it can be freely ordered with *wieder*, then the facts follow. However, as we will see in section 4.2.1, *alles* can occur in VP so that this does not seem to be a viable path forward, unless all arguments must vacate VP in an order-preserving fashion.¹¹

Following the theme of this chapter, I thus instead conclude that *alles* and its associate are in an extremely local configuration at the point in the derivation marked overtly by *alles*.

3.4 Interim conclusion

I have argued that for all of the effects where distal *alles* blocks a reading or creates some kind of semantic intervention, the same effect applies to the associate, too, when it is in the same position. I concluded that these effects do not argue that distal *alles* has semantic content that is different from that of

dissertation. I return to this issue in section 7.3.

¹¹Note that the condition also precludes the analysis of *alles* by Heck and Himmelreich (2017), where *alles* is fixed in the lowest Spec,v.

adjacent *alles*, such that this difference would be responsible for these effects. Rather, I concluded that all that distal *alles* does, is cue the parse of the sentence in such a way that the associate is placed, at some level of the representation, unambiguously in a very local configuration with *alles*. From there, it is the associate that causes the effect.¹²

In the next sections I start discussing how the distribution of the associate in the sentence impacts the acceptability of *alles* in a given position. This will be the main theme of the following chapter. I review and discuss the arguments by Pafel (1991) and Reis (1992a) here given the family resemblance to the previous sections.

3.5 Effects on acceptability

3.5.1 Pafel effect

Pafel (1991) shows that the acceptability of distal *alles* gradually decreases the further away it is from its associate's base position. From that general picture Pafel concludes that *alles*, as well as the related particles *so*, and *so alles*, are “fragments” of the *wh*-phrase they are associated with. The examples are adapted from Pafel (1991: 170f). Glosses and translations are added; capitalization indicates pitch accent, here and henceforth as is usual in the literature on German syntax, and ‘so|alles’ is a shorthand for ‘*so* or *alles*, or *so alles*’. I assume that the following judgments are to be understood as applying to context-sentence pairs in which factors affecting “free word order” in German, such as definiteness, discourse-context, and information structure, are limited or controlled for.¹³

Pafel shows that the gradient of acceptability changes as a function of how the *wh*-associate's grammatical function interacts with the main verb's canonical order (*Normalabfolge* in German). The canonical order is the most natural order when a sentence receives maximal focus (for example, when it is all-new, or all-contrasting; see Frey and Pittner (1998) for helpful discussion. For the verb *zeigen* (‘show’), whose

¹² Unfortunately, I will not offer an answer to the question of how the effect comes about in this dissertation. See section 6.4.6.1 for some brief discussion.

¹³ In fact, as will become clearer throughout the dissertation, *alles* is available in some of the positions that are marked here as bad, too, if the information structure is right.

For example, Pafel does not capitalize *Bibliothek* in the example where *alles* occurs immediately to the left of *gezeigt*, and notes that that particular sentence improves (to ‘(?)’) when instead the verb (*gezeigt*) bears pitch accent. Similarly, I believe that, particularly in (ib), where the pitch accent is compatible with multiple focus-background structures, the judgments will change in a context that limits the focus options further. More on this in sections 4.2.1.1 and 4.2.1.2.

canonical word order is SUB>TEMP>IO>DO, Pafel describes the following facts.¹⁴ When the associate is the direct object (DO), as in (34a), *alles* is preferred to the right of the indirect object (IO) *die Maria* and becomes increasingly unacceptable the further to the left it appears.¹⁵ In contrast, when the associate is the IO as in (34b), *alles* is acceptable in the middle positions between the subject (SUB) *der Peter* and the DO *die Bibliothek*, but is unacceptable further to the left or the right.¹⁶ The pattern changes again when the associate is the subject of *zeigen*, in (34c):¹⁷ *alles* is slightly marked when to the right of the IO, and unacceptable to the right of the DO.

- (34) a. Was hat {*so|alles} Peter {??so|alles} gestern {(?)so|alles} der Maria
 what.ACC has Peter.NOM ALL yesterday the.DAT Maria
 {so|alles} GEZEIGT?
 shown
 ‘What-all did Peter show Maria yesterday?’
- b. Wem hat {*alles} Peter {alles} gestern {alles} die BIBLIOTHEK {*alles}
 who.DAT has ALL Peter.NOM ALL yesterday ALL the.ACC library ALL
 gezeigt?
 shown
 ‘Who-all did Peter show the library yesterday?’
- c. Wer hat {alles} gestern {alles} der Maria {?alles} die BIBLIOTHEK
 who.NOM has ALL yesterday ALL the.DAT Maria ALL the.ACC library
 {*alles} gezeigt?
 ALL shown
 ‘Who-all showed Maria the library yesterday?’

When the canonical order of IO and DO is reversed to DO>IO, as with the verb *unterziehen* (‘subject’), Pafel describes the reversed pattern. In (35a), where the associate is the DO, *alles* is better to the left of the IO, in alignment with the canonical word order of the verb rather than with the order of *alles* and IO

¹⁴Underlying precedence, and precedence of constituents in the *middle field*, (TP–vP–VP), generally map to c-command. Unless otherwise noted, ‘>’ can thus be taken to stand for both precedence and c-command. For example, a negative quantifier can bind a pronoun from the DAT into the ACC, but not vice-versa (read ‘show’ as showing on a photo, for instance). Scrambling generally creates new A-binding possibilities.

- (i) a. dass 'n Lehrer [keinem neuen Schüler]_i seine_i Mitschüler gezeigt hat
 that a.NOM teacher no.DAT new student his.ACC peers shown have.3SG
 ‘that a teacher showed no new student their peers’
- b. *dass 'n Lehrer seinen_i Mitschülern [keinen neuen Schüler]_i gezeigt hat
 that a.NOM teacher his.DAT.PL peers no.ACC new student shown have.3SG

¹⁵The verb bears pitch accent and I take it that it should be understood as signaling maximal focus.

¹⁶The ACC object carries the pitch accent, here, which is compatible with narrow focus of the DP, VP focus and maximal focus. Again I take it that maximal focus is the relevant reading to control for free word order.

¹⁷For the placement of *alles* to the right of the DO *die Bibliothek* Pafel does not indicate any pitch accent. I assume that it is meant to fall on the DO in this case, too, as that is what would typically be compatible with maximal focus.

in (34a).¹⁸ In contrast, assuming that the particle known as “non-exhaustive *so*” has the same behavior as *alles*, Pafel shows that the reverse holds when the associate is the IO, cf. (35b).

- (35) a. *Wen* hat Peter {*so|alles*} den Tests {*??so|alles*} unterzogen?
 who.ACC has Peter.NOM the.DAT.PL tests subjected
 ‘Who-all did Peter subject to the tests?’
- b. *Welchen* Tests hat Peter {**so*} den Bewerber {*so*} unterzogen?
 which.DAT.PL tests has Peter.NOM SO the.ACC applicant SO subjected
 ‘What tests all did Peter subject the applicant to?’

Finally, Pafel shows that SUB-IO verbs that freely allow or even prefer the order IO>SUB, such as *unterlaufen* (‘occur’), freely allow *alles* to occur to the left of the NOM argument; in contrast, that was not possible with *zeigen* (‘show’) in (34).

- (36) *Wem* ist {*so|alles*} der Fehler {*so|alles*} UNTERLAUFEN?
 who.DAT is the.NOM mistake occurred
 ‘Who-all made the mistake?’

The take-away here is that distal *alles* behaves, for the purposes of the interfaces, as if it was an overt instance of its associate. Before elaborating on the analytical issue of what is meant by “interfaces”,¹⁹ I show that indeed *alles* behaves in parallel to overt instances of the associate.²⁰ I show this with embedded multiple-*wh* interrogatives in a discourse-neutral context—answers containing all-new information in response to a generic question. For full parallel to Pafel’s facts, consider again the verb *zeigen* (‘show’) which has canonical order TMP>DAT>ACC.²¹ The embedded clause is included in maximal focus, the

¹⁸More on a similar verb, *aussetzen* (‘expose’), in section 3.5.2.

¹⁹Descriptively, it is the interface between narrow syntax and Information Structure (IS), but given the general of Grammar I am assuming here, this description raises the question whether this is an effect of the syntax-PF interface, syntax-LF interface, or both.

²⁰The subject facts are not completely parallel. The embedded subject is preferred below the temporal adverbial *gestern*, matching the results of Frey and Pittner (1998) that temporal adverbs adjoin above the base-position of the highest argument. This likely indicates that the full acceptability of *alles* above *gestern* in the subject question in (34c) is an effect of topicality (see section 5.3.2 for relevant discussion).

²¹Even more parallel to Pafel’s paradigm might be the following interrogatives, embedded inside a matrix question, and with stress on the lexical verb.

- (i) Du, sag mal, weißt du, ... ‘Say, do you know. ...’
- a. wer {**was*} gestern {*??was*} dem Peter {*was*} gezeigt hat?
 who.NOM yesterday the.DAT Peter who.ACC shown has
 ‘... who showed what to Peter yesterday?’
- b. wer {*??wem*} gestern {*wem*} die Bibliothek {**wem*} gezeigt hat.
 who.NOM yesterday who.DAT the.ACC library shown has
 ‘... who showed the library to who yesterday?’

regular intonation thus applies, where the complement of V carries the strongest pitch accent, and all other XPs that branch off directly from the clause contain one (falling) pitch accent. The in-situ *wh*-phrases must be accented to avoid the irrelevant indefinite interpretation. (The judgments are, at the risk of repeating myself, about the context-meaning-form triple as is usual for these kinds of facts; all word order are at least marginally possible in other contexts.)

(37) A: Was ist passiert? ‘*What happened?*’

B: Ich hab’ herausgefunden, ... ‘*I found out ...*’

- a. wer {***was**} gestern {**??was**} dem Peter {**was**} gezeigt hat.
 who.NOM yesterday the.DAT Peter who.ACC shown has
 ‘... who showed what to Peter yesterday.’
- b. wer {**???wem**} gestern {**wem**} die Bibliothek {***wem**} gezeigt hat.
 who.NOM yesterday who.DAT the.ACC library shown has
 ‘... who showed the library to who yesterday.’
- c. wem {**?wer**} gestern {**wer**} die Bibliothek {***wer**} gezeigt hat.
 who.DAT yesterday who.NOM the.ACC library shown has
 ‘... who showed the library to who yesterday.’

The parallel extends to the other two verbs as well, see (38)–(39). Given that *unterlaufen* in (39) is a simple transitive, I added the adjunct *wh*-phrase *um wieviel Uhr* (‘at what time’). The facts in (38a) were more difficult to judge; they require interpreting ‘mistake’ as a ‘kind of mistake’ to get a triple response time-person-mistake.

(38) A: Was ist passiert? ‘*What happened?*’

B: Ich hab’ herausgefunden, ... ‘*I found out ...*’

- a. wer {**wen**} den Tests {***wen**} unterzogen hat.
 who.NOM who.ACC the.ACC.PL tests subjected has
 ‘... who subjected who to the tests.’
 - b. wer {***welchen Tests**} den Bewerber {**?welchen Tests**} unterzogen hat.
 who.NOM the.ACC applicant which.DAT.PL tests subjected has
 ‘... who subjected the applicant to what/which tests.’
-
- c. wem {**?wer**} gestern {**wer**} die Bibliothek {***wer**} gezeigt hat.
 who.DAT yesterday who.NOM the.ACC library shown has
 ‘... who showed the library to who yesterday.’

(39) A: Was ist passiert? ‘What happened?’

B: Ich hab’ herausgefunden, ... ‘I found out ...’

um wieviel Uhr {wem} der Fehler {?wem} unterlaufen ist.
at how.much time who.DAT the.NOM mistake occurred is
‘... at what time time who made the mistake.’

I conclude that distal *alles* has the same impact on information structure as an overt instance of its associate.²² A speaker thus infers from the position of distal *alles* properties of the representation of the sentence that are tied to the associate. I will call this the *Pafel effect*.

3.5.2 Reis blocking

Reis (1992a) zooms in further on the verb *aussetzen* ‘expose’, which is quite similar to Pafel’s paradigm with *unterziehen* ‘subject someone to something’. Glosses, translations, boldface and italics in her examples are added by me.

Run-of-the-mill ditransitive verbs in German allow both object orders in derived positions, above adverbs or subjects, as long as they are both definite. This is shown for *vorstellen* ‘introduce’ and the objects above a focused adverb in (40).

- (40) a. Hat er den Peter der Maria HEUTE vorgestellt?
have.3SG he.NOM the.ACC Peter the.DAT Maria today introduced
‘Did he introduce Peter to Maria today?’
- b. Hat er der Maria den Peter HEUTE vorgestellt?
have.3SG he.NOM the.DAT Maria the.ACC Peter today introduced

In contrast, Reis shows that the verb *aussetzen* ‘expose to’ allows only one order of its objects when both appear in a derived position, like above the adverbial *heute* (‘today’). She gives the following contrast: the order ACC>DAT (*den Peter der Prüfung*) in (41a) is acceptable, but the order DAT>ACC (*der Prüfung den Peter*) in (41b) is not.

- (41) a. Hat er den Peter der Prüfung HEUTE ausgesetzt?
have.3SG he.NOM the.ACC Peter the.DAT exam today exposed

²² In fact, the parallels are even closer once Pafel’s examples are modified further to force an embedded all-new context in the same way I did above.

‘Did he subject Peter to the exam today?’

- b. *Hat er der Prüfung den Peter HEUTE ausgesetzt?
have.3SG he.NOM the.DAT exam the.ACC Peter today exposed

Reis also shows that a *wh*-phrase behaves just as a non-*wh* phrase in this regard (with or without *alles*) by showing that the sentence in (42a) is unacceptable. To complete the paradigm, I add that the order ACC>DAT with the *wh*-phrase is acceptable again, mirroring the plain example in (40a). (It is a little harder to find the right intonation for (42b), hence the judgment with a ?.)

- (42) a. *Wer hat der Prüfung *wen* (alles) HEUTE ausgesetzt?
who.NOM have.3SG the.DAT exam who.ACC ALL today exposed
Intended: ‘Who subjected who (all) to the exam today?’
b. ?Wer hat *wen* (alles) der Prüfung HEUTE ausgesetzt?
who.NOM have.3SG who.ACC ALL the.DAT exam today exposed
‘Who subjected who (all) to the exam today?’

We can also add that the effect disappears when one of the objects is *wh*-moved to the front, shown here for the ACC object in (43). We therefore have to understand the constraint on *aussetzen* as constraining the order of its objects only when they are together, both in base position, or both scrambled in an order preserving way.

- (43) Wen hat er der Prüfung HEUTE ausgesetzt?
who.ACC have.3SG he.NOM the.DAT exam today exposed
‘Who did he subject to the exam today?’

With this much established, the interesting effect that Reis shows is that *alles* alone can induce the same effect (Reis, 1992a: 483). The sentence in (44) is unacceptable just as the analogous sentences in (41b) and (42a).²³

- (44) *Wen hat er der Prüfung **alles** HEUTE ausgesetzt?
who.ACC have.3SG he.NOM the.DAT exam ALL today exposed

²³ Compare the unacceptable sentence with *alles* in (44) to the acceptable one with the discourse particle *denn* in (i) (Reis, 1992a: 483):

- (i) Wen hat er der Prüfung *denn* HEUTE ausgesetzt?
who.ACC have.3SG he.NOM the.DAT exam DENN today exposed
‘Who are the common-ground-relevant people that he subjected to the exam today?’

Intended: ‘Who-all did he subject to the exam today?’

From the sentence in (44) we must infer that *alles* behaves exactly like its associate object, thus producing a configuration in which the two objects of *aussetzen* are together, and in the wrong order. In other words, I conclude that the presence of *alles* forces a derivation where both objects are scrambled in a way that does not preserve the canonical order; the presence of *alles* in that position blocks the derivation that converges in (43), where the ACC object *wh*-moves to Spec,C directly, or where it first scrambles above the adverb *and* above the DAT object, preserving the canonical order at all stages. In other words, there is a chain link of the ACC object where *alles* is.²⁴ The derivation of (44) is thus as indicated in (45):

- (45) *<sub>[CP Wen₁ [C' hat er [_{VP} [_{DP} der Prüfung]₂ [_{DP} t₁ alles]₃ HEUte [_{VP} t₃ t₂ ausgesetzt]]]]]?
 who.ACC have.3SG he.NOM the.DAT exam ALL today
 exposed
Intended: ‘Who-all did he subject to the exam today?’</sub>

The converse word order which is compatible with an order-preserving derivation is acceptable:

- (46) [_{CP} Wen₁ [_{C'} hat er [_{VP} [_{DP} t₁ alles]₃ [_{DP} der Prüfung]₂ HEUte [_{VP} t₃ t₂ ausgesetzt]]]]]?
 who.ACC have.3SG he.NOM ALL the.DAT exam today
 exposed
 ‘Who-all did he subject to the exam today?’

3.5.3 Consequences and outlook

Crucially, Reis blocking highlights *how* local *alles* and its associate must be at the stage in the derivation marked by *alles*. Assume for instance that *alles* is licensed under local c-command by its associate, and that locality is the Phase (as for instance in Heck and Himmelreich’s model). Then, the presence of

²⁴This fact raises some questions about the interaction between successive-cyclic *wh*-movement and scrambling: if *wh*-movement proceeds through a verbal projection – as I argue in section 4.2.3 –, then how does that movement of the ACC object together with scrambling of the DAT object not cause unacceptability? If Reis blocking is indeed some kind of order preserving movement, I see two avenues: it is the result of tucking-in (Richards, 1997), or of cyclic linearization (Fox and Pesetsky, 2003, 2005b). In an analysis of tucking-in that rests on identity of attracting feature, the lack of unacceptability in (43) follows because scrambling and *wh*-movement are not attracted by the same feature and so no economy considerations apply. In a cyclic linearization analysis, the lack of unacceptability becomes more mysterious. The difference between *aussetzen* and run-of-the-mill ditransitives would likely be due to *aussetzen* projecting its own cyclic domain (for whatever reason) and forcing the output of scrambling to preserve the base order (Howard Lasnik, p.c.). Then, however, it becomes unclear how the intermediate DAT>ACC linearization statement can ever be contradicted by *wh*-movement.

alles in the sentences above can still be a signal that its associate moved. Consider the following derivation of the unacceptable sentence in (47) (=44)).

- (47) *_{[CP Wen₁ [C' hat er [_{vP} ~~wen~~ [_{DP} der Prüfung]₂ alles HEUTE [_{VP} who.ACC have.3SG he.NOM who.ACC the.DAT exam ALL today ~~wen~~ {_{DP} der Prüfung} ausgesetzt]]]]?}
 who.ACC the.DAT exam exposed
Intended: ‘Who-all did he subject to the exam today?’

If *vP* and *CP* are phases, (47) would be wrongly ruled in, for two reasons. First, the two objects move while preserving the required order ACC>DAT. Second, Frey and Pittner (1998) argue that temporal adverbial are minimally in *vP*. Thus, *alles* in (47) is in *vP*. That means that *alles* and the associate are within the same local domain as they are both in the edge of *vP*, or at least both between *TP* and *v'*.²⁵ That means that in (47) *alles* could be licensed by local c-command if the Phase were the local domain. Rather the locality must be more extreme. In the next chapter I will argue, both on conceptual and empirical ground, that sisterhood is the right way to cash out this locality. In particular, I argue that *alles* has “no distribution of its own”. If *alles* were an adverbial, and immediately dominated by a clausal projection, it would be predicted to instead distribute like an adverbial of the clause.

²⁵ Depending on considerations about how much of a phase is “transferred”, and at what point in the derivation (see Bošković, 2016; Doliana and Kurokami, 2021), perhaps one could argue that the derivation in (47) is ungrammatical because *alles* and the associate are actually not phase-mates. That strikes me as unconvincing.

Chapter 4: The distribution of distal *alles*

4.1 Introduction

So far I argued that distal *alles* and adjacent *alles* are the same lexical items – the Same Root Hypothesis. In the last chapter, I argued that distal *alles* and its associate must be in an extremely local configuration at some point in the derivation. I entertained the following two options.

- (1) a. SISTERHOOD
-
- CP
 / \
 WH₁ C'
 / \
 C ...
 / \
 WH₁ alles
 / \
 WH₁ alles ...
- b. MINIMAL C-COMMAND
-
- CP
 / \
 WH₁ C'
 / \
 C ...
 / \
 WH₁ alles
 / \
 WH₁ alles ...

The two conclusions suggest that sentences with adjacent *alles* and sentences with distal *alles* are transformationally related. The direction of the relation depends on the syntactic category of distal *alles*. As a first approximation we can formulate two competing hypotheses.

- (2) *Stranding hypothesis*, first pass:

Sentences with distal *alles* are transformationally derived from sentences with adjacent *alles*.

- (3) *Piggy-back hypothesis*, first pass:

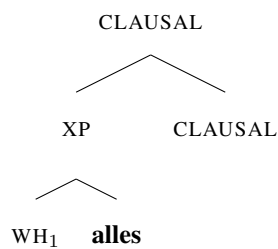
Sentences with adjacent *alles* are transformationally derived from sentences with distal *alles*.

In the model of syntax we are assuming, sentences are not directly transformationally related with each other (there are no *kernel sentences* for instance (Chomsky, 1957)). What the hypotheses mean is that there is a defining structural configuration from which both types of sentences are derived.

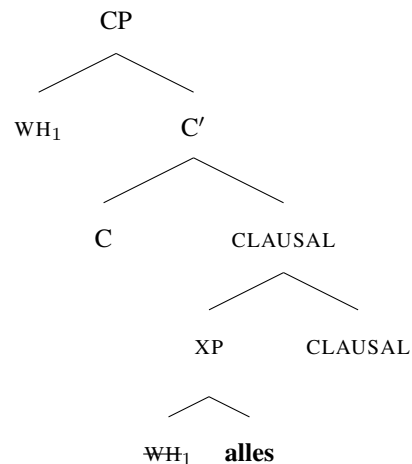
- (4) *Stranding hypothesis* (SH):

The stage in the derivation that adjacent *alles* and distal *alles* have in common is one where *alles* and its associate form a non-clausal constituent.

a. *Common:*

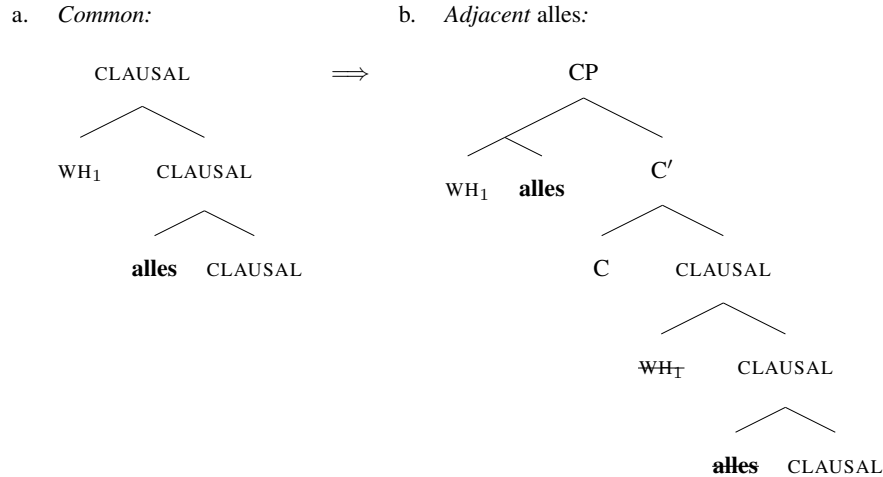


b. *Distal alles:*



- (5) *Piggy-back hypothesis* (PBH):

The stage in the derivation that adjacent *alles* and distal *alles* have in common is one where *alles* and its associate do not form a constituent and are distinct members of the clause.



The *stranding hypothesis* (cf. Sportiche, 1988) entails that the category of *alles* is uniformly relative to and indistinguishable from its associate. Distal and adjacent *alles* alike are base generated in one constituent with the associate. The category of distal *alles* will appear to be nominal when combining with a nominal associate, and adverbial when combining with an adverbial associate. The derivation of distal *alles* is special in that *alles* is ‘stranded’ at some point in the derivation (Fitzpatrick, 2006; Giusti, 1990; McCloskey, 2000; Merchant, 1996; Shlonsky, 1991). The stranding procedure may be a number of things. Most basically, it may be adjunction to an empty nominal category, adopting a representational view of Movement (along the lines of Sportiche (1988) for inflecting quantifier float with A-chains (‘A-QF’) in French and English, and Pafel (1996b); Reis (1992a) for *alles*). The stranding procedure may be sub-extraction of the associate from a shared source (Fitzpatrick, 2006; Merchant, 1996; Shlonsky, 1991). Or it may be complementary deletion, i.e. primarily an effect of the PF–SM interface. I will abstract away from these differences in this chapter, but I return to them in chapter 6.

According to the competing hypothesis, the *piggy-back hypothesis*, the category of *alles* is uniformly adverbial. Adjacent *alles* is created through a morpho-phonological process that is interleaved with syntax.¹

¹ While I will argue against this hypothesis, I should note that it is a strawperson worth fighting against for a moment. For one, Matushansky (2006) argues for such a process for clitics. As discussed in 2.4, associates with a “complex” nominal cannot support constituent-final *alles* as well as associates with pronominal *wh*-forms. The difference may thus derive from this analysis. The extreme locality of minimal c-command would need to follow from some assumptions about adverbial projections. For instance, if adverbials head their own functional projections as in “cartographic” approaches after Cinque (1999), then perhaps *alles* is the head, and the *wh*-phrase has to move into the specifier of that projection such that this locality will be indistinguishable from “occupying the same position” as derived by constituency.

Secondly, Reis (1992a) shows that modal particles like *schon* or *denn* can form surface constituents with *wh*-phrases. For instance she (p. 484f) notes that “multiple question cases such as [(ia–b)] show that modal particles can also cliticize in the middle field (although the results are highly marked), and there is some indication that they cannot be left behind, cf. [(ic)], where the position of the second *wh*-phrase by itself is legitimate, cf. [(ib)]”.

Thus both the SH and the PBH are instances of what we may call the Same Category Hypothesis.

(6) a. *Same Category Hypothesis (SCH):*

Adjacent *alles* and distal *alles* have the same syntactic category.

b. *Different Category Hypothesis (DCH):*

Adjacent *alles* and distal *alles* have different syntactic categories.

However, it is in principle possible that the SCH is wrong, and that adjacent *alles* and distal *alles* do not have the same category. For instance, [Heck and Himmelreich \(2017\)](#) assume that distal *alles* is an adverbial category, but that adjacent *alles* combines directly with the associate. The literature on A-QF is also split on this matter. In particular [Bobaljik \(1995\)](#) and [Brisson \(2000\)](#) have argued that floated *all* in English is an adverbial and thus does not have the same category as determiner *all*. What we may call the Different Category Hypothesis (DCH), (6b), also entails that sentences with distal *alles* and sentences with adjacent *alles* are not transformationally related, at least not in a way that is interesting for phrasal syntax. To uphold the close parallels between the two instances of *alles* from chapter 2, one may propose that one is derived morphologically from the other. [Bobaljik \(1995\)](#) for instance, discusses such an option for English *all*, noting that some quantificational adverbials like *mostly* are transparently decomposable into a quantifier part, *most*, and adverbializing derivational morphology, *-ly*.

In the course of this chapter I will argue in favor of the SCH and against the DCH, and in favor of the stranding hypothesis. The main argument will be based on the distribution of distal *alles* as compared to the distribution of the associate, given a derivation. The prediction of the Stranding Hypothesis (SH) is that *alles* has “no distribution of its own in the clause”—it is entirely relative to the distribution of its associate. The SH thus predicts that the distribution of distal *alles* is a subset of the distribution of its associate. Given that the *alles* enters the derivation with a given associate, the SH also predicts that the distribution depends

-
- (i) a. Wer schon hätte damals wen schon fürchterlich ernst genommen?
 who.NOM already would.have thence who.ACC already terribly seriously taken
 ‘Who, anyhow, would have taken who, anyhow, terribly serious back then?’
 b. Wer schon hätte wen schon damals fürchterlich ernst genommen?
 c. ?*Wer schon hätte wen₁ damals t₁ schon fürchterlich ernst genommen?

Regarding modal particles, specifically, however, [Reis \(1992a\)](#) argues conclusively, in my view, that *alles* does not belong to the class of modal particles. See again section 3.5.2 for one such argument.

In general, I will not engage in detail with this hypothesis given that I argue more generally in this section that distal *alles* is not an adverbial. The Piggy-Back Hypothesis thus never takes off the ground.

on (a) the choice of associate, and (b) the given derivation. I argue in this chapter that this is exactly what we find: I argue that the following distribution statement is the most accurate empirical generalization for distal *alles*.²

(7) *Subset Generalization for distal alles (SSG):*

Given a derivation *D* involving distal *alles* and a licit associate, *alles* may appear in any position its associate has occupied at some point in the derivation, and in no other position.

I support the conclusion by building on arguments provided by Pafel (1991) and Reis (1992a) (see in particular again sections 3.5.1 and 3.5.2). In the first half of the chapter I focus on argument associates and I show that distal *alles* can occur in (a) the base position of its associate (section 4.2.1), (b) positions its associate has reached via scrambling (section 4.2.2), and (c) positions its associate has reached via successive-cyclic *wh*-movement (section 4.2.3.1). In the second half, I show that the same conclusion extends to PP associates, adverbial ones in particular (section 4.3).

I argue that neither the DCH nor the PBH are supported by the distributional facts. In contrast to the stranding hypothesis, the DCH and the PBH state that distal *alles* has a distinct category, a clausal one. They thus predict that distal *alles* has “a distribution of its own”, and that this distribution correlates with the distribution of some other clausal category. Reis (1992a) has already argued in detail that, in spite of some clear similarities, distal *alles* does not distribute like modal particles. I take the argument from section 3.5.2 to be conclusive and refer the reader to her paper for additional arguments. I repeat the contrast here (adapted from Reis, 1992a: 483).

- (8) a. Wen hat er der Prüfung **denn** HEUte ausgesetzt?
 who.ACC have.3SG he.NOM the.DAT exam DENN today exposed
 ‘Who are the common-ground-relevant people that he subjected to the exam today?’
 b. *Wen hat er der Prüfung **alles** HEUte ausgesetzt?
 who.ACC have.3SG he.NOM the.DAT exam ALL today exposed

² This distribution statement is actually too broad. I argue in chapter 5 that *alles* may only appear in positions that host an \bar{A} -chain link of its associate. The complete distribution statement that I argue for in this dissertation is therefore (i).

(i) *Generalization for invariant alles:*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

Intended: ‘Who-all did he subject to the exam today?’

I argue more explicitly against the hypothesis that distal *alles* has an adverbial category, as assumed by Cirillo (2009), or argued by Beck (1996); Heck and Himmelreich (2017), and provide further explicit arguments against an “adverbial analysis” of *alles* in section 4.4. This is a popular analysis in the domain of A-QF (among others Bobaljik, 1995, 2003; Brisson, 2000; Dowty and Brodie, 1984; Fitzpatrick, 2006), but also for \bar{A} -quantifier float (\bar{A} -QF) of Dutch *allemaal* (‘all’) (Koopman, 2010). The main argument in a nutshell against an adverbial analysis for *alles* is one of simplicity. On a stranding analysis, the subset-character of the distribution follows without additional assumptions; an adverbial analysis on the other hand needs many, especially to capture the locality, the dependence on type of associate, and the range of positions in the clause.

Of course, an adverbial analysis is not without merits – I will address potential arguments for one wherever possible – and considerations about the “source of stranding” are important, too, which is one of the main arguments against a stranding analysis (e.g., Bobaljik (2003), but see Al Khalaf (2019); Ott (2012) for an alternative that doesn’t run into these issues). Regarding the former, the principal empirical arguments are presumably (a) the degradedness of constituent-final *alles* with associates with internally complex nominals, and (b) the absence of distal *alles* from intermediate Spec,Cs along the path of long-distance movement. I conclude for (a) that it is a syntax-prosody mapping issue and discuss the phenomenon in depth in section 6.5.4; for (b) I am forced to conclude that the gap is prosodic in nature, too, and discuss it briefly in section 4.2.3. Regarding the latter issue, the “argument from the source” is that distal Q is possible even with associates which are incompatible with adjacent Q. However, except for point (a) just mentioned, the issue simply does not arise. Indeed, (a) is blind to whether the associate is a PP or a DP already pre-announcing that the issue is not akin to the arguments in the realm of A-QF.³

³ I do not discuss the solution for this issue provided by the “symmetric Merge” analysis because this analysis appears to be hopeless for *alles*: In chapter 5 I argue that *alles* cannot be stranded via A-movement. However, for Ott’s system it does not matter what movement is locally linked to stranding.

4.2 Argument associates

4.2.1 Base position

We have already seen some original evidence that *alles* can occur in the base position from Pafel (1991) and Reis (1992a) in sections 3.5.1 and 3.5.2. While I take their conclusions about the base position and scrambling positions to be correct, I provide additional evidence for the SSG based on base positions and scrambling position in sections 4.2.1.1, 4.2.1.2 and 4.2.2. The diagnostics I establish in these sections will become useful in various places of the dissertation. More importantly, however, arguments like the ones we saw in section 3.5.1 run into two challenges. I repeat one example to illustrate:

- (9) a. *Was* hat {**alles*} Peter {*??alles*} gestern {(?)*alles*} der Maria {*alles*}
what.ACC has ALL Peter.NOM ALL yesterday ALL the.DAT Maria ALL
GEZEIGT?
shown
'What-all did Peter show Maria yesterday?'
- b. *Wem* hat {**alles*} Peter {*alles*} gestern {*alles*} die BIBLIOTHEK {**alles*}
what.DAT has ALL Peter.NOM ALL yesterday ALL the.ACC library ALL
gezeigt?
shown
'Who-all did Peter show the library yesterday?'

For one, there may be alternative explanations for why *alles* cannot occur to the right of the focused ACC object. For the sake of argument, *alles* might be an adverb which cannot occur inside the VP between the two sisters [_{VP} [_{NP} *die Bibliothek*] [_V *gezeigt*]]. Conversely, the fact that *alles* immediately to the left of *gezeigt* in (9a) is acceptable does not conclusively show that *alles* is in its associate's base position. German is a "free word order" language. The differing word orders, I will assume, are derived from a base order with a movement transformation commonly referred to as *scrambling* (originally by Ross, 1967).⁴ Given scrambling, it is entirely possible that the DAT object *der Maria* scrambled out of its base position, over *alles*, giving the illusion that *alles* is available in the base position, as in (10):⁵

⁴ While there are plenty of proposals where scrambling is base-generation rather than movement (e.g. Fanselow, 2001), or LF-lowering (Bošković and Takahashi, 1998), or PF-movement (Rambow, 1994), I believe that those proposals face greater challenges. For example, proper-binding effects where scrambling out of a scrambled constituent is illicit (Müller, 1998), or the fact that the availability of inverse scope is modulated by scrambling, are harder to explain in a base-generation approach. For an overview of scrambling and theoretical approaches in German see Corver and van Riemsdijk (1994b); Haider (2017).

⁵ This level of skepticism is substantiated, for example, by the fact that Frey and Pittner (1998) argue that the base position of temporal adjuncts is higher than the base position of subjects. Yet, in typical sentences such as (9a-b), the subject can occur to the

- (10) [CP Was₁ [C' hat [TP Peter gestern [DP der Maria]₂ [?? alles [VP t₂ [VP t₁ GEZEIGT]]]]]]?]

The base position facts play an important role in excluding an adverbial analysis so that they are worth giving extra care in establishing. The diagnostics of the following two sections have the property that movement is limited: (i) the position of *wh*-indefinites, which have very limited movement options, (ii) the position of focused adverbs which mark the left edge of focused vP.

4.2.1.1 *Wh*-Indefinites

The movement options of *wh*-indefinites in German are very limited. For instance, *wh*-indefinites cannot occur in Spec,C.

- (11) *Wen habe ich gesehen.
 who.ACC have.1SG I.NOM seen
Intended: 'I saw someone.'

It would be too strong to say that *wh*-indefinites cannot move at all. Depending on one's analysis of the following phenomena – *wh*-indefinites can be the derived subject of a passive to the left of the *by*-phrase, (12a), and the subject of a raising verb (as I will discuss in greater depth in section 5.2.4), (12b), or the subject of a non-agentive modal verb (cf. Wurmbrand, 1999), (12c).

- (12) a. dass wer vom Peter beleidigt wurde
 that who.NOM by.the Peter insulted be.3SG
 'that someone got insulted by Peter'
- b. dass was anzubrennen droht
 that what.NOM to.burn.at threaten.3SG
 'that something threatens to get burnt'
- c. dass da wer verunglückt sein soll
 that there who.NOM have.accident be should.3SG
 'that someone supposedly got into an accident/died there'

However, most importantly, the scrambling options of *wh*-indefinites, that is its freedom within TP–vP–VP, are very restricted as well. Haider (1993: 200, fn2) for instance notes that they cannot scramble, as do left of the temporal adverb without leading to any detectable changes in focus-background structure. Thus, not all scrambling is immediately detectable.

Frey and Pittner (1998). For Pafel (1991: 167), scrambled *wh*-indefinites are generally less acceptable than non-moved ones, often marginal at best, but sometimes perhaps still acceptable; an anonymous reviewer for *Syntax* is less permissive still. Heck and Müller (2000) observe severe restrictions and argue that *wh*-indefinites can scramble, but only when that repairs some other constraint. For me, and the speakers I have consulted, *wh*-indefinites can scramble, but less freely. Zooming in a little more for a moment, my overall impression is that they cannot move as high as other indefinites (possibly due to the fact that *wh*-indefinites are obligatorily de-accented), and that whenever they move, they are interpreted as not merely existential. I will call this a *presuppositional* reading in section 5.2.4 where I discuss it in more detail; I leave the semantic details open.⁶ What matters is that, for many speakers, *wh*-indefinites don't scramble, while for speakers like me, it is important to consider the plain existential interpretation of *wh*-indefinites for the base position facts.

I illustrate the restrictions. For instance, while regular subjects can occur to the left (or to the right) of weak object pronouns, *wh*-indefinite subjects cannot occur to their right.

- (13) dass {Peter/?*wer} ihn {Peter/wer} gestern gesehen hat
 that Peter/who.NOM him.ACC Peter/who.NOM yesterday seen have.3SG
 'that Peter/someone saw him yesterday'

Similarly, without rising intonations, it is not possible to scramble a *wh*-indefinite DAT over a subject, while this is possible for regular indefinite DAT objects; cf. the sentences in (14).

- (14) a. ??dass wem keiner /n' Lehrer 'n Buch gezeigt hat
 that who.DAT noone.NOM a.NOM teacher a.ACC book shown have.3SG
Intended: 'that no-one/a teacher showed a book to someone'
- b. dass 'nem Burschen keiner /n' Lehrer 'n Buch gezeigt hat.
 that a.DAT lad noone.NOM a.NOM teacher a.ACC book shown have.3SG
 'that no-one/a teacher showed a book to a lad'

As such, in the general case, *wh*-indefinites mark their base position and we can use them as diagnostics

⁶ I give two examples of this effect for the relevant speakers. *Wh*-indefinites can occur on either side of negation, with a preference for occurring to the left (*dass du {wem} nicht {?wem} geholfen hast* 'that you didn't help someone/anyone'). *Wem* to the left of negation must be interpreted as not merely existential, taking surface scope over negation; *nicht wem* on the other hand means that no-one was helped.

With some ditransitive verbs (e.g. *geben* 'give') both object orders are at least marginally possible with two *wh*-indefinite objects. As far as I can tell, the prosody is marked in the non-canonical order, and the *wh*-indefinite on the left again receives an interpretation that is not plainly existential. Such verbs are excluded in this section.

to determine that phrases to their right are also in their base position. Before moving on to use this test, a word of caution is in order. Scrambling is known to impact the background-focus properties in German (see again 3.5.1). With a bridge accent rising on the subject (*keiner/n Lehrer*) and falling on the object (*'n Buch*) sentences like (14a) are perfect. For me, the *wh*-indefinite must also be interpreted as not merely existential in that case; see again footnote 6. In fact, rising intonation contrasts – including bridge accents – generally affect word order options in significant ways in German—they can put out of order valid generalizations about word order restrictions, such as Lenerz' generalization (see section 4.2.1.2).⁷ To control for this factor and avoid undesired movement, the sentences in this section and the next should be understood as occurring in an *all-new* discourse context, for example, against a question like *Was is passiert?* 'What happened?'. Alternatively, they can be understood as a full contrast, for example against a prior statement like *dass 'n Schüler niemand 'nen alten Stift geschenkt hat* 'that a student gave no-one an old pencil as a gift'. In these contexts, at least the subject and the VP are focused (i.e. F-marked, and not Given, in the sense of Schwarzschild (1999), meaning that their content is neither explicitly established nor entailed by prior context). The subject gets falling intonation on its internal main stress (*'n LEHrer*), while the main stress of the VP falls on the XP left-adjacent to V if there is one (*wem 'ne neue ÜBUNG gezeigt*), also with falling intonation. The stress internal to the VP is the strongest in the sentence because it is the rightmost focused constituent.

With that caveat in place, we can turn to applying the *wh*-indefinite diagnostic to *alles*. Consider a ditransitive verb such as *zeigen* ('show'), which has the underlying object structure DAT>ACC (see again section 3.5.1). With such a verb, the DAT *wh*-indefinite marks the base position of the ACC arguments on its right. The SSG thus predicts that ACC-associated *alles* can occur to the right of the DAT *wh*-indefinite. This is indeed the case, see (15Q). To avoid a multiple question reading and instead allow the answer in (15A), it is necessary to respect the prosodic properties of the *wh*-indefinite, which is de-accented while in-situ interrogatives bear pitch accent. The most natural prosody for me is one with pitch accent (but not narrow focus) on the main verb (*geZEIGT*) in line with the de-accented nature of *alles*.

⁷ This is due to the fact that many generalizations about the German clause structure are based on judgments about focus structure and question-answer felicity. Sentences that allow us to confidently make inferences about the derivation will thus often keep the conditions that give rise to these generalizations constant.

- (15) Q: Weißt du, [_{CP} was der Lehrer [_{VP} wem alles gezeigt] haben soll]?
 know.2SG you what.ACC the.NOM teacher who.DAT ALL shown have should.3SG
 ‘Do you know what-all the teacher supposedly showed to someone?’
- A: Ne, nur, dass er wem ’ne neue Übung gezeigt haben soll.
 no only that he who.DAT a.ACC new exercise shown have should.3SG
 ‘No, just that he supposedly showed someone a new exercise.’

Note that for a speaker like me, who allows some degree of scrambling of *wh*-indefinites, but only when accompanied by a non-purely existential interpretation, it is important to check that the indefinite is indeed existential here. It seems to me that one way to confirm it is to see if a plural expression can be used in the answer to (16a) to refer back to the *wh*-indefinite. It seems to me that when the *wh*-indefinite is specific, in some sense, it is either necessarily atomic in reference or very strongly preferred to be interpreted that way. The purely existential reading of the DAT *wh*-indefinite in (16Q) can thus be confirmed by the fact that the DAT *wh*-indefinite in the answer in (16A) can be substituted with the plural expression *einigen Schülern* ‘to some students’.

In line with what we would expect given the SSG in (7), this means that *alles* can occur in the base position of its associate.

4.2.1.2 Focused Adverbs

The next diagnostic involves focused adverbs.⁸ Focused adverbs do not scramble.⁹ As a consequence, VP-level adverbs mark the left edge of the focused VP when they are focused.¹⁰ If *alles* can occur in its associate’s base position in accord with the SSG in (7), then we expect that *alles* can occur to the right of the focused adverb whenever the base position of the associate is inside the VP. This is what we find. Consider the sentences in (16) with the manner adverb *gerne* ‘with pleasure’. Note that scrambling is known to affect the focus-background structure. To control for this factor, the sentences can be understood as occurring in a discourse context that creates a response with *all-new* information. For example, we can understand the sentences as answers to the question *Was weißt du über die Susi?* ‘What do you

⁸ Focus here is again to be understood in a way that excludes *rising intonation*.

⁹ For instance, Reis (1992a: fn18) points to Lenerz (1977), von Stechow and Sternefeld (1988: 466), Grewendorf and Sternefeld (1990: 15), Fanselow (1990: 115ff).

¹⁰ ‘VP’ is the label from pre-vP literature and may now be labeled differently. What matters is that Frey and Pittner (1998) argue that “subject oriented” adverbials such as *gerne*, a sub-type of “event-internal” adverbials, are base-generated in a position immediately c-commanded by the base position of the “subject”, specifically the highest argument of the given verb. The highest argument is NOM with *mitbringen* which is NOM>(gerne>)DAT>ACC.

know of/about Susi?’—ignoring the fact that they are perhaps unusually specific answers to such a generic question, so that the content following the focused adverb is accommodated as common ground.

(16) Ich weiß zum Beispiel,

I know for instance

- a. *wem* sie GERne **alles** ein Geschenk mitbringen würde.
 who.DAT she.NOM gladly ALL a.ACC present bring.with would.3SG
 ‘I know, for instance, who-all she would bring a present with pleasure.’
- a’. *?wem seinen Kindern* sie GERne **alles** ein Geschenk mitbringen würde.
 who.DAT his.DAT.PL children.DAT she.NOM gladly ALL a.ACC present bring.with would.3SG
 ‘I know, for instance, whose-all children she would bring a present with pleasure.’
- b. *was* sie GERne einem Kind **alles** mitbringen würde.
 who.ACC she.NOM gladly a.DAT child ALL bring.with would.3SG
 ‘I know, for instance, what-all she would bring a child with pleasure.’
- b’. *?wem seine Spielsachen* sie GERne einem Kind **alles** mitbringen würde.
 who.DAT his.ACC.PL toys she.NOM gladly a.DAT child ALL bring.with would.3SG
 ‘I know, for instance, whose-all toys she would bring a child with pleasure.’

As a test case, consider Lenerz’ generalization (Lenerz, 1977), which states that direct objects of ditransitive verbs may only scramble when definite. This generalization captures the word order facts in (17), where the definite ACC object may scramble over the DAT object (in a DAT>ACC verb) only when it is definite ((17b) vs. (17d)).

- (17) a. Die Susi hat dem Kind das Geschenk mitgebracht.
 the.NOM Susi have.3SG the.DAT child the.ACC present brought.with
 ‘Susi brought the child the present.’
- b. Die Susi hat das Geschenk dem Kind mitgebracht.
 the.NOM Susi have.3SG the.ACC present the.DAT child brought.with
- c. Die Susi hat dem Kind ein Geschenk mitgebracht.
 the.NOM Susi have.3SG the.DAT child a.ACC present brought.with
 ‘Susi brought the child a present.’
- d. *Die Susi hat ein Geschenk dem Kind mitgebracht.
 the.NOM Susi have.3SG a.ACC present the.DAT child brought.with

When we add in a focused adverb, e.g. again *gerne* ‘with pleasure’, we see that it may occur in positions

preceding a string that is compatible with the canonical order DAT>ACC, but not in positions preceding a string that is not compatible with the canonical order. Focused *gerne* is thus impossible in front of the ACC object in the derived position in (18b). The prosody falls continuously from the focused adverb on to the rest of the VP. (Schematics are included below each sentence for ease of reading.)

- (18) a. Die Susi hat {GERne} dem Kind {GERne} das Geschenk {GERne}
 the.NOM Susi have.3SG gladly the.DAT child the.ACC present
 mitgebracht.
 brought.with
 ‘Susi brought the child the present with pleasure.’
 [{ ADV } DAT { ADV } ACC { ADV } V]
- b. Die Susi hat {*GERne} das Geschenk {GERne} dem Kind {GERne}
 the.NOM Susi have.3SG gladly the.ACC present the.DAT child
 mitgebracht.
 brought.with
 ‘Susi brought the child the present with pleasure.’
 [{ *ADV } ACC { ADV } DAT { ADV } V]

In addition, we see in (19) that when the (lower) ACC object is indefinite, the string where the focused adverb is preceded by the indefinite ACC object is illicit. The unacceptability of that string is in keeping with Lenerz’ generalization, that the ACC object cannot scramble when it is indefinite, if we understand focused *gerne* as occupying a position just below any target of scrambling.

- (19) Die Susi hat {GERne} dem Kind {GERne} ein Geschenk {*GERne}
 the.NOM Susi have.3SG gladly the.DAT child a.ACC present
 mitgebracht.
 brought.with
 ‘Susi brought the child a present with pleasure.’
 [{ ADV } DAT { ADV } ACC-INDEF { *ADV } V]

Generalizing, object scrambling targets positions that are higher than the projection that minimally includes the focused adverb. The *wh*-indefinite test and the focused adverb test can be combined to check one against the other. Indeed, a *wh*-indefinite may not occur to the left of a focused adverb as shown in (20). The low position of the adverb in (20) is acceptable with rising contrastive focus – a bridge accent rising on *gerne* and falling on *Geschenk* – or with main stress on ACC *wem gerne ein GESCHENK mitgebracht*.

- (20) ... dass sie {GERne} wem {??GERne} ein Geschenk mitgebracht hat.
 that she.NOM gladly who.DAT gladly a.ACC present brought.with have.3SG
 ‘(I know, for instance,) that she brought someone a present with pleasure.’

(16) thus constitutes evidence that *alles* can occur in the base position of its associate as the SSG in (7) would predict. The facts are schematized in (21).

- (21) a. [CP WH.DAT₁ ... [VP/VP GERne [VP t₁ *alles* [VP INDF.ACC V]]]]
 b. [CP WH.ACC₁ ... [VP/VP GERne [VP INDF.DAT [VP t₁ *alles* V]]]]

Given the generalization in (7), that *alles* lives on its associate’s chain, we also expect the converse not to be possible: we expect a non-canonical word order between *alles* and the non-*wh* object to be impossible when they occur in the base positions below the focused adverb. The mirror images of (16a)–(16b) in (22) are unacceptable. This tells us that when the option of scrambling is eliminated, *alles* in a position to the right of the ACC object implies a base order which is not possible.

- (22) Ich weiß zum Beispiel,
 I know.1SG for example
- a. **wem* die Susi GERne ein Geschenk **alles** mitbringen würde.
 who.DAT the.NOM Susi gladly a.ACC present ALL bring.with would.3SG
 ‘I know, for instance, who-all Susi would bring a present with pleasure.’
- b. ?**was* die Susi GERne **alles** einem Kind mitbringen würde.
 who.ACC the.NOM Susi gladly ALL a.DAT child bring.with would.3SG
 ‘I know, for instance, what-all Susi would bring a child with pleasure.’

Adverbial analyses, which do not assume that distal *alles* and its associate form a constituent, need auxiliary assumptions to account for the base position facts. For example, they might require some form of locality to hold between *alles* and its associate, together with order-preserving movement within the thematic domain, like Heck and Himmelreich (2017) indeed propose for *alles*, or massive word-order motivated remnant movement, like Koopman (2010) proposes for Dutch *allemaal* and West Ulster English *all*. Such analyses would miss a generalization and assume rather than explain the pattern. A stranding analysis, on the other hand, predicts the base position facts.

4.2.2 Scrambling positions

In keeping with the SSG in (7), *alles* can also occur in positions that its associate can reach via scrambling. We have already seen some evidence for this from Pafel (1991) in section 3.5.1 and from Reis (1992a) in section 3.5.2; see Reis (1992a) for further evidence. I provide additional evidence here that shows how closely *alles* tracks the distributional potential of its associate in any given derivation. Consider (23). As discussed above, focused adverbs mark the left edge of focused VPs/vPs, and scrambling minimally targets positions higher than focused adverbs. Since *alles* can occur to the left of these focused adverbs, (23) indicates that *alles* can occur in a position that its associate reached via scrambling.

(23) Ich weiß nicht,

I don't know

- a. *wem₁* die Susi **alles** GERne *t₁* ein Geschenk mitbringen würde.
 who.DAT the.NOM Susi ALL gladly a.ACC present bring.with would.3SG
 'I don't know who-all Susi would bring a present with pleasure.'
- b. *was₁* die Susi **alles** GERne einem Kind *t₁* mitbringen würde.
 who.ACC the.NOM Susi ALL gladly a.DAT child bring.with would.3SG
 'I don't know what-all Susi would bring a child with pleasure.'

Importantly, an overt WHP can also occupy this position. German is a language that fronts a single *wh*-phrase, like English; the remaining *wh*-phrases of a multiple-*wh* question remain in-situ. The examples in (24) show that the “in-situ” *wh*-phrase of multiple-*wh* questions can scramble, given that the *wh*-phrase may occur either to the left or the right of the focused adverb.

- (24) a. Wer würde GERne *wem* ein Geschenk mitbringen?
 who.NOM would.3SG gladly who.DAT a.ACC present bring.with
 'Who would like to bring whom a present?'
- b. Wer würde *wem₁* GERne *t₁* ein Geschenk mitbringen?
 who.NOM would.3SG who.DAT gladly a.ACC present bring.with

There are two more facts that show that *alles* can occupy scrambling positions (that is positions its associate may scramble to). First, consider where *alles* can occur relative to the DAT object of verbs like *zeigen* ‘show’ which are underlyingly DAT>ACC (see again section 3.5.2; footnote 14). The sentence in

(25a) shows that *alles* associated with the ACC object *was* can occur on either side of the DAT object *der Bevölkerung*.

- (25) a. *Was hat die Demonstrantin {alles} der Bevölkerung {alles} gezeigt?*
 what.ACC have.3SG the.NOM protester ALL the.DAT population ALL shown
 ‘What (all) did the woman protester show the population?’
- b. *Wer hat {was (alles)} der Bevölkerung {was (alles)} gezeigt?*
 who.NOM have.3SG what.ACC ALL the.DAT population what.ACC ALL shown
 ‘Who showed the population what (all)?’

Given that the underlying order of objects for *zeigen* is DAT>ACC, *alles* occupies a derived position when it is to the left of the DAT object—in this case a scrambling position. In fact, the same position may be filled, with or without *alles*, by the associate *wh*-phrase, cf. (25b).

The argument for the SSG in (7) would be even stronger if, conversely, *alles* were *not* able to occur in positions that its associate *cannot* reach via scrambling. There is one domain which indicates that this is the case, though the facts are a little more delicate. There is a subject-object asymmetry with regard to clause-medial movement in German; subjects can move a little higher than objects (see e.g. Merchant, 1996; Müller, 2001; Müller, 2011). One place where the asymmetry becomes visible is with phonologically weak object pronouns (so-called *Wackernagel* pronouns; see, e.g., Anagnostopoulou, 2008; Müller, 2001 and references therein); cf. (26a–b).

- (26) a. *weil {Maria} ihm {Maria} gerne was abgibt.*
 because Maria.NOM him.DAT Maria.NOM gladly what.ACC give.away.3SG
 ‘because Maria gladly gives him something.’
- b. *weil {*den Apfel} ihm {den Apfel} keiner abgibt.*
 because the.ACC apple him.DAT the.ACC apple noone.NOM give.away.3SG
 ‘because no-one gives him the apple.’

The subject *Maria* in (26a) can occur on either side of the weak object pronoun *ihm*. In contrast, the object *den Apfel* in (26b) can only occur to the right of the weak object pronoun. It is not hard to find sentences where *alles* can only occur to the right of weak object pronouns regardless of whether its associate is an object or a subject. However, there are also sentences where *alles* exhibits an asymmetry that goes in the

same direction as in (26). In (27) *alles* can (at least marginally) occur on either side of *ihm* when associated with the subject *wer*, but it can only occur on the right of *ihm* when associated with the object *was*. The asymmetry becomes more apparent with optimal information structure and prosody—it seems that the best way to read the sentences in (27) is with a brief intonational break after *alles*, focus on the adverb (... *wollte* (#) *ihm* *GEstern*...), and the referents of the subject and the weak pronoun backgrounded. Then, (27a) improves (to varying degrees depending on speaker) but (27b) doesn't, or improves much less.¹¹

- (27) a. (Und) *wer*₁ wollte {?(??)*alles*} ihm {*alles*} *gestern* *t*₁ 'ne Lektion
and who.NOM want.PST.3SG ALL him.DAT ALL yesterday a lesson
erteilen?
assign
'(And) who-all wanted to teach him a lesson, yesterday?'
- b. (Und) *was*₁ wollte {?**alles*} ihm {*alles*} *gestern* *keiner* *t*₁ *geben*?
and what.ACC want.PST.3SG ALL him.DAT ALL yesterday noone.NOM give
'(And) what-all did no-one want to give him yesterday?'

Overall, *alles* can occur in positions that its associate can reach via scrambling. In addition, there is some evidence to show that *alles* can also *not* reach positions that its associate *cannot* reach via scrambling. In particular, the tentative fact that the availability of *alles* in scrambling positions differentially tracks the movement options of its associate (subject vs. object) immediately follows from a stranding analysis which derives the SSG in (7). An adverbial analysis would need to stipulate that *alles* has a property that ensures locality with its associate at some point in the derivation (cf. Heck and Himmelreich, 2017). In this case, the locality would need to be extreme, redundantly re-encoding the associate's derivation, given that it is not clear what natural locality boundaries would distinguish the landing site of the subject from the one of the object.

¹¹One way to understand the contrast is the following. There are two factors driving the availability of *alles*: (a) the movement derivation of the associate; (b) prosodic considerations on top. The prosody mentioned in text improves on the satisfaction of the prosodic requirements of *alles* and/or *ihm*. As such, *alles* on the left improves. However, the difference in movement options remains so that the relevant contrast between the subject and the object question remains. If this approach is correct, then the difference is driven by the movement options and the relative contrast supports the SSG even if *alles* on the left in (27a) is not perfect. For one speaker, there was no contrast between (27ab).

4.2.3 Successive-cyclic movement

4.2.3.1 Long-distance *wh*-movement

For speakers who allow extraction from finite CPs – a regional characteristic of southern varieties of German – *alles* can occur in the matrix clause of long-distance *wh*-movement.¹² Consider the following sentence:

- (28) [CP *Wem*₁ hat der Andreas **alles** gedacht, [CP dass die Georgine noch *t*₁
who.DAT have.3SG the.NOM Andreas ALL thought that the.NOM Georgine yet
einen Schnaps einschenken würde]] ?
a.ACC schnapps pour would.3SG
'Who-all did Andreas think that Georgine would pour another schnapps?'

Facts like (28) follow from the SSG if *alles* in the matrix clause marks the position of an intermediate chain link created by successive-cyclic movement of the associate *wem* 'who'. Indeed, if the SSG in (7) is correct, and if long-distance *wh*-movement is in fact bounded and proceeds successive-cyclically (Chomsky, 1973, 1977), this is what we would expect—particularly if successive-cyclic movement proceeds through some verbal projection (Chomsky, 1986a, 2000, 2001).

There are two reasons to believe that *alles* in (28) marks a step of successive-cyclic movement. For one, as an alternative to *alles* living on the chain created through successive-cyclic *wh*-movement, one might suppose that *alles* moved there from the embedded clause. This alternative is unlikely given that there is no other movement type that German makes available that (a) targets this position, and (b) is not clausebound. Scrambling is the only alternative movement transformation in German that can move a non-pronominal DP to a clause-medial position. However, scrambling is famously bounded by finite clauses in German:

- (29) a. Vielleicht hat [den Apfel]₁ ja die Maria da *t*₁ hingelegt.
maybe have.3SG the.ACC apple PTCL the.NOM Maria there put
'Maybe Maria put the apple there.'

¹² This is true without exception so far, from at least a dozen speakers. This fact also significantly distinguishes invariant *alles* from inflecting *all-*. Bobaljik (2003: 121) notes that *all-* cannot be floated in CP, to which we can add that floating in the same position where invariant *alles* can be floated is also impossible.

- (i) Welche Würste hat der Peter [_iP (*all-e) gesagt [CP (*all-e) dass der Hund gegessen hat]]?
which sausages has the Peter all-PL said all-PL that the dog eaten has
'Which sausages did Peter (*all) say that the dog ate?'

- b. *Vielleicht hat {[den Apfel]₁} ja der Peter {[den Apfel]₁} gemeint,
 maybe have.3SG the.ACC apple PTCL the.NOM Peter the.ACC apple reckoned
 [CP dass die Maria da *t*₁ hingelegt hat].
 that the.NOM Maria there put have.3SG
 ‘Maybe Peter thought/said that Maria put the apple there.’

The other alternative for how *alles* could occur in the matrix clause in (28) is by being base-generated there. However, base generation would miss a crucial generalization here. *Alles* is only allowed if there is a clausemate chain link of its associate as shown by the sentences in (30). (30a) shows that *alles* cannot be in the embedded clause when *wh*-movement is confined to the matrix clause; (30b) shows that *alles* cannot be in the matrix clause if *wh*-movement is confined to the embedded clause.

- (30) a. [_{CP1} *Wem*₁ hat der Peter *t*₁ {*alles*} erzählt, [_{CP2} dass die Maria {**alles*}
 who.DAT have.3SG the.NOM Peter ALL told that the.NOM Maria ALL
 der Susi geholfen hat]]?
 the Susi.DAT helped have.3SG
 ‘Who-all did Peter tell that Maria helped Susi?’
- b. [_{CP1} Der Peter hat {**alles*} gewusst, [_{CP2} *wen*₁ die Maria *t*₁ {*alles*}
 the.NOM Peter have.3SG ALL known who.ACC the.NOM Maria ALL
 liebt]].
 love.3SG
 ‘Peter knew who-all Maria loves.’

The contrasts in (30) indicate that *alles* must be a clausemate of a chain link of its associate. It makes sense, then, that matrix *alles* in (28) is acceptable, while embedded *alles* in (30a) and matrix *alles* in (30b) are not. In addition, *alles* is acceptable in the intermediate clause of questions spanning three clauses (within the limits that multiple embeddings are acceptable, of course):¹³

- (31) ?[_{CP} *Wem*₁ hat die Christl {*alles*} gemeint, [_{CP} dass der Andreas {*alles*}
 who.DAT have.3SG the.NOM Christl ALL reckoned that the.NOM Andreas ALL
 gedacht hat, [_{CP} dass die Georgine noch *t*₁ {*alles*} einen Schnaps einschenken
 thought have.3SG that the.NOM Georgine yet ALL a.ACC schnapps pour
 würde]] ?
 would.3SG
 ‘Who-all did Christl say/think that Andreas thought that Georgine would pour another schnapps?’

For (31), it is a priori less clear how the requirement that *alles* must be a clausemate of its associate

¹³Note also that the instances of *alles* are again wrapped by braces to indicate that there can only be one *alles* per sentence with a single associate. See sections 2.7 and 4.4.5 for discussion, and in particular section 4.4.5.1 in the context of multiple clauses.

can be satisfied for *alles* in the intermediate clause (CP2). However, the stranding hypothesis predicts this because *alles* essentially “lives on its associate’s chain”. Both the fact that *alles* can be found in intermediate positions of long-distance *wh*-movement, and more generally the fact that *alles* is parasitic on a *local* chain link follow immediately. Alternative approaches need to stipulate the required locality between *alles* and its associate and re-encode it independent of the locality of movement.

I note in passing that while previous facts were consistent with a description of the distribution of distal *alles* that made reference to its associate’s *overt* distribution, these facts make it clear that it is the *underlying* distribution of the associate that determines the distribution of *alles* given that *wh*-phrases cannot surface overtly in clause-medial positions of successive-cyclic movement.

ON THE LANDING SITE OF SUCCESSIVE-CYCLIC *wh*-MOVEMENT What clause medial projection *alles* occupies in (28) is more difficult to establish. However there are some facts that point to *vP*, consistent with standard Phase Theory assumptions about successive-cyclic movement (Chomsky, 2000, 2001), where *vP*, intended as the functional projection that introduces the external argument, is a strong phase that forces long movement to proceed through its specifier.

The lower bound on the position of intermediate *alles* is plausibly *vP*. Consider the following facts. Within a single clause, *alles* can occur on either side of the DAT *wh*-indefinite argument of *zeigen* ‘show’. The (non-specifically interpreted) *wh*-indefinite marks its base position, and the verb *zeigen* has the underlying object structure DAT>ACC; see section 4.2.1.1.

- (32) Weißt du, [CP *was* der Lehrer {**alles**} wem {**alles**} gezeigt haben soll?
 know.2SG you what.ACC the.NOM teacher ALL who.DAT ALL shown have should.3SG
 ‘Do you know what-all the teacher supposedly showed to someone?’

In the matrix clause targeted by long distance *wh*-movement, however, *alles* is only acceptable to the left of a *wh*-indefinite internal argument:

- (33) *Context:* it’s about what Peter did.
- a. Max: Die hat=s wem erzählt.
 DEM.F.SG have.3SG=it who.DAT told
 ‘Max: She’s told it to someone.’

- b. Maria: Und *was*₁ hat sie {**alles**} [_{VP} *wem* {***alles**} erzählt, [_{CP} dass der Peter *t*₁ gemacht hat]?
 and what have.3SG she ALL who.DAT ALL told that the Peter
 done have.3SG
 ‘Maria: And what-all has she told someone that Peter did?’

Under the assumption that the DAT *wh*-indefinite is in its base position inside the VP, intermediate *alles* is plausibly outside the VP, in *vP*. Of course, these facts are also consistent with placing *alles* in an outer specifier of VP, like in Barriers-style adjunction (Chomsky, 1986a).¹⁴

Turning to the upper bound on the position of intermediate *alles*, consider the following facts:

- (34) *Was*₁ hat [_{TP} der Peter [?? {***alles**} [_{VP} ihm [_{VP} gestern [_{VP} {**alles**} erzählt, [_{CP} what.ACC have.3SG the Peter ALL him.DAT yesterday ALL told dass die Maria *__*₁ gekauft hat]? that the Maria bought have.3SG
 ‘What-all did Peter tell him yesterday that Maria bought?’

In the sentence in (34), *alles* must occur to the right of the weak object pronoun *ihm* ‘him’. Müller (2001) argues that weak object pronouns surface in the leftmost position internal to *vP*, which would place intermediate *alles* maximally in *vP*. The alternative is that weak object pronouns can also occur in TP (e.g. Anagnostopoulou, 2008). If we generalize Müller’s attractive assumption so that, given their prosodic status, weak object pronouns always occur at the left edge of the projection they syntactically occur in, then *ihm* in (34) must be placed in *vP*: *ihm* occurs to the right of the subject, and the subject occurs at most in TP if the verb-second verb *hat* is in *C*⁰, so that *ihm* cannot be in TP because then it would have to occur in the left edge of TP and therefore to the left of the subject; *ihm* must then occur at most in the next projection down, by assumption *vP*. Given that there is no pressing reason to believe that intermediate *alles* occurs in a position other than *vP*, I conclude that intermediate *alles* does indeed occur in *vP* in line with the null hypothesis as provided by Phase Theory.

This conclusion has clear consequences for Universal Grammar (UG). The cross-linguistic status of *vP* as a phase is a matter of debate (see Keine (2017); Thivierge (2021) for discussion). Keine (2017) raises an interesting question: can the phase-status of an XP inferred by the child learner from the input?

¹⁴ Ideally, the *wh*-indefinite test would be applied with a *wh*-indefinite *subject* so to test whether *alles* must occur to the left of *wh*-indefinite subject. If that were so, and the *wh*-indefinite subject must indeed remain in *vP*, then the result would situate *alles* minimally at the edge of *vP*. However, long *wh*-questions with a *wh*-indefinite matrix subject are perhaps too odd to begin with to be judged with confidence.

He rejects this possibility and thus argues that ν P should not be universally viewed a phase: He argues empirically that ν P does not block long-distance Agree relations and thus is not a phase in Hindi; in a [2020](#) paper, he also argues that ν P is not a phase in English based on processing considerations. The tension is interesting. Strictly speaking, as pointed out to me by Omer Preminger (p.c.), what the distribution of *alles* along the path of long-distance movement shows, is merely that movement through intermediate ν P positions is *possible*; it does not show that it is *necessary*, as Phase Theory entails. However, what else would allow movement to these intermediate positions? Scrambling in German is not possible across finite CPs. Postulating a new movement type that is possible only in the context of long-distance \bar{A} -movement is but a restatement of the facts. It seems that Phase Theory is the only off-the-shelf explanation for why *alles* *can* be stranded in these positions: because the associate *must* move through them.

- (35) [CP *Wem*₁ hat der Andreas {alles} gedacht, [CP {***alles**} [C' dass die
who.DAT have.3SG the.NOM Andreas ALL thought ALL that the.NOM
Georgine noch *t*₁ einen Schnapps einschenken würde]] ?
Georgine yet a.ACC schnapps pour would.3SG
'Who-all did Andreas think that Georgine would pour another schnapps?'

we see that, while languages differ in which positions *they* allow, the positions allowed overall remain the same.

This is an extremely interesting line of inquiry that warrants further investigation in German. “German” is a richly diverse collection of dialects and varieties. Indeed, extensive dialectal variation has been reported about the CP domain. For instance, dialects vary with respect to whether they instantiate complementizer-agreement (Weiss, 2005), whether they use the complementizer *dass* (‘that’) along with the thematic *wh*-phrase in the “scope-marking construction” (e.g. Müller, 1997) (more on this construction in the following section), or under what circumstances they allow “doubly-filled COMP” (Bayer, 2012). It thus seems that at least *some* variety of “German” should allow distal *alles* in intermediate Spec,C positions. I have not attempted a systematic investigation thus far. This is especially true given that *alles* seems to track its associate’s derivation rather closely from what we have seen so far. Perhaps even more so given the degree of variation Henry and McCloskey find in a very small region as compared to Germany. Nonetheless, I and at least five speakers from diverse linguistic backgrounds that I have consulted reject *alles* in this position with certainty. A systematic absence of *alles* in this position would make for a strong argument in favor of the Different Category Hypothesis or Piggy-Back Hypothesis.

One independent factor that might rule *alles* out in these positions might be prosody. A property of my (standard-ish) variety of German is that embedded CPs start a new prosodic unit that is separate from the embedding clause. For instance, weak subject pronouns, which encliticize to the verb in verb-second position, cannot encliticize to the left-adjacent verb in the super-ordinate clause when the pronoun occurs in Spec,C of an embedded verb-second clause.

- (36) Der Robert hat [_{VP} gemeint [_{CP} er [_{C'} wär in Deutschland]]].
 the.NOM Robert has believed he.NOM was in Germany
 ‘Robert thought he was in Germany.’
- a. gemein[t#ʔɛv]*[#t=v]
 b. *gemein[#t=v]

In addition, for verb-final CPs, it is at least suggestive that one can add very long intonational breaks at the clause boundary. It feels natural to take an intonational break at the CP boundary, to think or to add

drama, which can be very (very) long even (37a). Compare that to a non-finite clause boundary (37c). With a non-finite clause boundary an expletive is necessary to have the long breaks, suggesting that the clause is extraposed in that case.

- (37) a. Na also ich würde schon sagen (#) (#) (#) ... [CP dass der dazu fähig ist], oder?
 so so I would indeed say that he for.that capable is or
 'I mean, I would definitely say that he's capable to do that, right?'
- b.???Na also ich würde schon sagen [CP dass # # # ... der dazu fähig ist], oder?
- c.???Na also ich würde schon versuchen (wollen) # # # ... [INF den davon abzuhalten], oder?
 so so I would indeed try want him from.that to.keep.from
 'I mean, I would definitely (wanna) try to keep him from doing that, right?'
- d. Na also ich würde *es* schon versuchen (wollen) # # # ... [INF den davon abzuhalten], oder?

As I argued in section 2.5, *alles* needs a host on its left. That was particularly visible when *alles* was stranded at the left edge of an extraposed infinitival complement. *Alles* was marginally acceptable in that position. If we suppose that there is still some amount of prosodic unity between an extraposed infinitival complement and its embedding clause, but that there is virtually none for finite embedding, the difference might explain why *alles* is unavailable in intermediate Spec,Cs for my idiolect. It seems intuitively true to me that this one prosodic fact about embedded CPs generalizes across standard-ish varieties. It will be interesting, and important, to investigate this issue further in the future.

IS SUCCESSIVE-CYCLIC MOVEMENT CAUSED BY PHASES OR BY SOMETHING ELSE? Maria Polinsky (p.c.) notes that we might be able to tease apart if *alles* is available in matrix clauses of long-distance movement because there is a phase there by testing non-transitive matrix vPs. It is a common assumption that passive and unaccusative vPs are not phases. The prediction is that *alles* should cease to be available in matrix vP if its availability is due to a phase that forces successive-cyclic movement. If *alles* instead is available in those positions regardless, then, given the stranding conclusion I advocate in this dissertation, *alles* must be available there because successive-cyclic movement through that position is possible for other reasons. There is one difficulty to test this prediction: when the embedding predicate is a passive or an unaccusative, the embedded clause is a sentential subject. As such, it will cause some degree of unaccept-

ability. We would thus be moving in tricky empirical territory, where we compare levels of unacceptability. I provide my own judgments here. I find *alles* in the matrix clause worse than in the embedded clause for these examples. I find passives too bad to begin with so that I do not attempt to test them here. If the contrast with the unaccusative holds up with more speakers, it would be interesting because, by and large, if there is a preference at all, then matrix *alles* is slightly preferred with transitive embedding predicates; one way or another we would expect an interaction if we tested this with controlled, quantitative methods. I do not want to conclude that these results confirm the analysis in terms of phases, though, as more careful investigation is required. This may prove to be an interesting project for future research.

- (38) a. Es ist toll, [CP dass der Robert [PP mit den Kindern] ins Kino ist]
 EXPL is great that the.NOM Robert with the children in.to movie.theater is
 ‘It’s great that Peter went to the movies with the kids.’
- b. ??[PP Mit wem] ist es toll, [CP dass der Robert *t* ins Kino ist]
 with who is EXPL great that the.NOM Robert in.to movie.theater is
 ‘Who is it great that Peter went to the movies with?’
- c. ??[PP Mit wem] ist es toll, [CP dass der Robert **alles** *t* ins Kino ist]
- d. *[PP Mit wem] ist es **alles** toll, [CP dass der Robert *t* ins Kino ist]

4.2.3.2 The WHAT-construction

Along-side long-distance *wh*-movement, there is another construction in German to form long-distance *wh*-dependencies, known as the WHAT-construction, partial *wh*-movement, the *was...w* construction, or the *wh*-scope marking construction.^{15,16}

In the WHAT-construction, the ‘thematic *wh*-phrase’, that directly corresponds to the gap, does not move all the way to the position from which it takes scope. Rather, it only moves to its local CP; the scope in the matrix clause is marked invariably by the *wh*-phrase *was* (‘what’), hence the descriptive name of the

¹⁵ See Pankau (2013: section 2.2) and Lutz et al. (2000a) for an overview, and the articles in Lutz et al. (2000b) as well as Felser (2001) and Müller (1997) for an overview of analyses.

¹⁶ In fact, the WHAT-construction is the one long-distance *wh*-strategy that all speakers of “German” seem to have in common. Long-distance *wh*-movement, that is extraction from *dass*-clauses, is mostly represented in southern varieties, while the so-called *wh*-copying construction (see Pankau, 2013) is more typical of non-southern varieties; how middle German varieties align on this dimension is variable in my anecdotal experience. I am also putting aside, here, the difficult question of what criteria would allow the observer to attribute “native” competence in a given *wh*-strategy to a given speaker. The question is significant in the context of extensive contact between speech communities and the significant cultural pressures to speak some semblance of “Standard German” in modern day Germany. Practically, I have used speakers’ data if they answered yes to the simplistic question whether they “generally use this way of asking questions”.

construction, first introduced by Fanselow (2006):

- (39) Was hat die Susi gemeint, wen₁ der Toni t₁ eingeladen hat?
 what has the.NOM Susi reckoned who.ACC the.NOM Toni invited has
 ‘Who did Susi think/say that Toni invited?’

Reis (1992a) reports that in this construction *alles* is available in the embedded clause, but “squarely ruled out” in the matrix clause:

- (40) a. Was meint er, wer alles in Frage kommt?
 what reckons he who.nom all in question comes
 ‘Who-all did he think could be considered?’
 b. Was (*alles) meint er (*alles), wer in Frage kommt?
 what-all reckons he all who.NOM in question comes
 ‘Who-all did he think could be considered?’

One other (linguist) speaker I elicited had similar intuitions, marking an analogue to (40a) as ‘*’, and ‘??’. However, for me and a dozen speakers elicited, *alles* is indeed available in the matrix clause of this construction. For many speakers, distal *alles* is fully acceptable in the matrix clause, and for some speakers, adjacent *alles* is also possible with *was*.¹⁷ For me it seems that the preference of distal vs. adjacent *alles* in

¹⁷ Some speakers additionally rejected *alles* when it formed a surface constituent with the thematic *wh*-phrase; the subject pronoun is diagnostic of the constituency because no XP can precede subject pronouns within TP in German.

- (i) %Was hast du gemeint, [CP [wen alles]₁ ich t₁ angerufen habe] ?
 what have.2SG you.NOM reckoned who.ACC ALL I.NOM called have.1SG
 ‘Who-all did you think/say that I called?’

I believe that the source for this effect is prosodic, however (see again sections 2.4 and 2.5). In fact, *alles* is also marginal and sometimes even impossible in the same context in interrogative complement clauses:

- (ii) ??Ich wüsste schon gerne [CP [WEN alles]₂ du t₂ eingeladen hast]₁.
 I.NOM know.COND.1SG PTCL gladly who.ACC ALL you.NOM invited have.2SG
 Intended: ‘I sure would like to know who-all you invited.’

For *alles* to be right-adjacent to its associate, the *wh*-pronoun needs to bear some amount of stress. If the embedded interrogative is fronted, for example, which changes the prosody, *alles* becomes acceptable again.

- (iii) [CP [WEN alles]₂ du t₂ eingeladen hast]₁ wüsste ich schon gerne t₁.

While I have not tested this systematically with the WHAT-construction, it seems to me that a prosodic explanation for this restriction seems plausible. The analogue of (i) with a correction about the thematic *wh*-phrase that places stress on it seems like a very natural question to me.

- (iv) nein, ich wollte wissen, [CP was du gemeint hast, [CP [WEM alles]₁ ich t₁ geholfen habe]]
 no I wanted know what you.NOM reckoned have.2SG who.DAT ALL I.NOM helped have.1SG
 ‘... who-all you thought/said that I helped’

the matrix clause is a matter of prosody, which in turn often depends on the information structural context.

- (41) a. Was {*%alles*} meinte die Maria {*%alles*}, wer dafür in Frage
 what reckoned the.NOM Maria who.NOM that.for in question
 käme?
 come.COND.3SG
 ‘Who-all did Maria think/say might be an option for that?’
- b. Was {*%alles*} meint sie {*%alles*}, wen {*%alles*} er {*alles*} heiraten
 what reckons she.NOM who.ACC he.NOM marry
 sollte?
 should.3SG
 ‘Who-all does she think/say he should marry?’

Overall, there is clearly noticeable speaker variation, but I will henceforth assume that there is solid empirical grounds for the natural occurrence of *alles* in both adjacent and distal positions in the matrix clause of the WHAT-construction in German. The significance of this fact is that, *if* the WHAT-construction involves a single movement chain across unbounded clauses, then the examples above add to the evidence that distal *alles* can appear in positions reached by its associate via successive-cyclic *wh*-movement. This conditional is much less clear for the WHAT-construction than for long-distance *wh*-movement, however. I review some facts and analyses in what follows before discussing the implications of *alles* for this paradigm further.

Instead of reviewing the host of analyses of this phenomenon, I give a summary of key parameters along which the analyses differ. A central question is whether the WHAT-construction is to be treated as an analogue of the ‘sequence-of-questions’ construction (most notably, Dayal, 1994), which also exists in English, as in (42). In a sequence-of-questions construction (SoQ), the first question introduced by *what* is restricted by the question of the second sentence.

- (42) What do you think? When should we leave?

A second issue is the question whether *was* is a dependency with the thematic *wh*-phrase, or whether it instead forms a dependency with the embedded clause. These two approaches are known as the ‘direct dependency approach’ (DDA), and the ‘indirect dependency approach’ (IDA). (43) illustrates, where co-indexation is a general placeholder for a grammatical relation that need not be binding:

- (43) a. $[\text{CP what}_k \dots [\text{CP}_i \text{ WH}_k [\text{C}' \dots]]]$ DIRECT DEPENDENCY
 b. $[\text{CP what}_i \dots [\text{CP}_i \text{ WH}_k [\text{C}' \dots]]]$ INDIRECT DEPENDENCY

A third issue is whether *was* is an expletive, an argument, or neither (for example, a special pronunciation of a movement-chain link). For the second and the third issue, the particular analytical options branch out widely.¹⁸

Empirically, the following facts are uncontroversial in the literature. First, the WHAT-construction is **unbounded**, just like long-distance *wh*-movement. When multiple clauses are spanned, the invariable *was* is repeated at the edge of each clause, until the thematic *wh*-phrase appears fronted in the clause of origin.¹⁹

- (44) $[\text{CP Was hat die Lara gemeint, } [\text{CP was der Tillmann glaubt, } [\text{CP wen der Julian } t_1 \text{ eingeladen hat?}]]$
 what has the.NOM Lara reckoned what the.NOM Tillmann believes who.ACC the.NOM
 Julian t_1 eingeladen hat?
 Julian invited has
 ‘Who did Lara think/say that Tillmann believes that Julian invited?’

Second, the construction exhibits connectivity effects between the two clauses containing the two *wh*-expressions. Variable binding is possible from one clause to another within this construction (see (45)). Similarly, the word order of all non-matrix clauses is obligatorily verb-final. Compare the WHAT-construction in (46a) with the roughly synonymous ‘parenthetical’ or ‘sequence-of-questions’ construction in (46b). Both of these facts clearly indicate that, in German, **the construction involves a single connected sentence**.

- (45) Was hat jeder_i geglaubt, $[\text{CP wo er}_i \text{ es finden könnte}]$?
 what has everyone.NOM thought where he.NOM it.ACC find could.3SG

¹⁸ For instance, direct dependencies have been argued to be the result of binding at SS, binding at LF, or overt movement with special pronunciation, LF-movement; indirect dependencies have been argued to be the result of apposition (Dayal, 1994), a “big-DP” that gets split through movement (Mahajan, 2000), or predication (Felser, 2001). In DDA analyses, *was* is either an expletive (e.g. Beck and Berman, 2000; Brandner, 2000; Cole and Hermon, 2000; d’Avis, 2000; Höhle, 2000; McDaniel, 1986, 1989; Pafel, 2000; Reis, 2000) or a special pronunciation (Cheng, 2000; Sabel, 2000) (see also Barbiers et al., 2008 on Dutch micro-variation), but never an argument; in IDA analyses, *was* is an argument (Dayal, 1994, 2000; Felser, 2001), or an expletive (Dayal, 2000; Mahajan, 2000), but never the pronunciation of a chain link.

Relatedly, these approaches make different assumptions about the position in which *was* is base-generated—a θ -position, an intermediate matrix position, in Spec,C, or nowhere (if it is a movement-chain link).

¹⁹ Though see, for example, Müller (1997) for discussion of “mixed patterns” that are possible for some speakers with questions that span at least three clauses, which Müller conjectures are the result of mixing strategies available to a single speaker, like long-distance moving *was* with the result of an unmarked middle clause, or having the thematic *wh*-phrase in a clause higher than the clause of origin, leaving the latter unmarked.

‘Where did everyone think that they might find it?’

- (46) a. Was denkst DU, [CP welche Zutaten [TP wir noch **brauchen**]]?
 what think.2SG you.NOM which.ACC ingredients we.NOM still need.1PL
 ‘What do YOU think what ingredients we still need?’
- b. Was denkst DU?— [CP Welche Zutaten **brauchen** [TP wir noch]]?

Finally, the WHAT-construction exhibits island effects. (47) illustrates this for a sentential subject, and (47b) for a negative island (Müller, 1997: 259ff, translations and boldface added).²⁰

- (47) a. *Was ist es schade [CP_{subj} [PP mit wem]₁ Hans *t*₁ gesprochen hat]?
 what is it too bad with whom Hans spoken has
Intended: ‘For what person is it a pity that Hans has spoken with them?’
- b. *Was glaubst du **nicht** [CP wen₁ Hans *t*₁ getroffen hat]?
 what believe you not who Hans met has
 ‘Who do you not believe that Hans met?’

There is no consensus on what to conclude from the island effects. A direct approach based on movement (overt or LF) immediately predicts this result given that *was* establishes a dependency with the thematic *wh*-phrase across a subject CP or across negation, which are known to be able to interfere with chains. In an indirect approach, *was* is in a dependency with the CP so that islandhood is not immediately at issue. For the subject island an IDA may thus argue that the unacceptability comes from a subcategorization and/or Θ -Criterion violation—*schade* is just an unaccusative predicate that cannot support more than the sentential subject. For the negative island an IDA might redirect the issue to the fact that SoQs also don’t support negation in the first question, in German as in English:

- (48) #What did you not think? Who is (not) going to help us?

However, I believe that trying to establish an analogue with the SoQ is the wrong approach, empirically. For all the parallels, like the negation fact just discussed, there are many asymmetries. Centrally, while the WHAT-construction is unbounded, SoQs are not. Even with just three sentences, the relevant

²⁰ In fact, it is often noted that the effect of many islands is larger with the WHAT-construction than with long-distance movement. More on this later in this section.

interpretation is markedly impossible and plainly bizarre—it cannot be interpreted as a single question:²¹

- (49) #Was meinst du? Was denkt deine Mutter? Wen sollten
 what.ACC reckon.2SG you.NOM what.ACC thinks your.NOM mother who.ACC should.1PL
 wir als nächstes anrufen?
 we.NOM as next call
Intended: ‘What do you think your mom thinks we should call next?’

In the absence of the SoQ parallel, it becomes unclear how “inner island” effects such as the negative island ought to be explained. I thus assume in what follows that they are evidence of a direct dependency between *was* and the thematic *wh*-phrase. I will justify this position further as I expand on the empirical domain of the WHAT-construction by adding relevant *alles*-facts and reviewing some consequences in what follows.

First, I add evidence based on *alles* against maintaining a close analytical link between SoQs and the WHAT-construction in German. Just like the unboundedness property above, *alles*-modification breaks the parallel in significant ways. For the relevant speakers, *alles* can appear in either the matrix clause or the embedded clause in the WHAT-construction, *without any clear change in meaning*. In contrast, an SoQ only supports *alles* in the ‘restrictor question’; when *alles* is in the “matrix” sentence, call it the ‘perspective question’, the two sentences cannot be understood as a single question, but rather have to be answered as two; compare (50) and (51). In fact, it is hard to imagine at all what a felicitous answer to (51Q) would be given that context clearly invites the reading that it ought to be a single question. In that sense, I believe it is fair to say that, parallel to the three-sentence SoQs above, (51Q) is simply infelicitous.

²¹ The same is true for English SoQs according to two consultants.

- (i) #What do you think? What did Mina think? Who should Tyler offer some of that \$60 porter bottle?

Relatedly, it is a well-known fact that the parallel between SoQs and the WHAT-construction breaks in German with polar questions. While SoQs are compatible with a polar question as the ‘restrictor’ question, the WHAT-construction in German is not; compare (iia–c). Hindi, for instance, however, is known to differ in this regard. This is typically accepted as direct evidence for an IDA to the WHAT-construction in Hindi. The idea that the WHAT-construction may be a cross-linguistically constant phenomenon is thus also often viewed with suspicion (e.g. Cheng, 2000; Horvath, 2000), though attempts to unify the phenomena across languages persist (e.g. Dayal, 2000; Mahajan, 2000)

- (ii) a. *Was denkst du [CP₂ ob Fritz schläft]?
 WH think you whether F. sleeps
Intended: ‘What do you think? Is Fritz sleeping?’ (Lutz et al., 2000a: ex17b)
 b. Was denkst DU? Schläft Fritz?
 what think.2SG you.NOM sleeps Fritz.NOM
 ‘What do you think? Is Fritz sleeping?’
 c. Was denkst DU? Ob der Fritz wohl schläft?
 what think.2SG you.NOM whether the.NOM Fritz PTCL sleeps
 ‘What do you think? Is Fritz sleeping?’

- (50) Q: *Was* meinst du? *Wen* sollten wir **alles** einladen?
 what reckon.2SG you.NOM who.ACC should.1PL we.NOM ALL invite
 ‘What do you think? Who-all should we invite?’

A: ‘Lauren, Meghan, Andrew and Myra.’

- (51) Q: #*Was* meinst du **alles**? *Wen* sollten wir einladen?
 what reckon.2SG you.NOM ALL who.ACC should.1PL we.NOM invite
 ‘What-all do you think? Who should we invite?’

A: #‘Lauren, Meghan, Andrew and Myra.’

Second, selective properties that *alles* enforces on its associate still apply to the thematic *wh*-phrase even when *alles* is present in the matrix clause. As discussed in section 2.2.1, *alles* presupposes its associate to be ‘divisible’ (Reis, 1992a; Zimmermann, 2007) in the sense that it must be answerable with a non-singleton answer. This restriction is formally enforced with singular *welch*-phrases. This is shown again in (52a). Given (52a), consider the contrast between (52b–c). Matrix *alles* is acceptable with a plural *welch*-phrase as the thematic *wh*-phrase, but unacceptable if the *welch*-phrase is singular.

- (52) a. **Welch-es* *Buch* sollte ich **alles** lesen?
 which-SG.ACC book should.1SG I.NOM ALL read
Intended: ‘What-all sorts of book(s) should I read?’
- b. ?**Was* hat der Alec **alles** gemeint, [_{CP} *welch-es* *Buch* ich lesen sollte]?
 what has the.NOM Alec ALL reckoned which-SG.ACC book I.NOM read should.1SG
Intended: ‘What-all sorts of book(s) did Alec say I should read?’
- c. *Was* hat der Alec **alles** gemeint, [_{CP} *welch-e* *Büch-er* ich lesen sollte]?
 what has the.NOM Alec ALL reckoned which-PL.ACC books I.NOM read should.1SG
 ‘What-all sorts of books did Alec say I should read?’

Of course, the selection facts might fall out of an IDA analysis, too. For example, Zimmermann (2007) argues that the divisibility requirement by *alles* is presuppositional given that it can be canceled, for instance by explicitly adding *nur* (‘only’) to an answer. Thus, it is possible that the unacceptability of (52b) results from the impossibility of conjoining two questions when the two contain contradictory presuppositions about the divisibility of their domains. However, the requirement is not plainly presuppositional given some reference set. In fact, *alles* is incompatible also with singular *welch*-phrases when the nominal denotes a group, like with *welche Gruppe* ‘what group’. This is to say that the semantics could probably be worked

out on this approach. In contrast, if *alles* is in some direct dependency with the thematic *wh*-phrase of the WHAT-construction, the facts fall out immediately.

Turning to the status of *was*, most IDA analyses – for example Dayal (1994); Felser (2001) – assume that *was* is an argument of the matrix predicate. I take it as established, however, that *was* cannot have argument status due to the following facts (Müller, 1997: 252, glosses adapted). Both sets in (53) and (54) show that, contrary to arguments, *was* cannot be forced to appear in an in-situ position, through multiple interrogation and echo questioning respectively.²²

- (53) a. Was meint wer [CP wann₁ sie t₁ gekommen ist] ?
 [+wh] thinks who.NOM when she.NOM come is
- b. *Wer meint was [CP wann₁ sie t₁ gekommen ist] ?
 who.NOM thinks [+wh] when she.NOM come is
- c. Wer meint was?
 who.NOM thinks what
- (54) a. Fritz hat WAS gesagt?
 Fritz.NOM has what.ACC said
- b. *Fritz hat WAS gesagt [CP wann₁ sie t₁ gekommen ist] ?
 Fritz.NOM has [+wh] said when she.NOM come is
- c. WAS hat Fritz gesagt [CP wann₁ sie t₁ gekommen ist] ?
 [+wh] has Fritz.NOM said when she.NOM come is

Felser (2001: 14f) pushes back on this argument by noting that “some speakers do not consider examples such as [(53b)/(54b)] as bad as one would expect if *was* were indeed base-generated in matrix [Spec,CP]”. She also notes that according “to my own ear, echo questions as in [(55)] below (embedded within an appropriate pragmatic context, and with *was* carrying heavy stress) sound quite acceptable” (Felser, 2001: fn8).

²² For multiple interrogation where *wh*-phrases appear in clauses above the thematic *wh*-phrase(s), there seems to be variation. While Müller gives (53) as perfect, I find it difficult to get the intended meaning, in ways that are reminiscent of Superiority of *wh*-island violations. d’Avis (2000: 144) similarly reports variation for (i) (translation and boldface of critical *wh*-phrase added):

- (i) a. Was glaubst du, was Maria meint, wen **wer** getroffen hat?
 what believe you what M. thinks whom who met has
 ‘For what pair(s) *x, y* do you believe that Maria thinks that *x* met *y*?’
- b. %Was glaubt Heinz, was **wer** meint, wen Peter getroffen hat?
 what believes H. what who reckons whom P. met has

- (55) Speaker A: Ich glaube Maria hat gestern Mel Gibson getroffen.
 I think M. has yesterday Mel Gibson met
 ‘I think Maria met Mel Gibson yesterday.’

Speaker B: Du glaubst **WAS wen** Maria getroffen hat?
 you think what whom M. met has
 ‘You think Maria met who?’

I do not intend to doubt Felser’s own speaker judgments, so that this may be a genuine point of speaker variation with interesting consequences. I will merely point out here that for me and three speakers asked (55b) is very marked. I would judge the magnitude of unacceptability as comparable to strong island violations—with a long “thinking pause” after *WAS* the magnitude might be comparable to that of long-distance extraction from weak islands such as *wh*-islands or subject-islands. What is clear to me and the consultants is that (55b) is very strongly dispreferred in comparison to its minimal pair with fronted *WAS* (see (56)). This contrast does not hold for echo questions generally, and instead is parallel to leaving a long-distance extracted *wh*-phrase low in the matrix question, compare (57ab).

- (56) **WAS** glaubst du **wen** Maria getroffen hat?
 what think you whom M. met has
 ‘You think Maria met who?’

- (57) a. WEN_1 glaubst du, [_{CP} dass die Maria t_1 getroffen hat?
 who.ACC believe.2SG you.NOM that the.NOM Maria met has
 ‘WHO do you believe that Maria met?’
 b. *Du glaubst WEN_1 , [_{CP} dass die Maria t_1 getroffen hat?
 you.NOM believe.2SG who.ACC that the.NOM Maria met has

Returning to SoQs, if *was* has argument status, one might expect matrix *alles* to align with the behavior in scope marking questions formed by sequential questions given that their semantics and syntax is largely parallel along this dimension; that was not the fact, however (see again (50)–(51)).

Alles also casts doubt on an argument in favor of the argument status of *was* based on parasitic gaps.

Consider the following example (Lutz et al., 2000a: 11):

- (58) Was hat [_{CP} ohne e offen auszusprechen] Fritz gemeint (t) [_{CP2} wen₁ Maria t₁ liebt]?
 WH has without openly to pronounce F. thought whom M. loves
 ‘What did Fritz think without openly pronouncing it, whom does Maria love?’

Lutz et al. note that the parasitic gap ('e') in (58) ranges over proposition given that the adjunct clause's predicate is *aussprechen* 'pronounce'. The "(relative) wellformedness of [(58)]" thus suggests that *was* also ranges over propositions, which would follow immediately if *was* is an argument of *meinen* ('reckon/think/say') given that *meinen* selects propositional complements. The status of parasitic gaps is a highly contentious topic, empirically, for "varieties of Standard German". To the extent that I and the speakers I consulted found (58) acceptable – echoing Lutz et al.'s "relative" remark above –, when *alles* is added in the matrix clause the question becomes rather unacceptable at best, and really hard to interpret.

- (59) ?**Was* hat der Fritz **alles**, [_{CP} ohne *e* offen auszusprechen], gemeint (t) [_{CP2} wen₁
 WH has the.NOM Fritz ALL without openly to pronounce thought whom
 die Maria t₁ liebt]?
 the.NOM Maria loves

Note that *alles* is not incompatible with parasitic gap sentences. To the extent that I and my consultants accept these sentences, the presence of *alles* has no impact on simpler sentences like (60).²³

- (60) Wen₁ hast du (**alles**) [ohne *e* anschauen] t₁ ins Bett geschickt?
 who.ACC have.2SG you.NOM ALL without to look at in.the bed sent
 'Who-all did you send to bed without looking at (them)?'

If the asymmetric contribution of *alles* between (59) and (60) stands, then it might be necessary to re-evaluate the status of (59), and the argument status of *was* in turn.

An alternative to analyzing *was* as an argument, some analyses of both the DDA and in the IDA camp assume that *was* is an expletive. One way in which these analyses differ is in the position in which the expletive is generated. A popular assumption is that it is base-generated in Spec,C (e.g. Müller, 1997). This assumption is incompatible with the presence of distal *alles* in the matrix clause. *Alles* requires a local associate, more local than merely a clausemate or phasemate even (see again the conclusions from chapter 3, as well as section 4.2.2). It follows from the locality of *alles* and its associate that, if *was* is the direct associate of *alles*, *was* has to have occupied the position of *alles* at some point in the derivation, as for

²³ That said, it is entirely possible that both (60) and, crucially, (59) would turn out to be fully acceptable once the right population is tested, that fully accepts parasitic gap sentences and disprefers a pronoun in the gap. In that case, (58)–(59) would stand as strong arguments for the argument status of *was* in the WHAT-construction in German. It would also be interesting to see if speaker variation in this paradigm would align with speaker variation on the status of in-situ *was* in echo questions above.

instance sketched out in (61).

- (61) [CP *Was*₁ [C' hat [TP Peter [_{VP} *t*₁ **alles** [_{VP} gemeint [CP *wen*₂ wir noch *t*₂ einladen
what has Peter ALL reckoned who.ACC we.NOM still invite
sollten]]]]]
should.1PL

Was must then be base-generated either in argument position (for example, together with the CP in an IDA (cf. Mahajan, 2000)), or mid-sentence, for example, at the phase level as an alternative to successive-cyclic movement in a DDA. In fact, it seems that it must be base-generated mid-sentence. According to my own intuitions, *alles* must be to the left of a DAT, locative or comitative *wh*-indefinite when it associates with *was* in the WHAT-construction construction (*a*-examples), while it can be on either side of those *wh*-indefinites when *was* is clearly the thematic object of the same verb (*b*-examples).

- (62) a. *Was* hat die {**alles**} wem {***alles**} gesagt, [CP *wen* wir noch
what has she.NOM ALL who.DAT.INDF ALL said who.ACC we.NOM still
treffen sollten]?
meet should.1PL
'Who-all did she tell someone that we should meet, still?'
- b. *Was* hat die {**alles**} wem {**alles**} gesagt?
what has she.NOM ALL who.DAT.INDF ALL said
'What-all did she tell someone?'
- (63) a. ?*Was* hast du {**alles**} wo {***alles**} gedacht, [CP *wen* die noch
what have.2SG you.NOM ALL where.INDF ALL thought who.ACC she.NOM still
treffen wollte]?
meet wanted.3SG
'Who-all did you think someplace that she wanted to meet, still?'
- b. ?*Was* hast du {**alles**} wo {**alles**} gedacht?
what have.2SG you.NOM ALL where.INDF ALL thought
'What-all did you think someplace?'
- (64) a. ?*Was* hast du {**alles**} mit wem {***alles**} gedacht, [CP *wen*
what have.2SG you.NOM ALL with who.DAT.INDF ALL thought who.ACC
die noch treffen wollte]?
she.NOM still meet wanted.3SG
'Who-all were you thinking with someone that she wanted to meet, still?'
- b. ?*Was* hast du {**alles**} mit wem {**alles**} gedacht?
what have.2SG you.NOM ALL with who.DAT.INDF ALL thought
'What-all were you thinking with someone?'

If these *wh*-indefinites diagnose their base position – the VP in these cases according to my assumptions following Frey and Pittner (1998) (see section 4.3.1) –, then *was* of the WHAT-construction cannot be base-generated in an object position, or in the VP in general. To the best of my knowledge, this fact precludes IDA analyses in general, unless *was* is taken to be a different kind of argument than it would in a simplex clause.²⁴ Furthermore, the position of matrix distal *alles* in the WHAT-construction is parallel to its position in long-distance *wh*-movement: (65b) shows that *alles* can be on either side of a weak object pronoun *ihm* when it associates with the clausemate object *was*, while in contrast *alles* can only appear to the right of the weak object pronoun in (65a) where *alles* associates with scope-marking *was*. (65a) thus parallels the facts from successive-cyclic movement in (66) repeated from section 4.2.3.1.

- (65) a. (Und) *was* hat der Peter_i {**alles*} *dir* (gestern) {*alles*} gesagt, [_{CP} *wen*
and what has the.NOM Peter ALL you.DAT yesterday ALL said who.ACC
er_i feuern wollte]?
he.NOM fire wanted.3SG
'(And) who-all did Peter tell you that he wanted to fire, yesterday?'
- b. (Und) *was* hat der Peter_i {*?alles*} *dir* (gestern) {*alles*} gesagt?
and what has the.NOM Peter ALL you.DAT yesterday ALL said
'(And) what-all did Peter tell you yesterday?'
- (66) *Was*₁ hat [_{TP} der Peter [_{??} {**alles*} [_{VP} *ihm* [_{VP} gestern [_{VP} {*alles*} erzählt, [_{CP}
what.ACC have.3SG the Peter ALL him.DAT yesterday ALL told
dass die Maria _{—1} gekauft hat]?
that the Maria bought have.3SG
'What-all did Peter tell him yesterday that Maria bought?'

This set of facts already argues for a treatment of the WHAT-construction as containing a chain between *was* and the thematic *wh*-phrase, and which respects all the hallmarks of successive-cyclicity. It seems that the WHAT-construction adds evidence to the notion that chain-formation is bounded in natural language, and that in addition to finite clauses, transitive *vP* is also a projection that bounds chain-formation (see again section 4.2.3.1).

I finally turn more specifically to the question of what kind of dependency exists between *was* and

²⁴ That is indeed what Felser (2001) argues. For her, the direct argument of the bridge verb is the CP—a free relative. *Was* is an expletive object that is base-generated in the specifier where the CP is introduced, both in VP, such that they may enter in a predication relation. Given that *was* is assumed to be inside VP on this account, the facts in (62)–(64) argue against this analysis. The analysis may be salvaged if a predication relation between *was* and the CP could be established across multiple functional heads, an assumption that would seem pretty innocuous given much work on copular constructions (see, for example, den Dikken (2006)).

alles. This question is closely related to the central question of this chapter and chapter 3: do *alles* and its associate form a First-Merge constituent, i.e. does their dependency exist “from the start”, or do the two elements start out in separate constituents and their dependency is established at some point in the derivation? In the latter position, the DSH, the status of *was* does not matter—it can well be an expletive. Based on the discussion just above, in a DDA this expletive might be base-generated at the phase-level as an alternative to successive-cyclic movement. Then, *was* agrees with *alles* from this specifier of *vP*, following the analysis by Heck and Himmelreich (2017). Finally, *was* moves to Spec,C. At some point in the derivation, *was* also establishes a dependency with the thematic *wh*-phrase, for example through co-indexation at the *vP* phase-level while the CP edge is still visible in accord with the PIC.

- (67) [CP *Was*₁^{*i*} [C' *hat* [TP *Peter*₃ [*vP* *t*₃ [*vP* *t*₁ [*v'* *alles*₁^{*i*} [*vP* *gemeint* [CP *wen*₂^{*i*} *wir* *noch* *t*₂
 what has Peter ALL reckoned who.ACC we.NOM still
 einladen sollten]]]]]]]]
 invite should.1PL

However, the existence of adjacent *alles* in the matrix clause of the WHAT-construction challenges this view. Given that datum, it must at least be possible for *alles* to directly merge with *was*. If *was* is an expletive, how can it be modified? It is a general property of expletives that they cannot be modified.²⁵ In light of that, it appears that *was* cannot be an expletive. While the expletive analysis of *was* is very attractive, there is some convergent evidence against it. Felser (2001: fn 8) notes that the existence of echo questions in the WHAT-construction argue against the expletive status of *was* given that expletives can generally not be focused.²⁶ Examples like (54c) and (56) from page 98 above show that indeed *was* is focused in the normal, and likely *only* natural way to form an echo question out of the WHAT-construction.²⁷ Finally, as Cheng

²⁵ This fact is generally accepted and it is easy to find relevant examples in the literature or construct examples oneself, such as **[Great there] was weather today* or **[All there] was/were linguists at the party*; the obviousness of the generalization is witnessed by the difficulty to construct examples that might come even close to really testing what is at issue. However, I was not able to track the origin of this observation.

²⁶ For instance, existential *there* cannot be focused in any meaningful way without turning it into a locative *there*.

²⁷ d'Avis (2000) argues that focus on *was* is compatible with the expletive status of *was* assuming that the expletive functions as the operator part of the chain formed by *was* and the thematic *wh*-phrase; he follows Reis (1992b) in assuming that focus in echo questions is focus on the operator (part of a phrase).

More generally, d'Avis (2000) argues directly and extensively for the expletive status of *was* in the WHAT-construction by showing parallels between *was* in the WHAT-construction and *was* in other so-called expletive constructions—the causal *was* construction, and *was*-exclamatives. It seems to me that generally the arguments all argue in favor of *was* having no more content than a *wh*-operator. The evidence thus seems to be largely compatible with a movement analysis of the WHAT-construction in which *was* ends up denoting just the operator of the movement chain at LF. This is overall reminiscent of analyses of *wh*-phrases as, essentially WH+someone/something (for instance, Lasnik and Saito 1984, 1992; Tsai 1994, though this idea can be traced back to the 1960's; see Tsai 1994: fn 3), an operator part and a quantificational domain.

One paradigm of d'Avis's that more directly argues for the expletive status *per se* is the following, based on coordination. Expletives cannot be coordinated (see for example (ia); d'Avis 2000: 145). Parallel to (ia), *was* of the WHAT-construction cannot be coordinated, while *wh*-phrases in long-distance *wh*-movement can. Compare (ib–d), which are meant to express the same thought (cf. d'Avis, 2000:

(2000) notes, if *was* is an expletive whose function it is to satisfy the needs of an interrogative C-head, it would be surprising that *was* can, and for some speakers must, be repeated in each Spec,C all the way down to the thematic *wh*-phrase (see again (44)).

If we accept the conclusion from above that *was* is not a matrix argument, we accept the arguments that *was* cannot be an expletive, **and, crucially**, we assume that “German” or any given speaker thereof, has only one analysis of the WHAT-construction, then it must be the case that *was* has no functional status of its own.²⁸ This conclusion supports a movement analysis of the WHAT-construction, where *was* and the thematic *wh*-phrase form a movement chain with a special, distributed pronunciation. There is mainly one type of movement analysis for the WHAT-construction construction (Cheng (2000), who also points to Hiemstra (1986) for an analysis identical in spirit)—let’s call this the “feature analysis”. Its main idea is that *was* is the realization of just the *wh*-feature of the thematic *wh*-phrase, which is able to move independently. The basic gist of Cheng (2000) is to follow Chomsky (1995) in assuming that phrasal movement is a two step process: attraction and movement of the critical formal feature, followed by repair strategies for PF convergence. The main repair strategy is “generalized pied-piping”, whereby the content of the phrase joins its formal feature’s landing site. In that case, if the phrase is targeted for movement again, the full phrase moves. This gives rise to long-distance movement. Some languages, for instance German, have an alternative repair strategy available: the formal *wh*-feature can be pronounced by a default *wh*-word—*was*.

139f).

- (i) a. *Es und plötzlich/sehr eilig kam ein Mann in die Kneipe.
there and suddenly/very hastily came a man into the pub
- b. *Was₁ und wann₂ glaubst du, [CP wie der das repariert hat]?
what and when believe.2SG you.NOM how he.NOM that.ACC repaired has
Intended: ‘When and how do you believe that he repaired that?’ (long-distance interpretation)
- c. Was glaubst du, [CP wann und wie [C’ der das repariert hat]]?
what believe.2SG you.NOM when and how he.NOM that.ACC repaired has
- d. Wann und wie glaubst du, [CP dass der das repariert hat]]?
when and how believe.2SG you.NOM that he.NOM that.ACC repaired has

Even for this paradigm, there are reasons to believe that the argument is not an argument *for* expletive status *per se*. For instance, if these coordinations involve sluicing, *and if* the parallelism requirement on ellipsis is narrowly syntactic (as argued by Fox and Lasnik (2003)), then what (i) shows is that the (narrow) syntax of the WHAT-construction and long-distance *wh*-movement is not identical in the relevant sense. This would be warranted even under a movement approach to the WHAT-construction, for instance those of Cheng (2000); Sabel (2000) where the movement chains differ slightly in their featural make-up. I leave this, and the question whether a sluicing analysis can be extended to impossibility to coordinate *was* in the other two constructions discussed by d’Avis open. Alternatively, see Larson (2013), according to who these “CoWh” constructions should be analyzed in non-grammatical terms.

²⁸ The assumption that any one speaker of German has only one analysis of this construction is crucial for this conclusion. For German more generally, it is entirely possible that the construction is ambiguous between a movement and a non-movement analysis such that a child-learner must distinguish between them based on its linguistic experience. That conclusion seems to be more in line with the variety of analyses that are proposed for different languages. However, it remains to be seen what kind of positive or indirect negative evidence would allow a learner to distinguish between alternative analyses of this construction in any given language.

It should already be clear at this point that if *was* is but a formal feature in narrow syntax, then it will be impossible for *was* and *alles* to form a narrow syntactic constituent.²⁹ As a result, we must rather accept that *was* is a phrasal category. This leaves us, I believe, with two alternative avenues. Either, we pursue the sub-extraction idea of Cheng (2000), but what moves out of the thematic *wh*-phrase is phrasal, or in fact the entire *wh*-phrase moves, but *was* is the result of some fancy algorithm for the pronunciation of chains which pronounces the chain in complementary chunks given some special context that arises in the WHAT-construction.

4.3 Adverbial associates

4.3.1 Placement of adverbials in German according to Frey and Pittner (1998)

I follow the conclusions by Frey and Pittner (1998) about the placement of adverbials in the German clause. I will not go into the details of their argumentation. The conclusions are motivated primarily empirically, by the following diagnostics for base word order in German, some of which were employed in the sections above: (i) availability of maximal focus following Höhle (1982), (ii) conditions on question-answer pairs following Lenerz' 'Theme-Rheme Condition' (Lenerz, 1977), (iii) Condition C of the Binding Theory and reconstruction effects (e.g. Chomsky, 1981), (iv) existentially-interpreted *wh*-indefinites, (v) VP fronting to Spec,C Müller (see 1998), (vi) $\forall - \exists$ scope.

Based on these diagnostics, Frey and Pittner (henceforth 'F&P') conclude that there are 6 classes of adverbials in German which are defined syntactically by where in the clause they are base-generated:

1. **Frame:** e.g. *juristisch betrachtet* ('from a legal perspective') or *aus medizinischer Sicht* ('from a medical point of view')

Base-generated c-commanding the base-position of the finite verb and all other members of the clause.

2. **Sentential/propositional:** e.g. probability (*wahrscheinlich* 'probably')

²⁹ To accommodate that fact, the repair strategy would need to resemble to something like the following. PF and narrow syntax are able to be interleaved, such that a repair strategy, call it *-as support*, can create a phrasal category in the course of the operation (ideas related to the analysis of *do*-support by Lasnik (2003), and Bobaljik's (2012) *mo*-support in comparative morphology). Next, it must be possible to adjoin *alles* counter-cyclically to *was*. While both ingredients have independently been argued for, I do not pursue this avenue further here.

Base-generated c-commanding the base-position of event-related adverbials, all arguments of the clause, and the base-position of the finite verb.

3. **Event-related:** temporal manner (e.g. *schnell/langsam* ‘fast/slowly’), reason

Base-generated c-commanding the base-position of all arguments of the clause.

4. **Event-internal:** instrumental, locative, comitative, “subject”-oriented (e.g. *absichtlich* ‘intentionally’, *gerne* ‘with pleasure’)

Base-generated minimally c-commanded by its associated element (if there is one) or minimally c-commanding the lowest argument.

5. **Process-related:** manner, e.g. *schnell/langsam* ‘fast/slowly’, *sorgfältig* ‘carefully’

Base-generated minimally c-commanding the “complex of predication” (for our purposes, V)

6. **Frequency:** e.g. *oft/selten* ‘often/rarely’

Freely base-generate

The “complex of predication” follows Frey’s (1993) notion of ‘minimal verbal domain V_μ ’. The complex of predication is a minimal V(P) shell that includes objects that are semantically very integrated into the verb’s meaning (like prototypical objects following Jacobs (1993); presumably also objects of idioms), process-related adverbials which cannot be separated from the verb in VP fronting, the nominal predicate with the copula, sentential negation. Generalizing, following F&P’s discussion, X is part of the ‘complex of predication’ or ‘minimal verbal domain’ if (a) X cannot scramble; (b) X can be to the right of sentential negation with maximal focus; (c) X cannot be left behind by predicate fronting. (The following examples illustrate; adapted from p. 9f.)

- (68) a. Sie hat das Publikum *nicht in Begeisterung* versetzt.
 she.NOM has the.ACC audience not in enthusiasm put
 ‘She didn’t enthuse the audience.’

- b. *Sie hat das Publikum *in Begeisterung nicht* versetzt.

- c. **Versetzt* hat sie das Publikum *in Begeisterung*.

- d. *In Begeisterung versetzt* hat sie das Publikum.

(added; AD)

(69) *Nominal predicate*

- a. Er ist *nicht* **Präsident** geworden.
he.NOM is not president become
'He didn't become president.'
- b. *Er ist **Präsident** *nicht* geworden.
- c. **Geworden* ist er heute morgen **Präsident**.
- d. **Präsident** geworden ist er heute morgen.
president become is he.NOM today morning
'This morning he became president.'
- (added; AD)

(70) *Directional*

- a. [**In das Regal gelegt**]₁ HAT er die Bücher t_1 .
in the shelf put has he.NOM the.ACC books
'(What he did is) he put the books in the shelf.'
- b. **Gelegt* HAT er die Bücher in das Regal.
- c. dass Angela die Gläser **nicht auf den Tisch** gestellt hat.
that Angela.NOM the.ACC glasses not on the table put has
'that Angela didn't put the glasses on the table.'
- d. *dass Angela die Gläser **auf den Tisch** *nicht* gestellt hat
- (narrow focus)

(71) *Resultative*

- a. Er hat den Teller *nicht leer* gegessen.
he.NOM has the.ACC plate not empty eaten
'He didn't eat the plate empty.'
- b. **Gegessen*]₁ hat er den Teller **leer** t_1 .
- c. [**Leer gegessen**]₁ hat er den Teller t_1 .

(72) *Distributive quantifier jed- is not integrated* (p. 11])

- a. Sie hat jedes HEMD gebügelt. (only narrow focus; wide requires double accent on verb and object)
- b. Sie hat alle HEMDen gebügelt.
she.NOM has all.ACC.PL shirts ironed
'She ironed all shirts.'
- (wide focus possible)

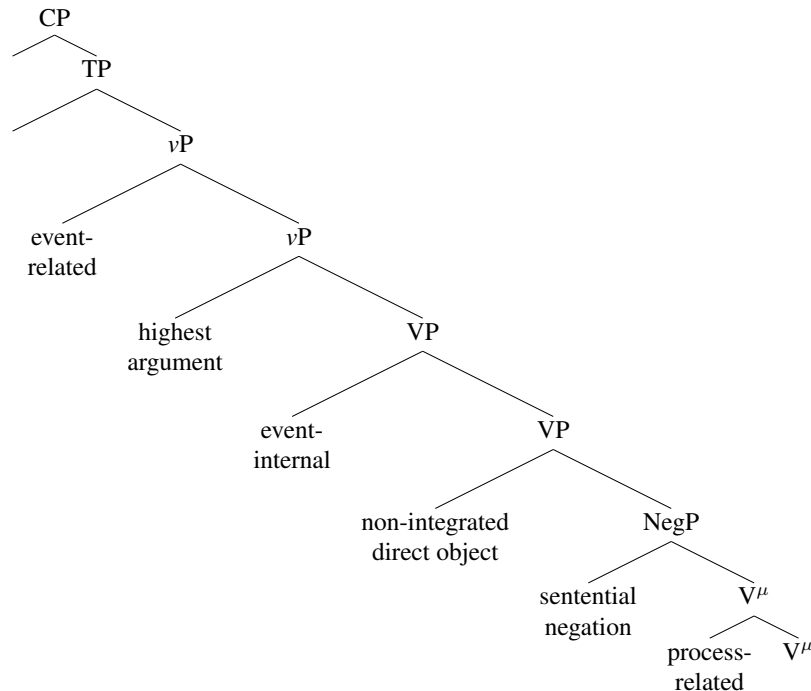


Figure 4.1: Base position of adverbials in German

- (73) a. Otto macht den Frauen *nicht die Türe* auf
 Otto.NOM makes the.DAT women not the.ACC door open
 ‘Otto doesn’t open the door for women.’
- b. ??Otto macht den Frauen *nicht jede Türe* auf
 Otto makes the.DAT women not every door open
Intended: ‘Otto doesn’t open women any/every door.’ (added; AD)

With these notions and classes of adverbials in mind, we can turn postulate an idealized German clause structure which we can use to test the distribution of *alles* with adverbial associates.

So far we have been assuming that C, T, v , and V are the functional projections of the clause, that subjects of transitive verbs are base-generated in the vP , and that internal arguments are base-generated within VP and do not need to move to any designated projection for Case. We can map F&P’s conclusions onto the structure in fig. 4.1. I ignore frame adverbials and sentential/propositional adverbials as they will not be useful to us.³⁰

³⁰ Note that if event-related adverbials reside in vP , auxiliary assumptions are needed to derive the conclusion that they *necessarily* c-command the base-position of the subject of a transitive verb. Thus, what we have been calling ‘ vP ’ might actually be split into two projections. There are many choices in the literature. For instance, a projection that introduces voice (and the external argument) VoiceP and one that barely verbalizes the VP vP (or also introduces the external argument), or we could assume an aspectual projection AspP. There may be a projection for abstract Case. I will not review these options here as the consequences are far reaching and I will not address them.

With this much in order, we can consider the distribution of *alles* with adverbial associates. Parallel to the domain of associates with argument status, we can ask the following questions:

1. Can *alles* occur in the base position of the associate?
2. Can *alles* occur in scrambling positions of the associate?
3. Can *alles* occur in positions reached by the associate via successive-cyclic movement?
4. Can *alles* occur in any other position?

I begin by arguing that *alles* can occur in the base position of an adverbial associate.

4.3.2 Base position

I begin by exploring locative *wo* ('where') given that for many speakers this is a natural associate for *alles*. Locatives are an event-internal adverbial according to F&P. Based on the structure in fig. 4.1, with a NOM>ACC verb like *abholen* ('pick up'), and a DAT>NOM verb like *davon gelaufen* ('escaped someone/ran away'), the base orders with *wo* will be respectively as in (74a/b):

- (74) a. $[_{VP} \text{ NOM } [_{VP} \text{ LOC } [_{VP} \text{ ACC } V]]]$
 b. $[_{VP} \text{ DAT } [_{VP} \text{ LOC } [_{VP} \text{ NOM } V]]]$

For *alles* associate with *wo*, we thus generate the following predictions concerning the base position.

- (75) a. $wh\text{-LOC} \dots \text{NOM} > \{alles\} > \text{ACC} > \{*\text{alles}\} > V$
 b. $wh\text{-LOC} \dots \text{DAT} > \{alles\} > \text{NOM} > \{*\text{alles}\} > V$

To mark the base position, we can use two diagnostics. First, we can use *wh*-indefinites like in section 4.2.1.1. When both arguments are *wh*-indefinites, interpreted as mere existentials, the predictions in (75) apply directly. The prediction is confirmed, see (76)–(77).

- (76) Der Peter hat mir verheimlicht ... 'Peter kept secret from me...'
 a. wo wer **alles** wen abgeholt hat.
 where who.NOM.INDF ALL who.ACC.INDF picked.up has

‘where-all someone picked up someone’

- b. *wo wer wen **alles** abgeholt hat.
where who.NOM.INDF who.ACC.INDF ALL picked.up has

(77) Der Peter hat mir verheimlicht ... ‘*Peter kept secret from me...*’

- a. wo wem **alles** wer davon gelaufen ist.
where who.DAT.INDF ALL who.NOM.INDF away ran is
‘where-all it happened to someone that someone ran away’

- b. ??wo wem wer **alles** davon gelaufen ist.
where who.DAT.INDF who.NOM.INDF ALL away ran is

The *wh*-indefinites must be de-accented to ensure that the sentences are not understood as a multiple-*wh* question. The predicate *verheimlichen* (‘keep secret’) is intended to support even further an all-new information context with maximal focus and an existential interpretation of the *wh*-indefinites. The sentences can be read as answers to the question *Was hat dir der Peter verheimlicht?* ‘What did Peter keep secret from you?’.

I address a potential concern before moving on to the second diagnostic. In section 2.5 I showed distal *alles* can get increasingly degraded the more de-accented material there is to its left. However, this explanation is not sufficient. The asymmetry is reversed with process-related *wie* (‘how’). While this adverbial can only marginally associate with *alles*, in an echo question like (78) it is possible.

- (78) A: WIE wolltest du {??alles} was {alles} bügeln?!
how wanted.2SG you.NOM what.ACC.INDF iron
‘How did you wanna iron something?’

B: Sorgfältig, und mit ganz viel Hitze und Dampf. Wieso, passt dir das nicht?

‘Meticulously, and with lots of heat and steam. Why, doesn’t that suit you?’

The asymmetry in (78) follows again the base position of adverbials as argued by F&P. *Wie* in (78) is a process-related adverbial, which is base-generated lowest in the structure. The event-related reading of the adverbial which is base-generated higher in the clause is not available in this sentence. If a speaker at all accepts the higher *alles*, they are predicted to interpret in connection to (79), instead. The few speakers I tested on manner adverbials preferred process-related interpretations if they accepted *wie* as an associate at all.

B: #Ganz ruhig, und ohne eine Sorgen im Leben natürlich.

‘Calmly, and with not a worry in life, naturally.’

The higher *alles* is also highly marked because process-related adverbials can hardly be scrambled (cf. F&P). For instance, they can be fronted along with the lexical verb (79a), or left low together with the lexical verb (79b), but they cannot be left behind by VP movement. If process-related adverbials and lexical verbs form an XP unit, then it follows that the adverbial cannot be moved out of the unit so as to allow movement of a remnant VP shell that contain only the lexical verb and the object.

- (79) a. [Sorgfältig gebügelt] habe ich alle meine Hosen *t*.
carefully ironed have.1SG I.NOM all.ACC.PL my pants
- b. Hosen tue ich immer *t* sorgfältig bügeln.
pants.ACC do.1SG I.NOM always carefully iron
- c. ??[Meine Hosen bügeln] tue ich immer sorgfältig
my.ACC pants iron do.1SG I.NOM always carefully

I return to locative *wo*. The second way to mark the base position is by using other adverbials. F&P show that with maximal focus, adverbials of the same class are freely ordered with respect to each other, but adverbials of different classes must be ordered accordingly with the base hierarchy.³¹ Locatives (LOC) and instruments (INS) are in the same class (event-internal); temporal adverbials are in a different class (event-related) whose base position is higher. The possible word orders with a NOM>ACC verb are given in (80).

- (80) NOM>X>ACC, where X
- a. TMP > {INS :: LOC}
- b. *{INS :: LOC} > TMP

From (80), where *alles* is associated with LOC *wo*, we generate the following predictions about the base position of *wo*. Because LOC can be preceded by INS but not TMP, we predict that *alles* can be preceded by

³¹ Roughly, scrambling of new information is not possible. Thus, if both adverbials are new information, one cannot scramble over the other to revert the surface order. This means that word orders between adverbials of the same class are base-generated and not derived by scrambling. F&P justify this assumption empirically by noting that (a) scrambling modulates the availability of inverse scope with quantificational expressions, and (b) both word orders between adverbials of the same class lead to surface scope. I return to this issue in greater detail in section 4.3.3.1.

INS but not TMP, *when it associates with LOC*.

- (81) a. TMP > *alles*_{LOC}
b. **alles*_{LOC} > TMP
c. INS > *alles*_{LOC}
d. *alles*_{LOC} > INS

(82) shows that the predictions in (81a–b) are borne out. The sentences are again understood as answers to a general question such as *Was weiß die Susi über mich?* (‘What does Susi know about me?’) to get maximal focus. As usual, the relative acceptability judgment can be viewed as the following tension. For me, (82b) is perfect with narrow focus on some constituent following *alles*; however, that violates felicity conditions about question-answer pairs.

- (82) (83) Sie weiss, ... ‘*She knows...*’
- a. *wo* du heute **alles** den Julian abgeholt hast.
where you.NOM today ALL the.ACC Julian picked.up have.2SG
‘where-all you picked up Julian today.’
- b. ??*wo* du **alles** heute den Julian abgeholt hast.

In contrast to (83), the difference disappears with a an INS adverbial.

- (84) Sie weiss, ... ‘*She knows...*’
- a. (?) *wo* du mit einem Mietwagen **alles** den Julian abgeholt hast.
where you.NOM with a rental car ALL the.ACC Julian picked.up have.2SG
‘where-all you picked up Julian with a rental car.’
- b. (?) *wo* du **alles** mit einem Mietwagen den Julian abgeholt hast.

To be precise, (84a/b) are not always equal in status. The effect is variable but generally weak; not a ‘clear preference’.³² F&P discuss that sometimes there is preference for one surface order between adverbials of the same class. They argue, however, that these contrasts are due to semantic preferences, and observe

³² I personally typically prefer (84b) over (84a), but it varies. The main effect is that even where there is a preference, I need not assign narrow focus to any of the constituents following *alles*. This is, by hypothesis given how these diagnostics are typically used, what gives rise to the difference between a ‘clear contrast’ and a ‘slight preference’.

that they are much weaker in comparison to preferences that arise with the inverse word order between adverbials of different classes. Given the weakness of this contrast, I believe that this is actually yet another argument for *alles* marking the base position of the associate: by marking the base position in this sentence, *alles* cues a parse that corresponds to a representation that is semantically slightly dispreferred. Which one is preferred apparently varies from moment to moment (I doubt that it would vary from speaker to speaker in a stable way) depending on the conceptualization of the scene. In conclusion, *alles* tracks the base position of its associate also when the associate is adverbial. This is predicted by the SSG in (7). The facts also indicate that the distribution of *alles* is wider than that of any one particular adverbial class identified by F&P: it distributes like an event-internal adverbial when associated to one, but like a process-related one when associated to that. Neither of these classes can occur in each other's positions, especially not in wide focus contexts (see F&P for more details and arguments).

4.3.3 Scrambling positions

4.3.3.1 Excursus: Can adverbials scramble?

Before we move on to test whether *alles* can occur in the scrambling positions of adverbial associates, let us address the question whether adjuncts can scramble, as this is a debated matter.³³ In short, the answer will be that adverbials can scramble; the reader who is not concerned with this excursus can skip ahead to section 4.3.3.2 on page 118.

F&P's argument that adverbials can be scrambled is based on scope facts. It is a common observation that, in German, the scope relation between an existential and a universal quantifier generally unambiguously reflects the surface order when the sentence has neutral intonation. For example, F&P (ex 15) give the following examples to illustrate this fact. The capitalized finite verb in verb second position corresponds to a *verum* focus intonation and interpretation, which the authors note is one way to ensure a neutral intonation of the rest of the sentence.

- (85) a. Gestern HAT er mindestens einer Dame fast jedes Gedicht vorgetragen
yesterday has he minimum one.DAT lady almost every.ACC poem recited

³³ The alternative is that adverbials can move to positions such as Spec,C, but that when they occur in TP–vP–VP, they are always base-generated.

‘Yesterday, he did recite almost every poem for at least one lady.’

- b. Gestern HAT er mindestens ein Gedicht fast jeder Dame vorgetragen
 yesterday has he minimum one.ACC poem almost every.DAT lady recited
 ‘Yesterday, he did recite at least one poem for almost every lady.’

A common generalization from these facts is that, in German, scope maps transparently from S-structure to Logical Form (LF). In other words, in this logic, there is no covert Quantifier Rule (QR) as often assumed for English. German is not free of scope ambiguities, however. Inverse scope readings for an existential-universal word order *are* sometimes possible. A strong generalization of these exceptions is that ambiguities are possible only where there is overt movement of one quantifier over the other. F&P adopt the following principle, a reduced and simplified form of the scope principle by Frey (1993):³⁴

(86) *Scope principle:*

A quantified expression α can take scope over a quantified expression β when the head of the local chain of α c-commands the base position of β . (F&P: ex 16; my translation)

With this much in mind consider the following facts F&P (ex 83). (In verb-final clauses, *verum focus* is created by stressing the complementizer.)

- (87) a. WEIL Hans in mindestens einem Büro mit fast jedem Computer gearbeitet hat
 because Hans in minimum one office with almost every computer worked has
 ‘because Hans did work with almost every computer in at least one office’ (∃∀)
- b. WEIL Hans mit mindestens einem Computer in fast jedem Büro gearbeitet hat
 because Hans with minimum one computer in almost every office worked has
 ‘because Hans did work with at least one computer in almost every office’ (∃∀)

In (87), the two quantified adverbials are a locative and an instrumental. Regardless of their respective word order, their scope relation is transparent. In other words, both sentences are unambiguously

³⁴The insight that overt, i.e. S-structure, movement is responsible for scope ambiguities is a common one and can be traced back at least to Hoji (1985) for scrambling in Japanese, and Aoun and Li (1989) for Mandarin Chinese and English; Aoun and Li formalize their intuition with a scope principle much like the one in (86) (page 141) (though as Howard Lasnik (p.c.) points out, the formulation in (i) is a contradiction if *in case* is interpreted as *if and only if*; rather, a simple implication is what is needed, as in the formulation in (86)):

- (i) *The Scope Principle*
 A quantifier A has scope over a quantifier B in case A c-commands a member of the chain containing B.

non-distributive.

In comparison, when an instrumental is put into relation with a temporal adverbial, the word order TMP>INS in (88a) is transparent (unambiguously non-distributive); the word order INS>TMP, on the other hand, is ambiguous and allows the inverse reading corresponding to a distributive interpretation (F&P: ex 79).

- (88) a. WEIL an mindestens einem Abend mit fast jedem Computer gearbeitet
because at minimum one evening with almost every computer worked
wurde
PASS.PST.3SG
'because work was indeed done on at least one evening with almost every computer' ($\exists\forall$)
- b. WEIL mit mindestens einem Computer an fast jedem Abend gearbeitet
because with minimum one computer at almost every evening worked
wurde
PASS.PST.3SG
'because work was indeed done with at least one computer on almost every evening' ($\exists\forall, \forall\exists$)

F&P argue that the difference is explained by the scope principle in (86). Temporal adverbials belong to a different class than instrumentals and locatives; temporal adverbials are shown by a number of independent diagnostics to be base-generated higher than locatives and instrumentals. This is why the word order INS>TMP in (88b) requires scrambling. Because there is scrambling, the head of each of the two quantified expressions c-commands the base position of the other:

- (89) WEIL [mit mindestens einem Computer]₁ [an fast jedem Abend]₂ [_{VP} t₁ gearbeitet]
because with minimum one computer at almost every evening worked
wurde
PASS.PST.3SG
'because work was indeed done with at least one computer on almost every evening' ($\exists\forall, \forall\exists$)

Locative and instrumental adverbials, on the other hand, belong to the same class and are base-generated in the same maximal projection. This is why no scrambling is needed to form the two word orders. In each case only one adverbial c-commands the base position of the other.

A digression to say more about this pattern may be warranted. The reader who accepts this conclusion without reservation may want to skip ahead to section 4.3.3.2 on page 118. One question which threatens the validity of the above conclusion is the following: what prevents scrambling of an adverbial

over another one of the same class? F&P argue (based on frequency adverbials) that an economy condition seems to be in place: if an adverbial can be base-generated in position X, it cannot scramble to X. We can think of this as an instance of Merge over Move. However, I'll add that the issue is not finished there. In (88b), the instrumental apparently moved over the temporal adverbial. Thus, (88b) shows us that an adverbial of class C_n *can* scramble over an adverbial of class C_{n+1} . In Merge-over-Move logic, an adverbial can scramble over a higher one because it cannot be merged in that projection. The question then becomes, *why can an adverbial move to a higher projection only when it is filled by a (quantified) adverbial of that projection?* More formally, why can an adverbial base-generated in projection C_n only move to projection C_m when C_m hosts an adverbial base-generated in C_m ? As far as I can tell, this issue has not been identified or explored. The issue is quite severe because it threatens to undermine the analysis of scope ambiguities as modulated by movement. Consider the concrete example (90a).

- (90) a. WEIL Hans₁ [_{INS} mit mindestens einem Computer]₂ [_{LOC} in fast jedem Büro]₃
because Hans with minimum one computer in almost every office
gearbeitet hat
worked has
‘because Hans did work with at least one computer in almost every office’ (∃∀, !*∀∃)
- b. because Hans₁ [_{VP} INS₂ [_{VP} t₁ [_{VP} LOC₃ [_{VP} t₂ [_{VP} worked]]]]] has

The issue in (90a) is that nothing is blocking a derivation like the one in (90b). Assume that temporal adverbs in German are in vP and locatives and instrumentals in VP (as assumed in fig. 4.1). In (90b), the instrumental moves to the projection where a temporal adverb *would be*, and in so doing moves over a locative. Because the instrumental moves over the locative, it should be able to create a scope ambiguity with respect to the locative. However, that is exactly what is not the fact, and what motivated the idea that instrumentals and locatives are part of the same class: their relative word order always produces surfaces scope.³⁵ Norbert Hornstein (p.c.) suggests that this may be a Minimality effect. For any two adverbials of

³⁵ Another (I believe commonly accepted) issue is this. Scrambling is generally taken to be optional. As such, it is free to be interleaved with \bar{A} -movement such as *wh*-fronting, or pre-field filling as in (i).

- (i) [An mindestens einem Abend]₁ wurde [mit fast jedem Computer]₂ (t₁ t₂) gearbeitet. (∃∀, *∀∃)

The sentence is not ambiguous, or at least not in the same clear way as the corresponding sentence where scrambling is visible in surface structure.

the same class, only the higher one can move. That derives the fact that adverbials of different classes can move over each other, but adverbials of the same class never can. This is how it plays out. There are two possible base-generated structures, one for each surface order (91a) and (91b).

- (91) a. $[_{VP} \text{ INS}_1 [_{VP} \text{ LOC}_2 \text{ VP}]]$
 b. $[_{VP} \text{ LOC}_2 [_{VP} \text{ INS}_1 \text{ VP}]]$

For each, there are two movement derivations to consider, one where the higher one moves, and one where the lower one moves. I illustrate this only for $\text{INS} > \text{LOC}$:

- (92) a. $[_{VP} \text{ INS}_1 [_{vP} [_{VP} t_1 [_{VP} \text{ LOC}_2 \text{ VP}]]]]$
 b. $*[_{VP} \text{ LOC}_2 [_{vP} [_{VP} \text{ INS}_1 [_{VP} t_2 \text{ VP}]]]]$

If there is a Minimality condition blocking movement of an adverbial over another one of the same class, then the movement derivation that inverts word order, (92b), is blocked. The movement derivation that preserves the underlying c-command relations is allowed. This accounts for the fact that adverbials of the same class have only surface scope with respect to each other, while still allowing adverbials to move into higher projections. Interestingly, this account generates a prediction. Once we add back in an adverbial corresponding to the landing site of (92), e.g. a temporal adverbial in vP , we are led to the outcome in (93).

- (93) a. $[_{vP} \text{ INS}_1 [_{vP} \text{ TMP} [_{vP} [_{VP} t_1 [_{VP} \text{ LOC}_2 \text{ VP}]]]]]]$
 b. $*[_{vP} \text{ LOC}_2 [_{vP} \text{ TMP} [_{vP} [_{VP} \text{ INS}_1 [_{VP} t_2 \text{ VP}]]]]]]$

In (93a), the higher VP-adverbial moves over the vP -adverbial. The derivation is predicted to be grammatical. This means that, given the scope principle, we expect two readings to be possible: the surface reading $\text{INS} > \text{TMP} > \text{LOC}$, and the inverse reading $\text{TMP} > \text{INS} > \text{LOC}$ where INS takes scope from its lower chain member ' t_1 '. In (93b), the lower VP-adverbial moves over the vP -adverbial. The derivation is predicted to be ungrammatical due to the Minimality violation. This means that the only available derivation for the string corresponding to (93b) is the derivation in (94).

(94) $[_{VP} LOC_2 [_{VP} TMP [_{VP} t_2 [_{VP} INS_1 VP]]]]$

(94) has again the same scope properties as (93a): it is predicted to allow the surface reading and the inverse reading where now LOC is higher than INS. In other words, the Minimality account predicts that three-adverbial sentences are only two-way ambiguous. The “deep inverse scope” reading, where the fronted adverbial takes scope *below* both the higher adverbial and the adverbial of the same class is blocked. (95) are two attempts to test this prediction. The fronted adverbial is an existential, and the other two adverbials are universals. Judgments are, of course, more than very tentative given that these facts presumably approach *un-judgability*. I leave judgments open for others to determine.

- (95) a. WEIL $[_{INS}$ mit einem Computer] $[_{TMP}$ an jedem Abend] $[_{LOC}$ in jedem Büro] gearbeitet
 because with a computer at every evening in every office worked
 wurde
 PASS.PST.3SG
 ‘because work was indeed done with a computer in every office on every evening’

Surface scope: $INS > TMP > LOC$: OK

“same computer for all evenings and offices”

Shallow inverse scope: $TMP > INS > LOC$: ?OK

“different computers on different evening, but same ones for all offices”

Deep inverse scope: $TMP > LOC > INS$: ??

“different computers on different evenings, and different ones in each office”

- b. WEIL $[_{LOC}$ in einem Büro] $[_{TMP}$ an jedem Abend] $[_{INS}$ mit jedem Computer] gearbeitet
 because in a office at every evening with every office computer
 wurde
 PASS.PST.3SG
 ‘because work was indeed done in an office with every computer on every evening’

Assuming the facts are right for one moment, it still remains unclear how the Minimality condition should be stated. The usual options are available: a representational filter (e.g. Rizzi’s (1990) *Relativized Minimality*), a derivational condition on how a probe searches its domain (e.g. Müller’s (2011) *Generalized Minimal Link Condition*), or a trans-derivational economy condition (e.g. Oka’s (1993) *Shallowess*). I just note here that a derivational approach is not trivial to implement: first, it presumably requires probing for

features of *specific classes* of adverbials as to allow movement over adverbial of higher classes; second, while both adverbials of the same class are *potential movers* in the same way, I believe that Proper-Binding paradigms (see Müller, 1998) have taught us that featural minimality only applies to scrambling when *both* XPs are actual targets of movement—otherwise we would find that, in analogy to the adverbial case, the inner XP could *never* leave the larger XPs via scrambling in German, which is not the case (a type of A-over-A effect; Chomsky 1964, 1973).

For the purposes of this section, I leave these issues aside and take it as established that adverbials *can* indeed scramble.

4.3.3.2 Testing *alles*

Returning to the main thread of this section, we can again use LOC *wo* to test whether *alles* can occur in positions that its associate reached via scrambling. Event-related adverbials like LOC *wo* are base-generated between the two arguments of verb.

- (96) a. [_{VP} NOM [_{VP} LOC [_{VP} ACC V]]]
 b. [_{VP} DAT [_{VP} LOC [_{VP} NOM V]]]

Finding *alles* above the higher argument thus suggests that *alles* can appear in the scrambling position of its associate. The following sentences illustrate that this is indeed possible:

- (97) a. *Wo* musste heute {**alles**} der Julian {**alles**} den Papa abholen?
 where had.to today ALL the.NOM Julian ALL the.ACC dad pick.up
 ‘Where-all did Julian need to pick up dad today?’
 b. *Wo* ist {**alles**} der Mama {**alles**} die Katze davon gelaufen?
 where is ALL the.DAT mom ALL the.NOM cat away ran.away
 ‘Where-all did the cat ran away from mom?’

4.3.3.3 A consequence for successive-cyclicity and Information Structure

Note that the higher of the two *alles*’s in (97) is actually best when the question is an echo question of sorts. That suggests that the location must be highly topical in the conversation context. Information

structure thus has an impact on the distribution of *alles*. Within the context of the SSG in (7), this is what we expect given that information structure is intimately related to movement potential in German. The gradient of the Pafel effect (Pafel, 1991) reviewed in section 3.5.1 already suggested this issue.

We can see the difference when we force maximal focus. The prosody is also different.

(98) A: Was hat dir die Susi verheimlicht?

‘What did Susi keep secret from you?’

(99) Sie hat mir verheimlicht,... (‘She keeps secret from me...’)

a. wo_1 heute {??**alles**} wer t_1 {**alles**} wen abgeholt hat
 where today who.NOM.INDF who.ACC.INDF picked.up has
 ‘where-all somebody picked someone up today.’

(i) wo heute wer **alles** (#) wen abgeholt hat

(ii) ?? wo heute **alles** (#) wer wen abgeholt hat

b. wo_1 heute {??**alles**} wem t_1 {**alles**} wer davon gelaufen ist
 where today who.DAT.INDF who.NOM.INDF away ran.away is
 ‘where-all somebody escaped from somebody today.’

A question arises in this context: if there is successive-cyclic movement through vP in German, as I have argued on the basis of *alles* in section 4.2.3, why does that kind of movement not make *alles* in vP positions *freely* available in any context? In other words, it seems that successive-cyclic movement to vP is either not possible in (99), or *alles* cannot surface on this position in (99). The problem is made worse by the fact that *alles* seems to generally remain available in the base position even when information structural consideration supports a representation in which the associate is scrambled higher into the sentence. For instance, while object-*alles* in (100a) requires a particular context to surface above the subject, as far as I can tell, *alles* below the subject is always freely available in the position below the subject in the same discourse contexts. (100a) is the judgment out of the blue, where speakers say that it is OK but not perfect. (100b/c) have narrow focus, on *der Peter* in (100b), and the verb in (100c).

(100) a. ?Wen hat **alles** der Peter abgeholt?
 who.ACC has ALL the.NOM Peter abgeholt
 ‘Who-all did Peter pick up?’

- b. (Und) Wen hat **alles** der PEter abgeholt?
- c. (Und) Wen hat **alles** der Peter /ABgeholt?

4.3.4 Successive-cyclic movement

Just as with arguments, adverbial associates also license *alles* in intermediate positions of long-distance *wh*-movement.

- (101) a. [CP₁ *Wo* hat dir die Vroni gesagt, [CP₂ dass der Peter **alles** seine Kartoffeln kauft]]?
 where has you.DAT the.NOM Vroni said that the.NOM Peter ALL his.ACC
 potatoes buys
 ‘Where-all did Veronica tell you that Peter buys his potatoes?’
- b. [CP₁ *Wo* hat dir die Vroni **alles** gesagt, [CP₂ dass der Peter seine Kartoffeln kauft]]?

As is typical with adverbial long-distance questions, we must ensure that the adverbial is not interpreted in the matrix clause. An instrumental is a good candidate to force the low reading by making the high reading odd given our world knowledge about what one does with screwdrivers.

- (102) a. [CP₁ [*Mit was für Schraubenziehern*]₁ hat die Vroni gemeint, [CP₂ dass die Susi *t*₁ **alles** das Regal zu montieren versucht hat]]?
 with what for screwdrivers has the.NOM Vroni reckoned that the.NOM Susi
 ALL the.ACC shelf to assemble tried has
 ‘With what-all sorts of screwdrivers did Veronica say/think that Susi tried to assemble the shelf?’
- b. [CP₁ [*Mit was für Schraubenziehern*]₁ hat die Vroni **alles** gemeint, [CP₂ dass die Susi *t*₁ das Regal zu montieren versucht hat]] ?

4.4 Against an adverbial analysis of distal *alles*

An adverbial analysis for distal *alles* is an intuitive option. Indeed it is a very popular analysis for A-QF (see in particular Bobaljik (1995); Brisson (2000); Dowty and Brodie (1984); Fitzpatrick (2006)), was proposed for Dutch and English \bar{A} -QF by Koopman (2010), and for invariant *alles* by Heck and Himmelreich (2017).

The reason why such an analysis even seems plausible is that natural language does provide quantificational adverbials, like German *meistens* ('mostly') or English *mostly*, which do appear to quantify over a particular argument (103), and DP-oriented adverbials, such as secondary predicates/depictives, like German *pitschnass* ('soaking wet') (104).

(103) Ich bestelle bei der Takoma Bev meistens einen Americano.

I.NOM order.1SG at the Takoma Bev mostly a.ACC americano

'When I order something at Takoma Bev, most of the time it is an americano.'

- (104) a. Ich hab **pitschnass** den Malte abgeholt.
 I.NOM have.1SG soaking wet the.ACC Malte picked.up
 'I picked up Malte me/?him being soaking wet.' (with maximal focus)
- b. Ich hab den Malte **pitschnass** abgeholt.
 I.NOM have.1SG the.ACC Malte soaking wet picked.up
 'I picked up Malte me/him being soaking wet.' (with maximal focus)

It thus may be that distal *alles* is an adverbial that combines these two features. A prerequisite for such an analysis is that the adverbial contains the same lexical content as adjacent *alles*, as argued for in chapter 2. In chapter 3 I argued that distal *alles* closely tracks the derivation of its associate such that they must be in an extremely local configuration at some point in the derivation. Given that *alles* in (105) is unacceptable, it must also be the case that the associate c-command *alles* in overt syntax. (105) is presumably also one of the strongest challenges for a treatment of *alles* as a focus operator, or as an adverbial that modifies an open variable in the predicate (as Bobaljik (1995) argues for floating *all* in English, for example).

- (105) Du hast (*alles) WEN eingeladen?
 you.NOM have.2SG ALL who.ACC invited
Intended: 'You invited WHO-all?'

On an adverbial analysis, we thus arrive at a derivation in overt syntax like (106a), where *alles* composes with a clausal structure that contains a copy of its associate, or (106b), where the associate creates a local dependency with *alles*:

(106) *Minimal c-command: WH > alles*

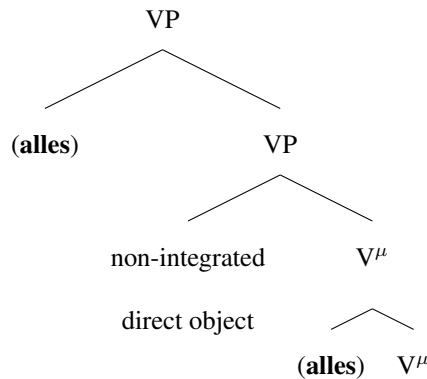
$[_{CP} WH [_{C'} C [_{X} WH [_{Y} [_{AdvP} alles [_{Adv} \emptyset]] \dots]]]]$

There is a potential issue for how the selective properties of *alles* are to manifest themselves through the AdvP shell in an analysis like (106). I leave this issue aside given that there are independent reasons to reject (106). Note that (106) is essentially the analysis that Heck and Himmelreich (2017) assume; see again section 3.2.3.1 for details. In short, they assume that *alles* is an adverbial that (a) (optionally) merges as the first specifier of v , and (b) must be Agreed with by a licit associate. The licensing must happen within the local domain, which they assume is the vP phase.

4.4.1 Is distal *alles* a frequency adverbial?

The first reason why an adverbial analysis is on the wrong track are the distributional facts discussed in this chapter. The distribution of *alles* is best characterized as “not having a distribution of its own” given that it depends on the choice of associate and it tracks its associate’s distribution closely. An alternative such as “*alles* distributes like an adverbial” raises the question, like *which adverbial*? That is, what kind of adverbial would distal *alles* be? In section 4.3 I reviewed F&P’s analysis of adverbial classes in German. In section 4.3.2 we saw that *alles* distributed like an event-internal adverbial *or* a process-related one depending on which one it was associated with. That means that its distribution is minimally the union of the two:

(107)



We also saw in sections 4.2.2 and 4.3.3 that *alles* can occur in scrambling positions above the base-position

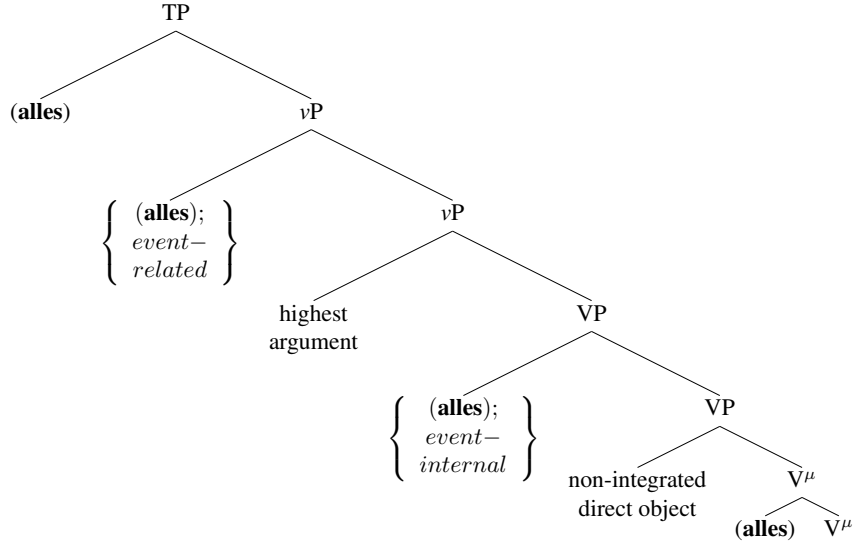


Figure 4.2: Base positions of *alles* if it was an adverbial

of the subject, minimally in vP, and in special circumstances also above weak object pronouns in TP. Thus, as an adverbial, distal *alles* would have the potential distribution in fig. 4.2.

The only known type of adverbial that enjoys this range of syntactic freedom is the class of *frequency adverbials*. We are now either forced to conclude that *alles* is a frequency adverbial, or we have to further increase the number of stipulations to state that *alles* has special properties that force locality *and* the root can freely combine with a morpheme of a proprietary adverbial class.

4.4.2 Matrix clauses of long-distance movement

In section 4.2.3 I argued that *alles* in matrix clauses along the path of long-distance movement is located in vP. In particular, I argued that while in a simplex clause ACC-associated *alles* can appear on either side of a DAT *wh*-indefinite, in the matrix clause of long-distance movement, *alles* has to occur to the left of it. I repeat the contrast here.

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

- a. Max: Die hat=s wem erzählt.
 DEM.F.SG have.3SG=it who.DAT told
 'Max: She's told it to someone.'

- b. Maria: Und *was*₁ hat sie {**alles**} [_{VP} *wem* {***alles**} erzählt, [_{CP} dass der Peter *t*₁
and what have.3SG she ALL who.DAT ALL told that the Peter
gemacht hat]?
done have.3SG
‘Maria: And what-all has she told someone that Peter did?’

The asymmetry follows from the analysis that in (108b) *alles* marks the position of successive-cyclic movement given the assumption that said movement must proceed through a phasal projection (or in Lasnik and Saito (1992)’s rephrasing of Chomsky (1986a), adjunction to escape barriers is only possible to lexical projections, *v*P/VP shell in this case). On an adverbial analysis, one is forced to fix *alles* inside a cyclic or phasal projection (like Heck and Himmelreich (2017) do for independent reasons). However, if *alles* is so strongly tied to this projection, we lose the range of its distribution in fig. 4.2.

4.4.3 Locality between associate and distal *alles*

On an adverbial account, the locality between the associate and *alles* must be stipulated. In the absence of a principled reason for the dependency, it remains an accident. Assume that there is a well-defined class of elements of which *alles* is a member. Indeed, I reviewed some of them in section 2.6, and will discuss this issue more in chapter 6; see in particular Reich (1997); Reis (1992a) for suggestions. An adverbial analysis would predict that the members of this class could differ as to whether they have to be in a local syntactic relation with their associate at some point in the derivation, while having identical syntactic properties in all other respects.

4.4.4 Distal *alles* is subject to but does not cause intervention effects

In chapter 3 I reviewed some of the intervention effects that have been observed for distal *alles*. Quantificational adverbs are typically members of the class of *interveners*. *Meistens* ‘mostly’, *überall* ‘everywhere’ are two examples:

- (109) a. Wer tut {wen} meistens {??wen} ärgern?
who.NOM does who.ACC mostly who.ACC tease
‘Who teases who most of the time?’
b. Wer hat {wen} überall {??wen} geärgert?
who.NOM has who.ACC everywhere who.ACC teased

‘Who teased who everywhere?’

A striking fact is that, while *alles* is affected by interveners, it does not itself create any intervention effects. Of course, one may say that *alles* in (110) associates with the NOM *wh*-phrase, but would be beside the point of an analysis of distal *alles* as an adverbial of quantification.

- (110) a. *Wer* hat **alles** *wen* geärgert?
who.NOM has ALL who.ACC teased
‘Who-all teased who?’
- b. *Wem* hast du **alles** *wen* vorgestellt?
who.DAT has you.NOM ALL who.ACC introduced
‘Who-all did you introduce who to?’

Adverbials of quantification do also not intervene between each other. Beck effects with *alles*, on the other hand, rest on word order.

- (111) a. *Was* mag immer jeder?
what.ACC likes always everyone
‘What does everyone always want?’
- b. *Was* mag jeder immer?

4.4.5 Multiple *alles* and “across-the-board” movement

In section 2.7 I argued for the following generalization regarding multiple instances of *alles* in one sentence:

- (112) *Alles-to-associate Correspondence Generalization:*

In any given sentence, there can be no more *alles*’s than compatible associates.

On an adverbial analysis, I see no other way than to understand (112) as a form of redundancy: Multiple *alles* per one associate is bad in the same way as adding *yesterday* twice to the same TP.

- (113) *Yesterday, I saw a unicorn yesterday.

In sentences with multiple compatible associates, it is probably not impossible to figure something out for

how multiple *alles* are acceptable given that multiple *yesterday*'s can be added where there are multiple TPs. However, consider the following “Across-The-Board” (ATB) questions.³⁶ Distal *alles* is possible across the board. Indeed it is possible to have one distal *alles* per conjunct (C1/C2):³⁷

- (114) a. *Wen*₁ hat der Peter [_{C1} erst *t*₁ **alles** eingeladen] und [_{C2} dann wieder *t*₁ **alles** ausgeladen]?
 who has the Peter first ALL invited and then again ALL uninvited
 ‘Who-all did Peter first invite and then uninvite again?’
- b. [*Wem seine Studenten*]₁ hat [_{C1} die Mascha *t*₁ **alles** eingeladen] und [_{C2} der Howard *t*₁ who.DAT his.PL students has the Masha ALL invited and the Howard **alles** ausgeladen]?
 ALL uninvited
 ‘The students of who-all did Masha invite and Howard uninvite?’

However, it is not possible to have one *alles* outside the conjuncts, and one inside a conjunct:

- (115) a. [*Wen alles*] hat der Norbert gemeint, [_{CP} dass [_{C1} die Mascha *t* (***alles**) einladen] und [_{C2} who ALL has the Norbert reckoned that the Masha invite and der Howard *t* (***alles**) ausladen] wollte?
 the Howard uninvite wanted.3SG
 ‘Who-all did Norbert think/say that Masha wanted to invite and Howard wanted to uninvite?’
- b. *Wen* hat der Norbert **alles** gemeint, [_{CP} dass [_{C1} die Mascha *t* (***alles**) einladen] und [_{C2} who has the Norbert ALL reckoned that the Masha invite and der Howard *t* (***alles**) ausladen] wollte?
 the Howard uninvite wanted.3SG

Note that in (115) each *alles* occurs in a separate clause, such that the competing generalization about distal *alles* in (116) is ruled out.

- (116) *Wrong generalization about multiple distal alles's:*

There can be as many instances of distal *alles* as clauses in the path of movement of its associate.

Instead, it appears that the correct generalization must make reference to the associate's chain, in some way.

For instance, if the movement steps to the edge of the conjuncts constitute separate chains, which compose

³⁶ATB applications of transformations or constraints are ones that apply to multiple conjuncts of a coordinated structure (see for instance early discussion in Ross (1967: section 4.2.4) for “Conjunction Reduction”, and Relative Clause Formation), in a way that does not violate the Coordinate Structure Constraint (CSC) (Ross, 1967). For more discussion of the CSC and ATB constructions see Bošković (2020); Bošković and Franks (2000) and references therein. For our purposes we can state the CSC as follows: *No movement transformation may move a conjunct of a coordination structure, or subextract from one*. The CSC is not violated when all conjuncts (*C_n*) are affected by the movement transformation in the same way, i.e. the coordinate structure is transformed “across the board”.

³⁷It is also possible to have only one of the *alles*'s in such sentences; see some discussion at the end of this section.

to a single chain from there on, then (117) appears to be a superior generalization:³⁸

(117) *Alles to chain correspondence (A2C)*:

There can be no more than one overt *alles* per chain.

Of course, this generalization is, a priori, at odds with the fact that there can be one *alles* per conjunct in ATB questions. This paradigm thus raises some interesting questions about what a chain is, and what the analysis of ATB-movement is. I leave this generalization given that the number of licit associates is more important than the number of clauses in determining the number of *alles*'s in a sentence. I conclude this section by discussing another interesting empirical fact about *alles* in ATB questions.

Above we saw that it is possible to have one *alles* in each conjunct of an ATB question. In fact, it is also possible to have only one of the *alles*'s in sentences like in (114), though there is a slight preference to have both. When only one conjunct has an *alles*, there is also a slight preference for some speakers to have *alles* in the first conjunct. *Alles* in the second conjunct is still fine, though, as long as the thought/context is clear. It seems plausible that the asymmetry is induced by properties of the parser rather than by properties of the grammar. Much psycholinguistic work has shown that filler-gap dependencies are “active” (e.g. Aoshima et al., 2004; Omaki et al., 2015; Phillips and Wagers, 2007) in the sense that there are pressures for them to be resolved as early as possible following the stream of speech or writing going “left to right”.

In both cases, it is very clear that the exhaustive interpretation of *alles* applies to the question as a whole, so that both conjuncts of the question are answered exhaustively. Focusing on the “easier” case, when *alles* is only in the first conjunct, it seems pretty clear for speakers that an exhaustive interpretation is not only possible for both conjuncts but in fact *necessary*. Where the obligatoriness comes from the grammar of *alles* or from the nature of ATB constructions is difficult to tease apart. Norbert Hornstein (p.c.) suggested an interesting approach to possibly tease this apart. We start from a question such as (118), where the reference of the first conjunct is interpreted as a proper superset of the reference of the second

³⁸A way that gets the same result by making use of the chain, but only indirectly corresponding to (117) is to understand the restriction as an effect of how chains are pronounced. If distal *alles* is the result of a special pronunciation of the constituent [associate+*alles*], then one could postulate that when c-command is given, *alles* must be unpronounced; when not, *alles* can be pronounced. This approach raises many questions about how the associate is never pronounced low where *alles* is. Alternatively, if distal *alles* is the result of sub-extraction from a common source, then the restrictions result from the intuitive notion that remnant material can be left behind only once. However, sub-extraction complicates matters with how *alles* is obligatorily interpreted in both conjuncts, see again ??.

conjunct—for example, Susi cooked five different dishes, and for those I’d like to know which ones Peter ate. Thus, we understand the ATB question in (118) as asking about the intersection of the two reference sets.³⁹

- (118) Was hat [C₁ die Susi *t* gekocht] und [C₂ der Peter *t* (davon) gegessen]?
 what.ACC has the.NOM Susi cooked and the.NOM Peter of.that eaten
 ‘What did Susi cook and Peter eat?’

This seems intuitively the correct interpretation for ATB-questions given that it would be infelicitous to ask the question if it is known that the intersection is empty, *even when* it is known that the reference set of each conjunct is not empty. Those kinds of interpretations can be accommodated, but they certainly feel less natural. A “coordinated question” like (119) would be the natural way to ask that instead.

- (119) [C₁ Was hat die Susi *t* gekocht] und [C₂ was hat der Peter *t* (davon) gegessen]?
 what.ACC has the.NOM Susi cooked and what.ACC has the.NOM Peter of.that eaten
 eaten
 ‘What did Susi cook and what did Peter eat?’

The next step is to add *alles*. Imagine that Peter only ate one of the five dishes that Susi cooked, and that this is known. In that scenario, the divisibility condition of *alles* is potentially violated. It is violated by C₂ (one dish) and by the intersection $C_1 \cap C_2$ (one dish). The divisibility is *not* violated by C₁ (five dishes). Thus, we generate different predictions for the felicity of *alles* in (118) depending on whether *alles* obligatorily applies to both conjuncts, i.e. the intersection, or just to the conjunct in which *alles* is overtly present. Indeed, the result is infelicitous in this context no matter where *alles* is placed:

- (120) Was {#alles} hat [C₁ die Susi *t* {#alles} gekocht] und [C₂ der Peter *t* {#alles} gegessen]?
 what.ACC has the.NOM Susi cooked and the.NOM Peter
 (davon) gegessen]?
 of.that eaten
 ‘What-all did Susi cook and Peter eat?’

³⁹ Note that *davon* (‘of that’) in (118) is not a resumptive element as it can co-occur with the *wh*-phrase, see (i); it rather is plausibly a partitive modifier.

- (i) Was hast du (**davon**) gegessen?
 what.ACC have.2SG you.NOM of.that eaten
 ‘What of that did you eat?’

This result might still just be about the way in which ATB constructions are interpreted: “grab the intersection”. So we can build one further step from the paradigm above. When one conjunct denotes a superset of individuals of the other conjunct’s, we can meta-answer the ATB question by answering each conjunct first and then the intersection.

- (121) Die Susi hat Kartoffelsalat, Mac’n’cheese, Spagetti Carbonara, Gurkensalat und Nackerte gemacht, und der Peter hat davon nur den Kartoffelsalat gegessen.
 ‘Susi made potato salad, mac’n’cheese, spaghetti carbonara, cucumber salad, and “naked brats”, and of that Peter ate only the potato salad.’

Now we may try to add *alles* again to see if it has an effect on the meta-answer. Crucially, assume now that Peter ate three dishes, and that this is known. Now we consider whether the preamble-answer to C1 must be exhaustive or whether it can be partial when *alles* is in C1. Indeed it feels to me that I would infer completeness if a speaker listed only a partial set from the five dishes; in other words, *alles* appears to force exhaustiveness on the preamble-answer, too. The crucial test is whether this result remains when *alles* is in the C2. The result seems unchanged. If this is a good way to tease apart the contribution of the ATB construction from the contribution of *alles*, then the result is confirmed that indeed *alles* is obligatorily interpreted for both conjuncts even when it only overtly appears in one of them.

4.4.5.1 A complication with multiple *alles*

An anonymous reviewer for GLOW43 brought the following sentence to my attention claiming that *alles* can be iterated where there are multiple clauses in the path of movement. (122) challenges the validity of the A2C which states that there can only be as many *alles* as licit associates.

- (122) Was₁ hat er denn alles gemeint, [_{CP} dass sie t₁ alles gelesen habe]?
 what.ACC has he.NOM DENN ALL reckoned that she.NOM ALL read have.SBJV.3SG
 ‘What-all did he say/think that she read?’

Indeed, (122) might be a little better than the examples with multiple *alles* discussed so far. (122) deserves closer scrutiny if the contrast turned out to be stable and clear. So far, I have not been able to replicate a

solid contrast between (122) and other examples with multiple *alles*.

Using just my own intuitions, there seems to be a small difference that suggest that *alles* might combine with *denn*. However, these results are very tentative at best. First, when *denn* is taken out, the sentence becomes completely unacceptable again. I cannot arrive at any meaning with (123a). The contrast is even starker with a complex *wh*-associate (123b).

- (123) a. **Was*₁ hat er **alles** gemeint, [_{CP} dass sie *t*₁ **alles** gelesen habe]?
 what.ACC has he.NOM ALL reckoned that she.NOM ALL read have.SBJV.3SG
Intended: ‘What-all did he say/think that she read?’
- b. **[Wem seine Gläser]*₁ hat er **alles** gemeint, [_{CP} dass sie *t*₁ **alles** auffüllen soll]?
 who.DAT his.PL.ACC glasses has he.NOM ALL reckoned that she.NOM ALL
 auffüllen soll]?
 top.up should.3SG
Intended: ‘The glasses of who-all did he say/think that she should top up?’

Separating *denn* from *alles* with an adverb (e.g. *gestern* ‘yesterday’) also seems to undo the slight amelioration (124a). If *denn* cliticizes to the finite verb, the sentence is perhaps salvageable and a meaning is accessible. I would intuitively try to answer these double-*alles* questions with matrix *denn* as in (125). But I feel like this is more of an attempt to be an accommodating interlocutor than a confident response to a clear question. We might accommodate the contrast between (124a–b) by postulating that *denn* can only move and strand *alles* as a clitic, but that it cannot move as a phrase. That could follow from the generalization that an adverbial (or particle) cannot move to projections with which it can be first-Merged (see again section 4.3.3.1).

- (124) a. **Was*₁ hat er *denn* gestern **alles** gemeint, [_{CP} dass sie *t*₁ **alles** gelesen habe]?
 what.ACC has he.NOM DENN yesterday ALL reckoned that she.NOM ALL read
 have.SBJV.3SG
 ‘What-all did he say/think that she read?’
- b. ??*Was*₁ hast=**n** gestern **alles** gemeint, [_{CP} dass sie *t*₁ **alles** gelesen habe]?
 what.ACC have.2SG=DENN yesterday ALL reckoned that she.NOM ALL read
 have.SBJV.3SG

- (125) ‘Let me think about it. I guess I was first considering that she read X Y Z, but then that she might

have read X W U.’

Julian Schlöder (p.c.) also brought sentences such as (126) to my attention. A coercion into those sentences must be avoided when judging these sentences here. Here *wen...alles* is the object of *gemeint*, and *damit* is connected with the following CP. He suggests that perhaps in a casual context, the connecting clause *als du sagtest* can be left out or recovered implicitly when trying to get a meaning for the relevant sentences.

- (126) *Wen* *hast* *du* *denn* *gestern* ***alles*** *damit* *gemeint*, [_{CP} *als* *du*
 who.ACC have.2SG you.NOM DENN yesterday ALL with.that reckoned when you.NOM
 sagtest, [_{CP} *dass* *sie* *alle* *ihre* *Freunde* *getroffen* *hat*]].
 said that she.NOM all.PL.ACC her.PL.ACC friends met has
 ‘Who-all were you referring to when you said that she met all of her friends?’

While *alles* is pretty much impossible with *warum* (‘why’), even given a suitable context that makes multiple reasons available, when *denn* is added, the sentence improves. This is the clearest effect for me. But another speaker I consulted rejected both equally.

- (127) a. ?**Warum* *hat* *sie* *den* ***alles*** *geheiratet*?
 why have.3SG she.NOM him.ACC ALL married

 b. ??*Warum* *hat* *sie* *den* *denn* ***alles*** *geheiratet*?
 why have.3SG she.NOM him.ACC DENN ALL married
 ‘Why of all reasons did she marry him?’

Treating *denn* as an operator, we might thus conclude in line with Reis’s generalization (section 2.4) that *alles* can be stacked onto *denn* to add a plurality interpretation for the relevant-common-ground content that *denn* points to. For discussion of the syntax and semantics-pragmatics of *denn* see Bayer et al. (2016); Theiler (2021) and references therein. Incidentally, Bayer et al. also argue that *denn* is dependent on interrogative C so that it fits in with Reis’s generalization. However, note that *denn* can also appear in polar questions but *alles* cannot occur there, with *denn* or at all. The unavailability of *alles* is unexpected if it modifies the relevant-common-ground content to which *denn* points given that this domain plausibly satisfies the divisibility condition. Instead, the domain of the polarity question, which is exclusively yes or no, and thus not divisible, must be responsible for this effect. Compare that to *alles* in a *wh*-question that is understood to ask about a partitive set of two which is understood as exclusively disjoining between the

two members.

- (128) a. Gehst du *denn* (*alles) jetzt ins Kino?
go.2SG you.NOM DENN ALL now in.the movie.theater
'Are you going to the movies now or what?'
- b. *Wen* von den beiden hast du (*alles) eingeladen?
who.ACC of those two have.2SG you.NOM ALL invited
'Who (*all) of those two did you invite?'

Overall, this issue is to be taken seriously. I shall dismiss its import on the theory of *alles* I am developing here given the dire nature of the judgments. However, if *alles* was able to associate with *denn* or other modal particles, the consequences can be serious. To name just one, any analysis of *alles* needs to weed out data that includes modal particles from its dataset as not to pollute the generalizations.

4.5 Conclusion and outlook

The main conclusion of the chapter was that distal *alles* is not an adverbial, or an other category that would be immediately dominated by a clausal projection. I primarily reached this conclusion by arguing for the generalization in (129):

- (129) *Subset Generalization for distal alles (SSG):*

Given a derivation *D* involving distal *alles* and a licit associate, *alles* may appear in any position its associate has occupied at some point in the derivation, and in no other position.

The SSG has two parts. Generally, the set of positions in which distal *alles* can occur is a subset of the positions in which its associate can occur. More specifically, the statement only makes sense when it is understood relative to the particular associate of *alles* in a given sentence. In agreement with the conclusion from chapter 3 about locality, distal *alles* thus closely tracks the derivation of its associate. In addition, the SSG means that distal *alles* does not have “a distribution of its own”. If distal *alles* was a direct member of the clause, we would expect that its syntactic category would determine its distribution. However, its distribution is entirely determined by (a) the category of its associate, (b) the base position of its associate, and (c) the derivation that its associate can and does undergo.

The SSG is supported the fact that *alles* can occur in the base position of its associate, and in intermediate positions that its associate can reach via movement. I showed this both for “scrambling” and for successive-cyclic movement in long-distance *wh*-movement. The facts apply both to argument associates, and to adverbial associates like *wo* (‘where’). At the end of the chapter, I also argued more explicitly against an adverbial analysis of *alles*. In particular, I argued that *alles* does not have the same distribution of any known adverbial class, except for adverbials of frequency, which have essentially no restrictions. However, this way of stating its distribution runs completely afoul of the considerations that make up the SSG. Instead, a stranding analysis predicts these properties.

The next chapter argues that the SSG needs to be restricted to apply only to the associate’s \bar{A} -chain links. In other words, *alles* cannot be stranded by A-movement. While this property is not entailed by a stranding analysis, we will see that we can make sense of it in a natural way. In addition, I will draw a connection with a literature on \bar{A} -stranding of similar expressions in other languages.

Chapter 5: Restrictions on the associate's movement type

5.1 Introduction

This chapter argues that the distribution of *alles* is a proper subset of the distribution of its associate. Simple examples of this come from multiple-*wh* questions in which *alles* follows both *wh*-phrases, and is not adjacent to either of them.

- (1) a. Welcher Manager hat wen_1 (**alles**) heute e_1 gefeuert?
which.NOM manager have.3SG who.ACC ALL today fired
'Which manager fired who (all) today?'
- b. *Welcher Manager hat wen_1 heute e_1 **alles** gefeuert?
which.NOM manager have.3SG who.ACC today ALL fired

As far as I am aware, [Heck and Himmelreich \(2017: 79\)](#) is the only place where patterns of this kind have been addressed. They note in passing that they must be "due to some independent factor" (*italics and boldface added*).

- (2) a. ?*Wann hat sie wen_1 dem Professor t_1 **alles** vorstellt?
when has she who.ACC the professor.DAT all introduced
'When did she introduce who-all to the professor?'
- b. ?*Wann hat wem_1 der Professor t_1 **alles** geholfen?
when has who.DAT the professor.NOM all helped
'When did the professor help who-all?'
- c. ?*Wann hat wen_1 der Professor t_1 **alles** erkannt?
when has who.ACC the professor.NOM all recognized
'When did the professor recognize who-all?'

In the course of this chapter, I examine the source of this additional restriction and whether it is due to construction specific properties, or whether it instead follows a broader generalization. Previous work

on *wh*-quantifier float also noted additional restrictions on the distribution of the quantifiers. McCloskey (2000) argued that *wh-all* in West Ulster English can only be stranded in positions from which its associate underwent *wh*-movement, and not in those from which its associate moved via A-movement. One argument to this effect comes from the following paradigm:

- (3) a. Who was throwing stones [_{VP} all around Butchers' Gate] ?
 b. *They were throwing stones [_{VP} all around Butchers' Gate]. (McCloskey, 2000: 77)

At the point in the derivation where it must be chosen whether the DP containing *who all/they all* moves to TP (a) as a whole, or (b) only the pronoun, the two derivations in (3ab) are indistinguishable. McCloskey thus takes at face-value the fact that stranding via A-movement cannot be possible given the unacceptability of (3b): whatever makes that derivation unavailable would make the derivation of (3a) also unavailable, because if *all* is not stranded right away via A-movement to Spec,T, any subsequent *wh*-movement will come too late to strand *all* in the post-verbal subject position. Because, however, this is possible in (3a), McCloskey concludes that the stranding derivation in (3a) can (and must) proceed solely via *wh*-movement, and directly to CP.

Fitzpatrick (2006) built on the work of McCloskey and argued that *wh*-quantifier float more generally (Fitzpatrick's "stranded adnominal FQs" and "non-exhaustive quantifiers") is always the result of stranding via \bar{A} -movement. He presents cross-linguistic evidence from Japanese and Korean and shows that floating numeral quantifiers (FNQs) in these languages cannot be stranded via A-movement. For example, after arguing that the reciprocal possessor *otagai-no* ('each other-GEN') needs to be A-bound, Fitzpatrick (2006: 106) shows that derivations where the associate strands an FNQ by A-movement in order to A-bind the anaphor are unacceptable:

- (4) a. [Gakusei-o huta-ri]₁ [otagai₁-no sensei]-ga sikatta.
 [student-ACC 2-CL] [each.other-GEN teacher]-NOM scolded
 'Each other₁'s teacher scolded [the two students]₁.'
 b. *[Gakusei-o]₁ [otagai₁-no sensei]-ga huta-ri sikatta.
 [student-ACC] [each.other-GEN teacher]-NOM two-CL scolded
 Intended: 'Each other₁'s teacher scolded [the two students]₁.'

The underlined numeral quantifier *huta-ri* is acceptable when it is not stranded in (4a). However, floating the numeral quantifier to the right and below the subject containing the anaphor makes the sentence unacceptable, cf. (4b); the FNQ is acceptable in the same position if the subject does not contain an anaphor, cf. (5).

- (5) [Gakusei-o]₁ sensei-ga huta-ri sikatta.
 [student-ACC] teacher-NOM two-CL scolded
 ‘The teacher scolded [the two students]₁.’

The sentence in (4b) thus creates an impossible set of requirements: the anaphor must be A-bound, but the FNQ and its associate cannot be related by exactly the dependency that would license the anaphor. Fitzpatrick concludes that stranding via A-movement must therefore be impossible.¹

As Fitzpatrick argues, putting together West Ulster English, Japanese, and Korean, as well as Russian, another language he discusses in detail, paints an interesting cross-linguistic picture, in which (a) there is a class of floating quantifiers that are always in an \bar{A} -stranding dependency with their associate, and (b) these quantifiers *must* be in a dependency that is both an \bar{A} -dependency, and a *stranding* dependency. Let’s call this *Fitzpatrick’s conjecture*, which we can phrase as follows.

- (6) *Fitzpatrick’s Conjecture* (FC):

The distribution of *non-exhaustive quantifiers* is universally restricted to their associate’s \bar{A} -chain.

An immediate question is whether associate-*alles* combinations in German count as “non-exhaustive”. In a certain sense, following Reis’s generalization that associates of *alles* must denote “open” sets, they are. I will not be able to go into the semantic details of this generalization, but see 6.3.2 for some additional discussion. In this chapter, I will focus on the syntactic distributional consequences: Given Fitzpatrick’s conjecture, we can entertain the hypothesis that the distribution of *alles*, too, follows an A/ \bar{A} -asymmetry. Reis (1992a) already makes a claim that indirectly raises this possibility. Reis claims that *alles* is a “wh-clitic”. While Reis does not further substantiate the details or consequences of this property for the issue at

¹Note at this point that in Japanese and Korean, just as in German, the movement involved in these arguments is strictly speaking scrambling; whether, and when scrambling is *necessarily* A-movement is an interesting issue that is much debated in the literature on scrambling. I return to this issue in more depth in section 5.3.

hand, her claim at least raises the question whether distal *alles* is best characterized in terms of adjacency to *wh*-traces, excluding NP-traces, and therefore describing an A/\bar{A} -asymmetry in alignment with the facts from West Ulster English, Japanese and Korean.

This chapter argues that the distribution of *alles* in German is analogous to Fitzpatrick’s conjecture. I argue that distal *alles* is restricted to positions from which the associate of *alles* \bar{A} -moved giving rise to the preliminary generalization in (7).

(7) *\bar{A} -generalization for distal *alles* (ABG):*

Distal *alles* can occur in any position from which its associate \bar{A} -moved, and in no other position.

Putting (7) together with the generalizations I have argued for in the previous chapters, I propose that the simplest analysis with the broadest empirical coverage is one which understands *alles* as “living on its associate’s \bar{A} -chain”. I generalize the behavior of “invariant *alles*”, adjacent and distal together, to the proposition in (8).

(8) *Generalization for invariant *alles*:*

Given a derivation D involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

More specifically, we will see that examples like (1) force the conclusion that (at least that kind of) scrambling is A-movement. In section 5.2, I argue for the ABG on the basis of four paradigms: in section 5.2.1 I show that the presence of *alles* undoes anti-Weak Crossover effects; in section 5.2.2 I show that *alles* can undo anti-Superiority effects; section 5.2.3 shows that, if there is movement to an ACC Case licensing position in German, then movement to that position does not support *alles* in its tail; finally, in section 5.2.4 I argue that subject-to-subject raising in German is obligatory, and that *alles* cannot be stranded in its tail.

In sections 5.3 and 5.4 I take a closer look at the status of *alles* in the tail of other constructions asking whether *alles* is licensed there as long as (a) the associate is of the right kind, and (b) *alles* is stranded by \bar{A} -movement. In section 5.3 I focus on “scrambling” and argue that scrambling can support *alles* when the associate is an adjunct, or, when it is an argument, when it moves to a TP-peripheral position. I conclude

that scrambling can be both A- or \bar{A} -movement with arguments, and that it is only \bar{A} -movement under favorable conditions on how the argument is interpreted in the discourse context. Specifically, I propose that *alles* can \bar{A} -move to TP when it is topical in some sense. I explore various consequences of these conclusions.

In section 5.4 I further explore the status of *alles* in constructions that are known to have \bar{A} -movement. I show that *alles* is licensed in the tail of operator movement in restrictive relative clauses (section 5.4.1), as well as topicalization to Spec,C (section 5.4.2). I briefly address parasitic gap constructions, *tough*-movement, and comparatives.

5.2 Evidence for an A/ \bar{A} -split

This section provides four paradigms to argue that in fact a more narrow generalization than the one emerging from chapter 4 is the more adequate one—the CLG (cf. (8)). (9) adds a restriction to the associate’s \bar{A} -derivation, in line with Fitzpatrick’s Conjecture (6).

(9) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation D involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

The full CLG in (9) entails that, given a derivation where the associate of *alles* undergoes both some number of A-movement steps and some number of \bar{A} -movement steps, *alles* can be found in positions from which its associate \bar{A} -moved, but not in ones from which its associate A-moved. In Government and Binding (Chomsky, 1981) parlance, where A-traces and \bar{A} -traces constitute two separate formatives of the theory, distal *alles* can occur in the position of its associate’s \bar{A} -traces, but not in the position of its associate’s A-traces. In other words, distal *alles* exhibits an “Anti-A-trace effect”, and “lives on its associates \bar{A} -chain”.

Consider the abstract derivations in (10) for illustration; A-/ \bar{A} - t stand for traces of A-/ \bar{A} -movement.

- (10) a.* [XP wh₁ [YP \bar{A} -t₁ [ZP A-t₁ alles]]]
- b. [XP wh₁ [YP [\bar{A} -t₁ alles]₂ [ZP A-t₂]]]

In (10a-b), the associate *wh*₁ underwent the following derivation: (i) A-movement from the base position in ZP to YP; (ii) \bar{A} -movement from YP to XP. With such a derivation, *alles* is licit in YP, from which \bar{A} -movement has occurred, (10b), but illicit in ZP, from which A-movement has occurred, (10a).²

The four arguments for this conclusion come from *Anti Weak-Crossover* (WCO) effects, *Anti-Superiority* effects, the *wieder* ‘again’ paradigm from section 3.3, and raising. The latter two effects directly involve A-movement so that the form of the argument will be straightforward. The former two effects involve scrambling as the movement step, and the argument will go as follows: (i) A-movement obviates WCO and Superiority; (ii) when we see such obviation, it is reasonable to conclude that the relevant movement is A-movement; (iii) *alles* becomes illicit in exactly the position from which A-movement had to occur in order to obviate WCO/Superiority.

In regards to premise (i) in connection to scrambling, a foreword is worthwhile before going into the details as the argument will set aside two controversies. First, some authors have suggested that scrambling is uniformly \bar{A} -movement, and that A-movement effects are to be derived in other ways (see e.g. Müller and Sternefeld, 1994). From the bulk of arguments in this section a clear picture should crystallize, in which, *if scrambling is movement*, then scrambling is indeed A-movement in German in the configurations discussed. I return to the A/ \bar{A} status of scrambling in more detail in section 5.3, and discuss the import of the distribution of distal *alles* on theories of Scrambling in 5.3.5. Second, the generalization that it is scrambling that obviates WCO and Superiority has been called into question as well. Fanselow et al. (2005) and Fanselow and Féry (2008) instead suggest an extra-grammatical explanation for obviation of WCO and Superiority, respectively. See also Heck and Müller (2000) who suggest that clausebound superiority effects and clause-crossing superiority effects are a priori different phenomena given that the latter but not

² The effect is specific to the A-movement step involved in (10); sentences that do not require A-movement in order to satisfy the property of an element of the sentence are acceptable. The abstract derivation in (i) is grammatical, as shown for example by the base position facts in section 4.2.1.

(i) [XP wh₁ [YP (\bar{A} -t₁) [ZP \bar{A} -t₁ alles]]]

the former is affected by non-c-commanding interveners. I will entirely set aside these controversies given that the modulation of WCO and Superiority effects by *alles* can be seen as an independent argument in favor of the position that intermediate scrambling steps are responsible for anti-WCO (Grewendorf, 1988) and anti-Superiority effects (see discussion in Müller (2011: section 3.2)) in German.

5.2.1 (Anti-) Weak Crossover effects

Consider the following contrast in binding possibilities:³

(11) *Intended*: ‘Who are all the individuals x , such that x ’s teacher hit x ?’

- a. Wen_{*i*} hat **alles** sein_{*i*} Lehrer geschlagen?
 who has ALL his teacher hit
- b. ??Wen_{*i*} hat sein_{*i*} Lehrer **alles** geschlagen?
 who has his teacher ALL hit

The intended reading is one where the possessive pronoun inside the subject is interpreted as bound by the *wh*-phrase, such that the reference of the pronouns co-varies with the reference of the DP(s) that answer the question. The availability of the bound pronoun interpretation depends on the position of *alles*. That is, the string in (11a) can be answered with either (12a) where there is only one teacher, or (12b) where there are as many teachers as answers as long as everyone had different teachers. The string in (11b), however, can only be answered with (12a). ((12a) would be more natural with a pronoun substituting ‘his teacher’, *ihm* ‘3.DAT’; the pronoun is impossible for (12b).)

- (12) a. Der Peter_{*i*} wurde von seinem_{*k*} Lehrer geschlagen, die Maria_{*j*} wurde von
 the.NOM Peter PASS.3SG by his.DAT teacher hit the.NOM Maria PASS.3SG by
 seinem_{*k*} Lehrer geschlagen, *etc.*
 his.DAT teacher hit
 ‘Peter_{*i*} was hit by his_{*k*} teacher, Maria_{*j*} was hit by his_{*k*} teacher, *etc.*’

³ As usual, the relative degradedness of (11b) in comparison to (11a) is what is at stake here. While for me the bound-pronoun reading in (11b) is plainly not available, the absolute judgments of five consultants varied from – impressionistically – “both OK but (a) clearly better” or “(b) not completely out but worse than (a)” to “(a) OK, (b) not”; they were linguists familiar with the distinction. For one speaker *alles* was equally possible in all positions with a DAT associate and a plural bound pronoun. Interestingly, the bound pronoun had to be plural for them here:

- (i) Wem_{*i*} {alles} haben {alles} ihre_{*i*} Tanten {alles} einen US-Aufenthalt finanziert?
 who.DAT have.3PL their.NOM aunts a.ACC US-stay financed
 ‘Who-all did their aunts pay a stay in the US?’

- b. Der Peter_i wurde von seinem_i Lehrer geschlagen, die Maria_j wurde von
 the.NOM Peter PASS.3SG by his.DAT teacher hit the.NOM Maria PASS.3SG by
 ihrem_j Lehrer geschlagen, *etc.*
 her.DAT teacher hit
 ‘Peter_i was hit by his_i teacher, Maria_j was hit by her_j teacher, *etc.*’

In (11a), *alles* marks a scrambling position, above the subject; in (11b), *alles* marks one below the subject. Thus, *alles* above the subject is acceptable, but *alles* below the subject induces a Weak Crossover (WCO) violation. WCO (Postal, 1971; Wasow, 1979) is essentially the effect of degradation found for the bound-pronoun interpretation of sentences where the pronoun is not A-bound. For concreteness, we can adopt the following formulation of a WCO constraint (from Heim, 1989 as discussed in Müller and Sternefeld 1994).

(13) *Condition on Bound Variable Pronominals:*

A bound-variable pronoun must be coindexed with a c-commanding A-Position at LF.

The specific type of WCO configuration that is relevant in this section is where a possessive pronoun cannot, or can only with great difficulty, be understood as bound by an operator contained in an \bar{A} -dependency that spans the bound pronoun. For example, an English sentence as (14a) is generally judged as quite degraded. The configuration in (14b), in comparison, where both the head and the tail of the \bar{A} -dependency c-command the possessive pronoun, is perfectly acceptable (adapted from Safir, 2017: 1).

- (14) a. ??Who₁ did [his₁ mother] praise t_1 ?
 b. Who₁ t_1 praised [his₁ mother]?

Scrambling in German (and other languages) can obviate this effect (*cf.* Grewendorf, 1988; Lee and Santorini, 1994; Webelhuth, 1992). German (15a), corresponding to the degraded English (14a), is perfectly acceptable. The idea is that *wh*-movement of *wen* (with or without *alles*) in (15a) is preceded by a step of scrambling, as indicated in the corresponding (15b).

- (15) a. Wen_i (alles) hat sein_i Lehrer geschlagen?
 who ALL has his teacher hit
 ‘Who (all) did his teacher hit?’

- b. $\text{Wen}_{i,1}$ hat [_{VP} t'_1 [_{VP} sein_i Lehrer t_1 geschlagen]]?

In addition, WCO cannot be obviated when the bound possessive pronoun is in a clause that cannot be reached by scrambling. In (16), the bound pronoun *seine* is contained in the matrix subject, while the *wh*-phrase originates in the embedded clause. Because scrambling is clause-bound in German, a long scrambling step preceding *wh*-movement is impossible. The *wh*-movement dependency will necessarily span the pronoun that the operator binds, and induce a WCO effect.

- (16) * $[\text{CP } \text{Wen}_{i,1} \text{ dachte } \text{seine}_i \text{ Mutter}, [\text{CP } \text{dass der Lehrer } t_1 \text{ geschlagen hat}]]?$
 who thought his mother that the teacher hit have.3SG
 Intended: ‘For which person *x* did *x*’s mother think that the teacher hit *x*?’

Against this background, it seems that (11a) has the derivation in (17); Σ stands for scrambling: (i) *wen alles* scrambles above the subject; (ii) from there, *wen alles* A-binds the possessor, obviating WCO; (iii) *wen wh*-moves on to Spec,C. *Alles* thus occurs in a position corresponding to the *wh*-trace of *wen*.

- (17) $[\text{WH}_i [\text{ } t_{wh} \text{ alles } [\text{SUBJECT } \text{pro}_i \text{ NP}] [\text{ } t_\Sigma]]]]$

If scrambling over the subject is what allows obviation of WCO, then, were (11b) acceptable, it would need to have the same derivation as (11a) in (17), differing only in the position of *alles*, as in (18).

- (18) $[\text{WH}_i [\text{ } t_{wh} [\text{SUBJECT } \text{pro}_i \text{ NP}] [\text{ } t_\Sigma \text{ alles }]]]]$

However, given that (11b) is unacceptable, (18) is not a possible derivation. In other words, *alles* cannot occur in the position corresponding to a scrambling trace. If this conclusion is correct, and *alles* must instead occur in the position of an \bar{A} -trace of its associate, we can begin to understand why (11b) is not acceptable: the conclusion leaves us, in essence, with three alternative derivations where the \bar{A} -trace requirement is satisfied while still stranding *alles* below the subject—(19a), (19b), and (19b’). All three derivations must fail.

- (19) a. $[\text{WH } [\text{SBJ } [\text{ } t_{wh} \text{ alles }]]]] \quad \Rightarrow \text{WCO}$
 b. $[\text{WH } [\text{ } t_{wh} [\text{ } t_\Sigma [\text{SBJ } [\text{ } t_{wh} \text{ alles }]]]]]] \quad \Rightarrow \text{IMPROPER MOVEMENT}$

b'. [WH [t_{wh} [SBJ [t_{Σ} [t_{wh} alles]]]]] \Rightarrow IMPROPER MOVEMENT

(19a) has the right kind of trace in the position of *alles*, but it is missing a step of scrambling that would obviate WCO. The sentence can therefore not have the intended interpretation. (19b/b') have the right kind of trace in the position where *alles* is pronounced, and there is a position reached by scrambling that c-commands the bound pronoun inside the subject, the position where the higher t_{wh} is. These derivations can therefore obviate WCO. However, (19b/b') must be blocked: In fact, both derivations interleave *wh*-movement and scrambling. If scrambling is A-movement, the derivations would constitute a case of Improper Movement, and would therefore prevent *alles* from appearing below the subject in a sentence like (11b).⁴

If this conclusion is correct, then (this kind of) scrambling in fact *must* be A-movement, or else *alles* could be stranded below the subject while also not incurring a WCO violation.⁵ The distribution of *alles*

⁴ It is in principle possible that the constituent *wen* first scrambles above the subject, followed by scrambling of the subject again over *wen*. WCO could then be obviated in the step preceding scrambling of the subject, for example as in (i). Given the contrast found by native speakers, I take it that this derivation is, at least, less probable in some sense, such that the contrast arises at least as a matter of likelihood of parses of the string and the conclusion is still warranted.

- (i) [CP wen_1^i [TP [DP pro^i NP]₂ [_{VP} t_1 [_{VP} t_2 [_{VP} t_1]]]]]

Interestingly, Fitzpatrick (2006: fn 8) finds a similar effect in Japanese with floating numeral quantifiers (FNQ). He notes that the sentence with the FNQ to the right of the bound pronoun – inside a relative clause modifying the subject in his test sentences – are worse than ones with the FNQ to the left of the bound pronoun, but some speakers don't find them as one might expect. In particular, Fitzpatrick notes that these speakers didn't find (iia) as bad as (iib), where WCO is caused by an in-situ *wh*-phrase.

- (ii) a. *[Donna gakusei-o]₁ rainen [*pro*₁ osieta sensei]-ga t_1 *san-nin* yatou no?
[which student-ACC] next-year [*pro* taught teacher]-NOM t_1 3-CL hire Q
Intended: 'Which three students₁ will the teacher who taught them₁ hire next year?'
b. *Rainen [*pro*₁ osieta sensei]-ga [donna gakusei-o *san-nin*]₁, yatou no?
next.year [*pro* taught teacher] [which student-ACC 3-CL] hire Q
Intended: 'Which three students₁ will the teacher who taught them₁ hire next year?'

Fitzpatrick conjectures that the effect may be due to processing, a kind of inverse garden path effect, a "garden path lack-of-WCO effect" as he puts it: speakers are able to uphold a derivation with A-movement until very late in the processing of the sentence. If speakers have formed an acceptable representation quickly enough, they might ignore the incongruence caused by the FNQ (e.g. because they predicted the lexical verb).

⁵ Notice in this connection that based on this conclusion here, scrambling can be seen to be A-movement more broadly given that "plain" scrambling outside of WCO configurations triggers the same anti-A-trace effect:

- (i) a. Wo hast du was_1 **alles** der Maria t_1 gezeigt?
where have.2SG you.NOM what.ACC ALL the.DAT Maria shown
'Where did you show what-all to Maria?'
b. ??Wo hast du was_1 der Maria t_1 **alles** gezeigt?
where have.2SG you.NOM what.ACC the.DAT Maria ALL shown
- (ii) a. Welcher Manager hat wen_1 (**alles**) heute t_1 gefeuert?
which.NOM manager have.3SG who.ACC ALL today fired
'Which manager fired who (all) today?'
b. Welcher Manager hat wen_1 heute t_1 (***alles**) gefeuert?
which.NOM manager have.3SG who.ACC today ALL fired

must be restricted to positions where \bar{A} -traces are left. These conclusions are in line with the observation from English that it is indeed A-movement that obviates WCO, while \bar{A} -movement cannot. Raising is a typical example for this: In (20a) (adapted from [Safir 2017](#)) *everyone* A-moves to the matrix subject position thus making the bound pronoun interpretation of *his* possible; in (20b), though there is *wh*-movement in the matrix clause, *wh*-movement of *who* is preceded by the same step of A-movement to the matrix subject position as in (20a), therefore making the bound pronoun interpretation of *his* available; (20b) thus contrasts with (20c) (=14a) and (20d) where there is no A-movement step to a position where *his* could have been A-bound by *who*.

- (20) a. Everyone_i seems [to his_i mother] [TP *t* to be a genius].
 b. Who_i *t* seems [to his_i mother] [TP *t* to be a genius].
 c. ??Who_i did [his_i mother] praise *t*?
 d. ??Who_i does it seem [to his_i mother] [CP *t* is a genius]?

Finally, this section started by *assuming* that WCO in local *wh*-movement is obviated by an intermediate step of scrambling. However, given that this assumption explains the contrast in (11) in conjunction with the \bar{A} -restriction on *alles*, the facts of this section in turn become an *argument for* theories of WCO obviation along the path of *wh*-movement that rely on intermediate scrambling.

5.2.2 (Anti-) Superiority effects

Superiority is, most broadly, the generalization that *wh*-phrases in multiple *wh*-questions “compete” to *wh*-move to Spec,C. The effect is that when a *wh*-phrase in a multiple *wh*-question moves, that is strictly lower than some other *wh*-phrase that could have moved to Spec,C, the sentence is unacceptable.⁶ The English pair in (21) illustrates:

- (21) a. Who₁ [TP *t*₁ [VP bought what₂]] ?
 b. *What₂ did [TP who₁ [VP buy *t*₂]] ?

⁶ There have been various proposals for this effect. The particular version should not matter for the present purposes, but for concreteness I will adopt a restrictive Attract-based version following the insights in [Oka \(1993\)](#), specifically that interrogative C bears a feature that triggers movement of the highest *wh*-phrase in its c-command domain to its specifier.

For Superiority, as for WCO, obviation effects have long been observed in German.⁷ So for the German pair in (22) both sentences are acceptable (Müller, 2011: 135, brackets and translation added).

- (22) a. (Ich weiß nicht) [CP wer₁ C [TP t₁ [was₂ gesagt hat]]]
 I know not who.NOM what.ACC said has
 ‘(I don’t know) who said what.’
 b. (Ich weiß nicht) [CP was₂ C [TP wer₁ [t₂ gesagt hat]]]
 I know not what.ACC who.NOM said has

In contrast, as argued by Buring and Hartmann (1994), for instance, the effect reappears across finite clause boundaries (Müller, 2011: 138):

- (23) a. Wer₁ hat t₁ geglaubt [CP dass der Fritz wen₂ mag] ?
 whoNOM has believed that the Fritz whom.ACC likes
 ‘Who believed that Fritz likes who?’
 b. *Wen₂ hat wer₁ geglaubt [CP dass der Fritz t₂ mag] ?
 whom.ACC has who.NOM believed that the Fritz likes

I will assume for this section that the correct analysis for the contrast is that scrambling, just like raising, can obviate Superiority.⁸ Because scrambling is bounded by finite clauses, Superiority can be obviated within a finite clause, (22), but not across finite clauses, (23).

With this much in mind, consider the following contrasts:

- (24) a. Wen hast du alles wofür verraten?
 who.ACC have.2SG you.NOM ALL what.for betrayed
 ‘Who-all did you betray for what?’
 b. Wen hast du wofür (??alles) verraten?

- (25) a. Wem hast du alles wie geholfen?
 who.DAT have.2SG you.NOM ALL how helped

⁷ For a thorough overview see Müller (2011: chapter 3, sections 3.2–3.4).

⁸ Example (ia) illustrates that raising obviates Superiority for English, (ib) does so for German.

- (i) a. What₁ t₁ seems [to whom]₂ [TP t₁ to taste awful]?
 b. Weißt du, [CP was₁ t₁ wem₂ [TP t₁ furchtbar zu schmecken] scheint]?
 know.2SG you.NOM what.NOM who.DAT awful to taste seem.3SG
 ‘Do you know what seems to whom to taste awful?’

Non-A-movement operations may also be capable of obviating Superiority, for instance topicalization, or supposed focus movement in the literature on partial *wh*-fronting (e.g., see Torrence and Kandybowicz, 2015 on *wh*-fronting in Krachi). The superiority paradigm is thus not necessarily an argument for the ABG about distal *alles*; rather it should be seen as support for the conclusion reached based on WCO in the previous section.

‘Who-all did you help (and) how?’

b. *Wem* hast du wie (??**alles**) geholfen?

(26) a. *Wen* hast du **alles** wann getroffen?
 who.ACC have.2SG you.NOM ALL when met
 ‘Who-all did you meet (and) when?’

b. *Wen* hast du wann (??**alles**) getroffen?

In each of the pairs, when *alles* occurs to the right of the in-situ *wh*-phrase, the sentence is much worse, or still clearly dispreferred, across speakers.⁹ For the vast majority of speakers asked in general so far, the use of *alles* with adjunct *wh*-phrases is very limited. *Alles* with *wo* ‘where’ is generally allowed; *wann* ‘where’, *wie* ‘how’, and *wofür* ‘(purpose) what for’ are very marginal, while *warum/was/wieso* ‘(reason) why’ are completely impossible.¹⁰ This fact is important as it means that in (24)–(26) *alles* is necessarily interpreted with the fronted argument *wh*-phrase.¹¹ This means that the contrasts above track the derivation of the fronted *wh*-associate. Indeed the contrasts are explained by the assumption that *alles* cannot be stranded in the tail of A-movement, in this case Scrambling.

In each of the three cases, the fronted *wh*-phrase originates in a position that is structurally lower than the *wh*-adjunct, which, let’s assume, is in *vP*.

(27) [CP WH₁ ... [vP [AdvP WH₂] [vP ... [VP t₁ V]]]]

In order for the configuration in (27) not to give rise to superiority effects, the lower *wh*-phrase must occur in a position higher (or non-lower) than the *wh*-adjunct at the moment of *wh*-movement. Within a finite clause, one way to achieve this is via scrambling, yielding the configuration in (28).

⁹ This effect was not found with every single speaker asked. There is reason to believe that the stranding analysis may nonetheless be the right analysis for the speakers who accepted a (b) example of (24)–(26): Those speakers accepted *alles* to associate with the adjunct. In that case, *alles* is most plausibly not stranded off the fronted *wh*-phrase, but rather right-adjacent and in association with the adjunct *wh*-phrase, see (i). This means that the paradigm cannot be used to test anti-A-trace effects with these speakers.

(i) [CP WH₁ ... [vP [WH₂ *alles*] ... t₁ ...]]]

¹⁰ Interestingly, McCloskey (2000: footnote 2) points out that *wh-all* is impossible with *why* and *how* in West Ulster English. See also Zimmermann (2007) for related facts on *alles* and semantic motivation for this restriction.

¹¹ To my ear the acceptable word order allows for a pair-list reading, but only where *alles* lists the multiple arguments within each of the argument-adjunct answer pairs. The reading where *alles* induces an exhaustive listing of singleton argument-adjunct pairs strikes me as odd.

(28) [CP WH₁ ... [vP e₁ [vP [AdvP WH₂] [vP ... [VP t₁ V]]]]]

This means that Superiority-obviating configurations have at least two chain links of the fronted *wh*-phrase in the clause: the base position below the *wh*-adjunct, and the scrambling position above the *wh*-adjunct. Were it possible for *alles* to occur in just any chain link of its associate, then there should be no contrast between the pairs above. However, given that there is a contrast, it seems that *alles* cannot be stranded in the scrambling step of the derivation from below the *wh*-adjunct, but that it can be stranded off the step of *wh*-movement from above the *wh*-adjunct.

5.2.3 Case-movement: Restitutive Blocking again

Section 3.3 argued that *alles* induces restitution blocking in the word order *alles*>AGAIN just as its associate does in the word order ACC>AGAIN. If the analysis by von Stechow (1996) for the loss of the restitutive reading is adopted, it follows that *alles* cannot be stranded via A-movement. The analysis that von Stechow provides is one based on scope. The adverbial *wieder* ‘again’ has only one lexical entry, with the rough meaning “repetition of what is in the scope”. Scope is read off of the syntactic representation, so that the two different readings that are associated with *wieder* reflect two different positions in which *wieder* can occur. In one case it occurs low, taking just the VP in its scope, where the state is represented. This is the *restitutive* reading. In the other, it occurs higher, taking the causer/agent-containing event in its scope—the vP. This is the *repetitive* reading.

- (29) a. [vP AGENT [VP *wieder* [VP STATE]]] ‘low scope: restitutive’
 b. [vP *wieder* [vP AGENT [VP STATE]]] ‘high scope: repetitive’

Recall that the repetitive reading is available with ACC>WIEDER as well as with WIEDER> ACC, while the restitutive reading is available only with ACC>WIEDER. The restitutive reading thus clearly does not reflect the assumed base word order, which would be AGENT>WIEDER> ACC>V, so clearly some adjustments must be made. Von Stechow proposes that the ACC must move to check its Case, to a projection (AgrO) between VP and vP. This assumption explains why the object has to be to the left of the adverbial to yield

the (lower) restitutive interpretation:¹²

- (30) a. [_{VP} AGENT [_{AgrOP} ACC₁ [_{VP} *wieder* [_{VP} *t*₁ V]]] REST

Now, if it were possible for *alles* to be separated from its associate in a position that was locally A-bound, then it should be possible to float *alles* in the tail of ACC-Case movement from VP to AgrOP. The consequence would be that it would be possible to have *alles* occur not only to the left of *wieder*, with a restitutive reading, but also to the right of *wieder*, as illustrated in (31).

- (31) a. [_{CP} ACC₁ ... [_{VP} AGENT [_{AgrOP} *t*_{1,A-bar} [_{VP} *wieder* [_{VP} *t*_{1,A} *alles* V]]]] REST
 b. [_{CP} ACC₁ ... [_{VP} AGENT [_{AgrOP} *t*_{1,A-bar} *alles* [_{VP} *wieder* [_{VP} *t*_{1,A} V]]]] REST

However, as discussed in section 3.3, the word order ACC>...>WIEDER>*alles*>V is not compatible with the restitutive reading. This means that *alles* cannot be stranded in the tail of the Case-movement chain—an A-chain.¹³

5.2.4 Raising

The final, and in-principle strongest argument for an anti-A-trace effect of *alles* comes from the domain of raising (to subject) configurations. Showing that *alles* cannot occur in the tail of raising would constitute the strongest argument for an A/ \bar{A} -split in the distribution of distal *alles*.¹⁴ Consider the raising sentences in (32).¹⁵

¹² The repetitive reading is also compatible with the ACC>WIEDER word order because the object and the subject can move on further via scrambling so that even when *wieder* is in vP, it can be preceded by the object.

¹³ Note that while this argument does support the idea that *alles* can only be stranded on its associates' \bar{A} -chain, it also strongly undermines the idea that *alles* can be stranded in its associate's base position. Revisiting all the arguments made in section 4.2.1 is no trivial task. In fact, all basic diagnostics and generalizations, including Lenerz' Generalization would need to be revisited in a way that includes some kind of order-preserving low movement within the VP–vP, perhaps along the lines of Heck and Himmelreich (2017).

Alternatively, the argument of this section can be taken as support for the generalization put forth by Bošković (2004), that quantifiers cannot be stranded in θ -positions. This alternative conclusion would similarly call for a re-analysis of the base position facts as just discussed.

¹⁴ While the facts seem very clear to me, this section comes last nonetheless because the contrasts are based on my judgments alone—the contrasts are based on scope judgments and the presuppositions that they trigger, which are generally more subtle to elicit.

¹⁵ For a more general characterization of the frames in which *drohen* appears, see Heine and Miyashita (2008). For a series of arguments in favor of *drohen* 'threaten' being a raising verb, see Reis (2005). In addition, the usual diagnostics can be applied. For instance, the examples in (i) show that the idiomatic reading is preserved with a sentential idiom, and the contrast in (ii) shows that a distributive reading is not available with raising (a) while it is with control (b).

- (i) a. dass mir die Haare zu Berge zu stehen drohen
 that me.DAT the.NOM.PL hair.PL to mountains to stand threaten.3PL
 'that I may soon really have enough of it'

- (32) a. Da droht etwas anzubrennen.
 there threaten.3SG something.NOM to.get.burnt
 ‘Something threatens to get burnt.’
- b. dass (da) etwas anzubrennen droht.
 that there something.NOM to.get.burnt threaten.3SG
 ‘that something threatens to get burnt there’

For subject *wh*-questions formed on the basis of raising sentences, where part of the chain that links the *wh*-phrase to the thematic position is an A-chain, the full CLG in (8) makes the following prediction: *alles* can occur in the matrix clause from which *wh*-movement applies, but *alles* cannot occur in the infinitival clause from which raising applies. The prediction for sentences like in (33a) is schematized in (33b), where ‘*t_{wh}*’ stands for a tail of *wh*-movement, and ‘*t_R*’ for one of raising.

- (33) a. [_{CP} Was₁ [_{C'} droht [_{TP1} *t*₁ [_{TP2} *t*₁ anzubrennen]]]] ?
 what.NOM threaten.3SG to.get.burnt
 ‘What threatens to get burnt?’
- b. [_{CP} WH-NOM [_{TP} *t_{wh}* {*alles*} [_{VP} [_{INF} *t_R* {**alles*} V] threaten]]]

Verb-second and the verb-final property of German, however, make it difficult to identify the clause boundary between the matrix clause and the raising complement.¹⁶ I argue in this section that the clause boundary

-
- b. dass hier die Kacke so richtig zum Dampfen zu kommen droht
 that here the.NOM shit so properly to.the steam to come threaten.3SG
 ‘that the shit may soon hit the fan around here’
- (ii) a. #dass alle Teilnehmer den ersten Preis zu gewinnen scheinen/drohen
 that all.NOM.PL participants the.ACC first prize to win seem/threaten.3PL
 ‘that every participant seems/is threatening to win first prize’
- b. dass alle Teilnehmern den ersten Preis zu gewinnen versuchen
 that all.NOM.PL participants the.ACC first prize to win try.3PL
 ‘that every participant tries to win first prize’

¹⁶ Extraposition of the infinitival cannot be used (innocuously) to make the clause boundary more apparent as pointed out to me by Stefan Keine (p.c.). Extraposed infinitivals are CPs in German and likely involve control structures instead. For example, it is not possible to have a sentential idiom with extraposition; compare (a) vs. (b).

- (i) a. dass hier die Kacke so richtig am dampfen zu sein scheint
 that here the shit so properly at.the steaming to be seem.3SG
 ‘that the shit really seems to have hit the fan here’
- b. *dass hier die Kacke scheint, [so richtig am dampfen zu sein]
 that here the shit seem.3SG so properly at.the steaming to be
- (ii) a. dass mir die Haare zu Berge zu stehen drohen
 that me.DAT the.NOM hair to mountain to stand threaten.3PL
 ‘that something threatens to shock/scare/worry me’
- b. *dass mir die Haare drohen [zu Berge zu stehen]
 that me.DAT the.NOM hair threaten.3PL to mountain to stand

can be inferred by adverb scope facts, and that once the clause boundary is made apparent by an adverb, the CLG's prediction in (33b) is confirmed. In order to establish the scope diagnostic, consider first the following sentences:

- (34) a. dass wer wieder gekommen ist
 that who.NOM again come be.3SG
 'that someone came again'
- b. dass wieder wer gekommen ist
 that again who.NOM come be.3SG
 'that someone came again'

While both sentences receive the same English translation, there is a difference in meaning. The *wh*-indefinite in example (34b) receives a purely existential interpretation, which we may call a “non-specific” interpretation. The *wh*-indefinite in example (34a), on the other hand, is not merely existential. We may call it a “specific” interpretation.¹⁷ The terminology of Diesing (1992) seems sufficiently appropriate to me, so that the “specific” interpretation corresponds to a *presuppositional* reading, and the non-specific interpretation corresponds to an *existential* reading.¹⁸ (34a) presupposes the existence of someone (so that there is a specific someone that is known, at least to some extent, to the speaker), while (34b) asserts it. I might paraphrase the translations for (34a-b) further as *that there is someone who came again* and *that it happened that someone came again*, respectively. The take-away from (34) is that the two sentences are not ambiguous so that, as argued by Diesing more generally, the scope facts of this section are read directly from overt syntax in German. As part of this, I conclude that the adverb *wieder* does not scramble, otherwise one of the word orders would be expected to allow both interpretations.

Next, consider *wieder* in a raising sentence:

- (35) a. weil was wieder dicht zu machen droht
 because what.NOM again dense to make threaten.3SG
 'because something threatens to close down again'
- b. weil wieder was dicht zu machen droht
 because again what.NOM dense to make threaten.3SG
 'because something threatens to close down again'

¹⁷See discussion in section 4.2.1.1.

¹⁸The same contrast holds for the subject *wh*-indefinite when applying Diesing's diagnostic: word order relative to the particles *ja* *doch*.

The first thing to note is that, given that there are two clauses, the adverb can be interpreted as modifying the full predicate *threaten-to-VP* and taking “high scope”, or as modifying the predicate contained in the infinitival and taking “low scope”. When the adverb takes high scope, it occurs in the matrix clause, as in (36a), while when it takes low scope, it occurs inside the infinitival, like in (36b).

- (36) a. [TP₁ ... ADV ... [TP₂ ... VP] threaten] ADV > R; *R > ADV
 b. [TP₁ ... [TP₂ ... ADV ... VP] threaten] *ADV > R; R > ADV

In the high scope reading, the adverb (ADV) takes scope over the whole raising-predicate (*threaten-to-VP*, abbreviated to ‘R’ for raising). This reading corresponds to an interpretation where the threat of TP₂ coming about is being presupposed, so that what is understood to have previously occurred is merely the threat/risk/worry. In the low scope reading, the adverb is itself within the scope of the raising verb, i.e. just over the predicate in the infinitival. In this reading, the lower predicate is presupposed, so that in fact the content of TP₂ is understood to have occurred before. The second thing to note about (35) is that both word orders, NOM > ADV and ADV > NOM, are possible on the surface. Importantly, however, one of the word orders is ambiguous, while the other is not.

With this in mind, consider the following facts for the word order NOM > ADV ((37b)=(35a)).

- (37) a. weil wer wieder zu kommen droht
 because who.NOM again to come threaten.3SG
 ‘because someone threatens to come again’ ADV > R; R > ADV
 b. weil was wieder dicht zu machen droht
 because what.NOM again dense to make threaten.3SG
 ‘because something threatens to close down again’ ADV > R; R > ADV

The sentences are ambiguous with regard to the adverb’s scope.¹⁹ With the high scope reading, it is presupposed that there has been a prior threat or risk of someone coming or something closing down. With the low scope reading, there is now the risk that someone comes again or something closes down again; it is presupposed that someone has actually previously come, or that something has previously closed down. The ambiguity is expected given that the word order is compatible with both structures in (36) while respecting

¹⁹ They are not, however, ambiguous with regard to the interpretation of the indefinite, which is necessarily specific/presuppositional to my ear.

(i) raising, and (ii) *wieder* occurring where it is interpreted.

Crucially, the low scope reading disappears in the word order ADV>NOM. Consider the meaning of the following sentences ((38b)=(35b)).

- (38) a. weil wieder wer zu kommen droht
 because again who.NOM to come threaten.3SG
 ‘because someone threatens to come again’ ADV>R; ?*R>ADV
- b. weil wieder was dicht zu machen droht
 because again what.NOM dense to make threaten.3SG
 ‘because something threatens to close down again’ ADV>R; ?*R>ADV

In (38), only the high scope reading is available. The sentences cannot be interpreted in a way where the content of the infinitival is presupposed, i.e. known or supposed to have previously been true. For instance, while a question casting doubt on the presupposition that the threat or risk has occurred before is felicitous, a question casting doubt on the presupposition that the content of the infinitival has occurred before is infelicitous. Compare (39a)–(39b) against the backdrop of (38b) (or a version with verb-second; *Es droht wieder was dicht zu macht.*).

- (39) a. Häh?! Bestand (hier) schon mal die Gefahr, dass was dicht macht?
 huh was here already once the danger that something dense makes
 ‘Huh?! Has there been the danger that something closes down (here) before?’
- b. #Häh?! Hat (hier) schon mal was dicht gemacht?
 huh has here already once something dense made
 ‘Huh?! Has something closed down (here) before?’

The unavailability of the low scope reading follows from the fact that there is raising. In fact, while the word order NOM>ADV is compatible with the subject being in the matrix clause, as schematized in (40), the word order ADV>NOM would force the subject to be contained in the infinitival whenever the adverb is also in the infinitival, as schematized in (41).²⁰

- (40) a. [TP₁ NOM₁ ADV ... [TP₂ t₁ VP] threaten]
- b. [TP₁ NOM₁ ... [TP₂ ADV t₁ VP] threaten]

²⁰ Note that this is an argument for raising being obligatory in German, *contra* a claim made in passing in Reis (2005).

- (41) a. [TP₁ ADV NOM₁ ... [TP₂ t₁ VP] threaten]
 b. *[TP₁ ... [TP₂ ADV NOM₁ VP] threaten]

The facts above establish that the interaction of scope and word order with *wieder* in raising sentences is diagnostic of the clause boundary between the matrix clause and the embedded infinitival. Against this backdrop, consider how *wieder* can be interpreted in the context of *alles*:

- (42) a. Was droht **alles** wieder dicht zu machen?
 what.NOM threaten.3SG ALL again dense to make
 ‘What-all is threatening to close again?’ ADV>R, R>ADV
 b. Was droht wieder **alles** dicht zu machen?
 what.NOM threaten.3SG again ALL dense to make
 ‘What-all is threatening to close again?’ ADV>R, *R>ADV

(42a) can have a high and a low scope reading for *wieder*, while (42b) can only have a high scope reading. This would be surprising if it were possible for *alles* to be stranded inside the infinitival by A-movement. In a high scope reading, *alles* could be either in the matrix clause or in the embedded clause, as schematized in (43).²¹

- (43) [CP WH-NOM₁ [C' threaten [TP₁ t₁ {*alles*} ADV (t₁) {*alles*} ... [TP₂ t₁ {*alles*} VP]]]]

In fact, the word order between *wieder* and *alles* is not generally constrained in subject questions:

- (44) Was macht {**alles**} wieder {**alles**} dicht?
 what.NOM make.3SG ALL again ALL dense
 ‘What-all is closing down again?’

In the low scope reading, on the other hand, *wieder* is in the embedded clause. When *alles* precedes *wieder*, *alles* is either in the matrix clause, or in the embedded clause, as shown in (45a). However, when *alles* follows *wieder*, *alles* is necessarily in the embedded clause, too, which is exactly what is not possible in (42b). In other words, the derivation in (45b) must be prevented somehow.

²¹ In order to derive the variable word order within a clause, it is either necessary to assume that *wieder* can adjoin at different heights, the highest attachment site being lower than the landing site of specific *wh*-indefinite subjects (see again (34a)), or that the word order *alles*>*wieder* is derived by an extra step of scrambling of *wh*+*alles* prior to the eventual step of *wh*-movement.

- (45) a. [CP WH-NOM₁ [C' threaten [TP₁ t₁ {alles} ... [TP₂ t₁ {alles} wieder t₁ VP]]]]
 b. *[CP was₁ [C' droht₂ [TP₁ t₁ ... [TP₂ wieder t₁ alles VP] t₂]]]
 what.NOM threaten.3SG again ALL

If nothing prevents *wieder* from occurring low with this word order, then there is no way of excluding the unavailable low scope reading of (42b). If, on the other hand, *alles* were *not* able to occur in the tail of A-movement—and therefore raising in particular,—then it becomes clear why the low scope reading of (42b) is unavailable. The next position up the tree where *alles* can be stranded is the lowest link in the associate's \bar{A} -chain. This link is in the matrix clause, in the landing site of raising. I repeat the schema from (33b):

- (46) [CP WH-NOM [TP t_{wh} {alles} [VP [INF t_R {*alles} V] threaten]]]]

If *alles* is necessarily in the matrix clause of raising, then we can understand why the word order ADV > *alles* forces *wieder* to also be interpreted in the matrix clause. It follows that only the high scope reading is available in (42b). (Similarly, I see no way to grant this conclusion while not equally preventing the derivation of the high scope reading in (45a) where *alles* is inside the embedded clause.) Finally, to complete the argument, note that the facts above warrant a conclusion about stranding in *A-chains* of infinitivals, and not merely about stranding in infinitivals *in general*. In fact, *alles* can be stranded inside the infinitival complement of raising verbs when the *wh*-question is an object question, see (47). In these cases, there is no (necessary) A-chain to strand *alles* on, and the sentences are acceptable.

- (47) a. Was₁ droht der Spiegel an der Wand (t₁) {alles} wieder (t₁) {?alles} t₁
 what.ACC threaten.3SG the.NOM mirror on the wall ALL again ALL
 der Königin zu sagen?
 the.DAT queen to say
 ‘What-all is the Mirror on the Wall threatening to say to the queen again?’
 b. Was₁ droht der Spiegel an der Wand [der Königin]₂ (t₁) {alles} wieder t₁ {alles} t₂ zu sagen?

The low scope reading is what matters here. To force that reading, the sentences in (47) can be understood in the context of a parent reading the story of Snow White to a child. In that context, given that the Mirror on the Wall says the hated words to the queen a few times in the story, when the parent is about to flip the page it makes sense to utter (47) with a low scope reading (“*Oh oh... (47)*”). Even in that context, *alles* is

acceptable in the order ADV>*alles* in (47). (While it is slightly marked in (47a), it is much better than in a subject question, and perfect in (47b) where the definite DAT is in its preferred scrambling position.)

Given that the assumption that the CLG for *alles* is restricted to the associate's \bar{A} -chain makes the correct predictions in this domain, I conclude that the more narrow generalization in (8) is correct, and that *alles* indeed cannot be stranded by A-movement.

I conclude by noting, in connection with raising, that the same pattern holds for obligatory control. For control, the clause boundary is transparently marked by the matrix-clause final verb. (48a) shows that with object questions out of the complement of subject control, *alles* can occur both in the matrix and in the infinitival; (48b) shows that with a *subject* question *alles* can no longer occur in the infinitival. There are two possible explanations. Either control is movement (Boeckx et al., 2010; Hornstein, 1999), so that *alles* again cannot occur in the A-trace position of the control A-chain. Or control involves PRO, but PRO lacks the relevant features that *alles* selects for so that low *alles* in (48b) is unacceptable for the same reason that *alles* cannot occur with non-*wh* anaphor or pronoun (49).

- (48) a. (Und) *wen*₁ hat [die Maria]₂ {*alles*} versucht, [_{INF} *PRO*₂/*t*₂ dem Peter
and who.ACC have.3SG the.NOM Maria ALL tried the.DAT Peter
*t*₁ {*alles*} vorzustellen] ?
ALL to.introduce
'(And) who-all did Maria try to introduce to Peter?'
- b. (Und) *wer*₁ hat *t*₂ {*alles*} versucht, [_{INF} [dem Peter]₂ *PRO*₁/*t*₁ {**alles*} *t*₂
and who.NOM have.3SG ALL tried the.DAT Peter ALL
die Susi vorzustellen] ?
the.ACC Susi to.introduce
'(And) who-all tried to introduce Susi to Peter?'
- (49) *Jeder*_{*i*} {**alles*} muss *sich*_{*i*} {**alles*} manchmal daran erinnern, [_{CP} dass *er*_{*i*}
everybody.NOM must.3SG SELF.3 sometimes at.it remember that he.NOM
{**alles*} versuchen kann, [_{INF} (*PRO*_{*i*}) {**alles*} *sich* {**alles*} zu verbessern]].
try can.3SG SELF.3 to improve
'Everybody needs to remind themselves sometimes that they can try to improve themselves.'

5.2.5 Some small consequences

5.2.5.1 Against an adverbial analysis, continued

In the context of an adverbial analysis of distal *alles* (see again section 4.4), it is far from clear what might provide a natural characterization of the Anti-A-trace effect. The ABG repeated in (50) would likely end up as (51):

(50) Distal *alles* may appear in any position from which its associate \bar{A} -moved, and in no other position.

(51) Distal *alles* is licensed by a locally c-commanding \bar{A} -chain-link of a licit associate.

(51) is rather unnatural. Why would it matter what the licenser does next—A-move or \bar{A} -move? Note that if licensing is binding, what type of movement transformation applies next, *from* that position, has no bearing on the type of binding (A-binding or \bar{A} -binding) given that *alles* can occur both in A-positions (base positions; targets of raising) and in \bar{A} -positions (intermediate positions of long-distance *wh*-movement). In addition, the generalization is unstatable in a cyclic, derivational fashion as it requires look-ahead. It appears again that assuming that distal *alles* and its associate form a constituent at the relevant stage of the derivation is a simpler explanation of the fact. Some kind of stranding analysis that involves movement of the associate follows as a corollary.

5.2.5.2 Intervention

Pesetsky (2000) observes that *wh*-words count as interveners in ‘separation structures’, which include distal *alles* (p117):

- (52) a. Was₁ hat der Professor den Studenten [*t*₁ alles] geraten?
 what has the professor the students all advised
 ‘What-all did the professor advise to the students?’
 b. *Was₁ hat wer den Studenten [*t*₁ alles] geraten?
 what has who the students all advised

However, as Cable (2007) discusses, in-situ *wh*-phrases, which are affected by the same range of Beck-

interveners as *alles*, do not cause intervention effects for other in-situ *wh*-phrases. This appears to be contradictory. The conclusion of this chapter that distal *alles* can only occur in the position of its associate's \bar{A} -chain links resolves this tension in as far as (a) scrambling is required to obviate superiority in examples like (52b), and (b) argument scrambling is (generally) A-movement.

In addition, when \bar{A} -scrambling, construed in this chapter as TP-topicalization, becomes available, the intervention effect of (52b) again disappears. Capitalization indicates major pitch accents; small caps a regular pitch accent; the main stress falls on the last accented unit, the lexical verb.

- (53) Und WAS₁ hat WER den StUdENTen [_t₁ **alles**] geRAten?
 what has who the students all advised
 ‘(Since we are on the topic of who (of the people we are talking about) did what, who RECOMMENDED what-all to the students?’

5.3 A closer scrutiny: Tails of scrambling

This section scrutinizes the idea that the restriction is due to an A/ \bar{A} -split more closely by examining the behavior of *alles* in the tail of scrambling. If the A/ \bar{A} -generalization is on the right track, all else equal, we expect *alles* to be available in the tail of other \bar{A} -movement dependencies. In sections 5.2.1 and 5.2.2 I argued that *alles* cannot be stranded in tails of scrambling because scrambling is A-movement. The A/ \bar{A} status of scrambling, however, is a debated issue with little consensus on the matter; see for example the articles in Corver and van Riemsdijk (1994b), or the overviews in Frank et al. (1996: section 2) and Haider (2017: section 3.3). I will touch on the theory of scrambling more in 5.3.5. What is clear is that at first blush *alles* seems to be generally unavailable in the tail of scrambling. Consider the following multiple-*wh* questions:

- (54) a. Wo hast du was₁ (**alles**) der Maria _e₁ gezeigt?
 where have.2SG you.NOM what.ACC ALL the.DAT Maria shown
 ‘Where did you show what-all to Maria?’
 b. ??Wo hast du was₁ der Maria _e₁ **alles** gezeigt?
 where have.2SG you.NOM what.ACC the.DAT Maria ALL shown

- (55) Sag mir,
tell.IMP.2SG me.DAT
- a. wann du was₁ (alles) der Maria e₁ gezeigt hast.
when you.NOM what.ACC ALL the.DAT Maria shown have.2SG
'Tell me when you showed what-all to Maria.'
- b. *wann du was₁ der Maria e₁ alles gezeigt hast.
when you.NOM what.ACC the.DAT Maria ALL shown have.2SG
- (56) a. Welcher Manager hat wen₁ (alles) heute e₁ gefeuert?
which.NOM manager have.3SG who.ACC ALL today fired
'Which manager fired who (all) today?'
- b. *Welcher Manager hat wen₁ heute e₁ alles gefeuert?
which.NOM manager have.3SG who.ACC today ALL fired

In the *b*-examples, *alles* is separated from its associate (by a DAT argument in (54)–(55), and by an adverbial in (56) (= (1)), and the associate is in a scrambling position. The examples are degraded and not interpretable in comparison to the baseline *a*-examples. Each of the three examples ensures that the associate is the “in-situ” *wh*-phrase (*was/wen*) rather than the *wh*-fronted one. In (55), *alles* follow the non-fronted *wh*-phrases. If *wo* had *wh*-moved to Spec,C from there, it would cause a superiority violation as it would be moving over an asymmetrically c-commanding, and competing, *wh*-phrase. (See again section 5.2.2 for discussion of superiority paradigms.) The associate is therefore *was*, which is in a scrambling position above the DAT argument given that *zeigen* ‘show’ is a NOM>DAT>ACC verb. (55) and (56) ensure that the fronted *wh*-phrase cannot be the associate of *alles* in an additional way. In (55), the fronted *wh*-phrase is *wann*. In my idiolect, as well as other speakers’, *wann* is not a valid associate of *alles*. *Alles* must therefore be associated with scrambled *was* in (55). In (56), the fronted *wh*-phrase is a singular *welch*-phrase. As such, it carries a singularity presupposition and is semantically incompatible with *alles*. The associate of *alles* is therefore *wen* in (56).

The following sections scrutinize scrambling further to see if and when *alles* can be found in the tail of scrambling. I begin from adjuncts, for which it is clear that, if they can scramble, their scrambling would be instance of \bar{A} -movement on most interpretations of the *A*/ \bar{A} distinction. Indeed we will find that *alles* can be found in the tail of scrambling when its associate is an adjunct. I turn to argument scrambling in section 5.3.2, and argue that some scrambling can license distal *alles*, namely scrambling that targets a

high TP projection and preferably introduces an intonational break, while “regular” scrambling does not.

I note that by pushing the A/\bar{A} conclusion to its limits, we can expect the empirical grounds to become shakier. We should therefore expect that while the conclusion may seem to be spectacularly confirmed in some instances, it might appear to come apart in other cases.

5.3.1 Adjunct scrambling

To be able to test whether *alles* can be stranded by scrambling when it is associated with an adjunct, a number of baseline facts need to be established. First, it must be possible to scramble adjuncts. And second, we need configurations where we can establish that the local movement step is scrambling and not *wh*-movement. I addressed the first issue in 4.3.3.1 adopting the conclusions of Frey and Pittner (1998) that adjuncts have base positions, and they can scramble. I add here that other authors reach a similar conclusion based on Reconstruction effects. Bayer and Kornfilt (1994), for instance, argue that PP-adjuncts can freely adjoin to VP and IP. In the following examples, if the co-varying reading depends on c-command by *Professor* over the PP at some point in the representation, then the PP must have moved to those positions rather than being base-generated there. We can strengthen the facts by having a negative-quantified binder as to avoid issues of non-syntactic binding or accidental co-reference.

(57) (Bayer and Kornfilt, 1994: (8))

- a. dass [in seiner₁ Wohnung]₂ Maria [den Professor]₁ e₂ schon oft besucht hat.
that in his apartment Maria the professor already often visited has
'that Maria has often visited the professor in his apartment.'
- b. dass Maria [in seiner₁ Wohnung] [den Professor]₁ e₂ schon oft besucht hat.
- c. dass [in seiner₁ Wohnung]₂ [der Professor]₁ schon oft e₂ von Maria besucht wurde.
that in his apartment the professor already often by Maria visited was

(58) dass [in seiner₁ Wohnung]₂ die Maria [keinen Professor]₁ e₂ besuchen würde.
that in his apartment the.NOM Maria no.ACC professor visit would
'that Maria would not visit a professor in their apartment.'

5.3.1.1 Preliminary: *alles* and scrambling in echo *wh*-questions

Echo *wh*-questions are suitable sentences to test whether *alles* was stranded by scrambling. Echo questions are questions just as regular interrogatives in the sense that the proposition is understood to be incomplete for a specific “gap”. They differ pragmatically from regular interrogatives, however, in that the “gap” that is being addressed with the echo question is understood by the discourse participants to have been “closed” before; echo questions thus have the pragmatic effect of “*re*-questioning” (Reis, 2017). A key property of echo *wh*-questions is that the echo *wh*-phrase does not obligatorily front to Spec,C, in German as in English. In addition, echo *wh*-phrases are “positionally variable” in German, reflecting the ability of XPs in German to scramble (Reis, 2017).

As a first baseline, note that *wh*-phrases of echo questions allow *alles* when *alles* is adjacent. Capitalization indicates pitch accent. In echo *wh*-questions the main accent/narrow focus goes obligatorily on *wh*-expression (Reis, 2017).²²

- (59) und dann musste der Papa den Julian *WO* **alles** abholen?
and then must.PST.3SG the.NOM dad the.ACC Julian where ALL pick.up
‘and then dad had to pick up Julian WHERE all?’

Following Bartels (1999), Reis distinguishes between three sub-types of echo *wh*-questions: one indicating a ‘failure to understand’, one indicating ‘incredulity’, and ‘reference questions’ indicating that the reference of a pronominal expression is unknown; the former two can be made clear by different kinds of rising contours in German, while the latter is systematically falling, both in German and in English. These sub-types reflect the discourse in which the echo questions are used. To use *alles* felicitously in an echo question, it seems to me that multiple referents need to be listed in an antecedent utterance or be understood to be part of it. In other words, the presupposition or conversational implicature that the answer set is non-atomic, and the expectation that a full answer is given, are true for *alles* in echo questions just as

²² In fact, Reis shows that only the *wh*-part of echo *wh*-phrases is focused and bears pitch accent. She illustrates this with minimal pairs like the following, where the *wh*-phrase would be stressed on the second syllable in regular interrogatives, but is stressed on the first syllable containing the *wh*-part in the echo question (Reis, 2017: 7; glosses added):

- (i) Karl wurde WARum/*waRUM gekündigt?
Karl PASS.PST.3SG why fired
‘WHY was Karl fired?’

in regular questions.²³ The following discourse is meant to be representative—the same type of discourse should be assumed where necessary.

- (60) A: und dann musste der Papa den Julian₁ erst von der Schule, dann vom
and then must.PST.3SG the.NOM dad the.ACC Julian first from the school then from
Bahnhof, und dann vom Judo *t*₁ abholen?
the station and then from judo pick.up
'and then dad had to pick Julian up first from school, then from the station, and then from
judo training.'

B: und dann musste der Papa den Julian₁ *WO alles* *t*₁ abholen?

Finally, (61) shows that *wh*-phrases of echo questions can be scrambled. (Frey and Pittner (1998) argue that locatives are base-generated minimally above the projection where the object(s) are base-generated.)

- (61) und dann musste {WO (alles)} der Papa {WO (alles)} gestern {WO (alles)}
and then must.PST.3SG where ALL the.NOM dad yesterday
den Julian abholen?
the.ACC Julian pick.up
'and then dad had to pick up Julian WHERE all yesterday?'

5.3.1.2 Test 1: non-adjacent *alles*

With this in mind, we can test whether *alles* can be stranded by an adverbial associate such as locative *wo* in echo questions. The prediction based on the \bar{A} -restriction on *alles*-stranding is that, all else equal, versions of (59) with stranded *alles* are acceptable because scrambling of adverbials is invariably \bar{A} -movement. The prediction is borne out. I find the following sentence acceptable.²⁴

- (62) a. und dann musste der Papa *WO* gestern (*alles*) den Julian abholen?
and then must.PST.3SG the.NOM dad where yesterday ALL the.ACC Julian pick.up
'and then dad had to pick up Julian WHERE all yesterday?'

²³For echo *wh*-questions used to express surprisal, it seems that speaking of answers and questions is off track — they intuitively feel more like polarity questions with the goal of receiving confirmation. The use of *alles* in surprisal echo *wh*-questions seems infelicitous to me. It is not clear to me what that should be attributed to given that *alles* is acceptable in non-rhogative embedded interrogatives, such as under *know*.

²⁴Given the “positionally variable” status of echo *wh*-questions, i.e. given that Reis argues that echo *wh*-questions are not quotational against a certain antecedent utterance, it seems harmless to use test sentences with scrambled echo *wh*-phrases. However, if one wants to be extra careful that test sentence and discourse context are well matched, one can set up a discourse in which the scrambled XP, the locative in this case, is already scrambled in an antecedent utterance. This yielded the same results for the following sentences, so that I generally ignored this step.

- b. und dann musste der Papa *WO* den Julian (**alles**) abholen?
 and then must.PST.3SG the.NOM dad where the.ACC Julian ALL pick.up

Running with the conclusion from section 5.2 that object scrambling is necessarily A-movement, the converse prediction is that *alles* cannot be stranded via scrambling in echo *wh*-questions when the associate is a nominal argument. That seems also to be correct for me.

- (63) a. und dann musste der Papa *WEN* gestern (**??alles**) vom Bahnhof
 and then must.PST.3SG the.NOM dad who.ACC yesterday ALL from.the station
 abholen?
 pick.up
 ‘and then dad had to pick up WHO all from the station yesterday?’
- b. und dann musste der Papa *WEN* vom Bahnhof (**?*alles**) abholen?
 and then must.PST.3SG the.NOM dad who.ACC from.the station ALL pick.up

Note, as a final sanity check, that *alles* still obeys the same locality restrictions when it associates with echo *wh*-phrases. (64) shows that *alles* can still not associate with an associate that does not c-command *alles* at any point in the derivation.²⁵

- (64) Es hat [[in Aswan] und [*WO* {**alles**}]] (#) heute {**?*alles**} geregnet?
 it has in Aswan and where ALL today ALL rained
 ‘It rained in Aswan and WHERE all today?’

5.3.1.3 Test 2: adjacent *alles*

There is a second way of testing the same facts, this time relying on properties of adjacent *alles*. As will be explored in more detail in section 6.5.4, adjacent *alles* is subject to a *complexity restriction*. Simplifying, for most speakers, *alles* cannot be right-adjacent to and in one surface constituent with a *wh*-phrase whose projecting nominal is internally complex. The following contrasts in (65)–(66) show that *alles* becomes unavailable with such complex associates when in they form an overt constituent in Spec,C.

(Recall that the position to the left of the finite verb in verb-second clauses is a known diagnostic for

²⁵ Note that in the context of echo questions, locality considerations raise interesting issues. With interrogative *wh*-phrases, it is plausible to assume that *alles* can associate directly with a complex XP bearing a *wh*-feature (cf., e.g. Giusti, 1991; Reis, 1992a). That is, Reis’s proposal that *alles* associates with Operator phrases of a certain kind extends to any *wh*-phrase that can move syntactically like *wh*-pronouns. For echo *wh*-phrases (and plausibly other non-interrogative *wh*-phrase constructions, like *wh*-exclamatives or *wh*-conditionals), the same extension is not innocuous under the assumption that *wh*-features don’t “percolate” in the same way in this (these) non-interrogative *wh*-phrase construction(s). Because if the features did “percolate” in the same way, we would need a different explanation for why echo *wh*-phrases cannot fill Spec,C of selected interrogative CPs. The general question thus is: what is the full generalization about the licensing condition on *alles*—what is its structural description?

constituency in German (see Müller 2018 for some discussion of this diagnostic).)

- (65) a. [*Mit welchen Freunden* {**alles*}] wolltest du morgen {*alles*} ins Kino?
 with what friends want.PST.2SG you tomorrow in.the cinema
 ‘With what friends did you want to catch a movie?’
- b. [*Mit wem* {*alles*}] wolltest du morgen {*alles*} ins Kino?
 with who want.PST.2SG you tomorrow in.the cinema
 ‘With who did you want to catch a movie?’
- (66) a. [*Welche Freunde* {**alles*}] wolltest du morgen {*alles*} zur Party einladen?
 what friends want.PST.2SG you tomorrow to.the party invite
 ‘What friends did you want to invite to the party tomorrow?’
- b. [*Wen* {*alles*}] wolltest du morgen {*alles*} zur Party einladen?
 who want.PST.2SG you tomorrow to.the party invite
 ‘Who did you want to invite to the party tomorrow?’

Given this restriction, it is plausible to assume that whenever *alles* and a complex associate are linearly adjacent, and the sentence is acceptable, *alles* was in fact stranded. This means that we can use the acceptability of *alles* with with complex associates in echo *wh*-questions to see if *alles* can be stranded by scrambling. Given the hypothesized \bar{A} -restriction on *alles*-stranding, all else equal, we expect that *alles* is acceptable with complex associates in echo *wh*-questions when they are adverbials, but that it is unacceptable when they are nominal arguments. Indeed, that is correct for me, as shown in (67)–(68). *Alles* with the complex adverbial associate is less natural in comparison to the simplex associate, but the contrast between nominal object argument and adverbials is clearly there for me and my consultants; assuming again that the conclusion from section 5.2 that object scrambling is necessarily A-movement, the contrasts in (67)–(68) are naturally explained by a contrast between stranding via scrambling as \bar{A} -movement vs. stranding via scrambling as A-movement.

- (67) a. weil du morgen [*mit WELCHEN Freunden*]₁ t₁ (*alles*) ins Kino gehen
 because you tomorrow with what friends in.the cinema go
 wolltest?
 want.PST.2SG
 ‘because you wanted to go to the movies with WHAT friends?’
- b. weil du morgen [*mit WEM*]₁ (t₁) (*alles*) ins Kino wolltest?
 because you tomorrow with who in.the cinema want.PST.2SG
 ‘because you wanted to go to the movies with WHO?’

- (68) a. weil du morgen [WELCHE Freunde]₁ t₁ (??alles) zur Party einladen wolltest?
 because you tomorrow what friends to.the party invite want.PST.2SG
 ‘because you wanted to invite WHAT friends to the party tomorrow?’
- b. weil du morgen WEN₁ (*t₁) (alles) zur Party einladen wolltest?
 because you tomorrow who to.the party invite want.PST.2SG
 ‘because you wanted to invite WHO to the party tomorrow?’

Similarly, adjacent *alles* is not acceptable in Spec,C with certain prepositional phrases of the R-pronoun type.

- (69) a. [Wobei {?*alles}] musstest du {alles} wegschauen?
 what.by ALL must.PST.2SG you.NOM ALL look.away
 ‘On what occasion/In what moments did you have to look away?’
- b. [Worin {?*alles}] ist Tina {alles} besser als Krissi?
 what.in ALL is Tina ALL better than Krissi
 ‘What is Tina better at than Krissi?’

The term ‘R-pronoun’ was first introduced by [van Riemsdijk \(1978\)](#) for related facts in Dutch. When pronouns, both *wh* or non-*wh*, combine with certain prepositions, the pronoun occurs to the left of the preposition and a spurious rhotic appears between them, e.g. /in da/ ⇒ *da-r-in* ‘with it’ or /in was/ ⇒ *wo-r-in* ‘in what’ (see also [Noonan, 2016](#) for discussion). I will call the PPs that are formed in this way ‘R-PPs’. [Giusti \(1991\)](#) proposes that *alles* cannot be right-adjacent inside an R-PP if the *wh*-phrase needs to pro-cliticize to the preposition because association with *alles* requires phrasal status in a way that interferes with cliticization.

The contrasts in (69) mean that, plausibly, even when *alles* is adjacent to its associate, it is stranded. We can exploit this fact to test whether *alles* can be stranded by adverbials via scrambling by turning the questions into echo *wh*-questions. Importantly, we can do so quite liberally as we do not need to establish the relative positions of *alles* or its associate in the clause. The hypothesized \bar{A} -restriction on *alles*-stranding predicts that, all else equal, the presence of *alles* in such sentences is acceptable. Indeed, I find *alles* acceptable with the R-pronominal adverbial associate. I find the examples best with a slight intonational break between the echo *wh*-phrase and *alles*, which may further corroborate the presence of stranding.

- (70) a. weil du WOBEI₁ t₁ (alles) wegschauen musstest?
 because you.NOM what.by look.away must.PST.2SG

‘because you had to look away on what occasion/in what moments?’

- b. weil Tina *WORIN*₁ *t*₁ (**alles**) besser als Krissi ist/ besser ist als Krissi?
 because Tina what.in better than Krissi is better is than Krissi
 ‘because Tina is better than Krissi at what?’

In this connection, we can check the status of argument PPs. A potential test case is the prepositional object of a verb like *stellen* (‘put vertically’). (71) shows that it does not support *alles* in a *wh*-echo question; this is true even when we make sure explicitly that the thought supports the presence of *alles*, e.g. by adding *eine nach der anderen* ‘one after the other’ to suggest a distributive interpretation of putting individual bottles in multiple places.

- (71) weil du die Flaschen (eine nach der anderen) *WOHIN* (?***alles**) gestellt hast?
 because you the bottles one after the other where.to put.vertically have.2SG
 ‘because you put the bottles WHERE (all (one after the other))?’

However, these prepositional objects are known not to scramble in the first place (see for example [Frey and Pittner 1998](#)). A better test case may be the verbs like *kümmern* ‘take care’ or *sorgen* ‘take care’, which take an obligatory PP object, see (72).

- (72) a. Ich kümmere mich *(um dich).
 I care.1SG me.ACC around you.ACC
 ‘I’ll take care of you.’
 b. Ich Sorge *(für dich).
 I care.1SG for you.ACC
 ‘I’m taking care of you.’

The judgments for stranding of *alles* with these PP objects are less clear than for the positional object in (71). They are better than the positional object. They are perhaps also better than the plain DP object example in (73c); (73a-b) at least seem easier to interpret correctly. (73a-b), however, are still clearly worse than the adjunct examples above. This somewhat intermediate status along the *A/Ā* dimension is reminiscent of findings for English argument PPs by [Lasnik and Saito \(1992\)](#).

- (73) a. ??? weil du dich gestern [*um WELCHE Leute*] **alles** gekümmert
 because you.NOM yesterday you.ACC around which people ALL taken.care

hast?
 have.2SG
 ‘because you took care of WHAT people yesterday?’

- b. ??weil du dieses Jahr [für *WELCHE LEUTE*] **alles** gesorgt hast?
 because you.NOM this year for which.ACC people ALL taken.care have.2SG
 ‘because you took care of WHAT PEOPLE this year?’
- c. ?*weil du gestern [*WELCHEN Leuten*] **alles** geholfen hast?
 because you.NOM yesterday which.DAT people ALL helped have.2SG
 ‘because you helped WHAT people yesterday?’

5.3.2 Argument scrambling

So far we have seen that *alles* in the following behavior for *alles* in tails of scrambling:

(74) *Quick summary of alles in tails of scrambling:*

- a. acceptable with PP adjunct associates,
- b. unacceptable with nominal argument associates,
- c. unacceptable with PP argument associates, but slightly better than (b).

The apparent clustering of (74b–c) separately from (74a) paints a picture where an argument/adjunct asymmetry could be a factor in the distribution of *alles* that is independent of the A/\bar{A} asymmetry investigated so far. In fact, in the course of this section, another asymmetry will appear, a subject/object asymmetry, where subject scrambling can apparently strand *alles* in contrast to object scrambling.²⁶ For both of these asymmetries, however, I will argue that they are just apparent, and that instead they ought to be understood as emerging from an A/\bar{A} asymmetry. In fact, I will show that arguments, too, can strand *alles* in the tail of “scrambling”, understood as movement in the middle-field, the portion of the clause that is below complementizers in verb-final clauses, and the finite verb in verb-second clauses— C^0 in the model of German assumed here. However, I will show that arguments can strand *alles* via “scrambling” only when a rather high position is targeted. I will assume that the relevant type of movement is “topicalization” in these cases,

²⁶ There are two practical reasons why I artificially introduce a subject/object asymmetry even though I will argue that it is only apparent. On the one hand, the subject/object asymmetry shows up in many syntactic phenomena, such that I wish to address and dispel the issue. On the other hand, it is quite likely that someone who wishes to investigate this paradigm further will randomly run into this asymmetry. Subjects are more “topic-worthy” (independent pragmatic/information structural factor), and more naturally surface to the left of other arguments, most adverbial, or particles, so that it is more likely that a sentence with a subject associate is compatible with a parse where the subject is topicalized to TP.

and that the operation targets TP as proposed for English by Lasnik and Saito (1992).²⁷ This interpretation of the facts paints the following picture, where high scrambling, understood as TP-topicalization, can strand *alles*, but regular argument scrambling cannot.

- (75) a. [TP_{“topic”} XP-argument₁ [TP ... t₁ alles]]
 b. *[TP_{“topic”} [TP ... XP-argument₁ ... t₁ alles]]

The asymmetry in (75), I will argue, is fundamentally an A/ \bar{A} asymmetry given that there is independent evidence for \bar{A} -properties of “high scrambling”, in particular reconstruction effects with A-bound pronouns, which are otherwise absent with lower scrambling.

Returning to the summary of facts given in (74), the previous section presented object scrambling as not supporting *alles*-stranding. Simple subject associate sentences, however, appear to license *alles* in the tail of scrambling much more readily. The relevant test sentence is the *a*-example. The acceptability is tested with a complex associate, which forces stranding (cf. the previous section). The baseline for the relative acceptability is established in the *b*-example with a simplex associate, which is compatible with a parse without stranding, and a PP adjunct associate in the *c*-examples. (Unless otherwise mentioned, the examples in this section are echo questions for the reasons outlined in the previous section; see section 5.3.1.1).

- (76) a. weil [WEM seine Freunde] **alles** bei Google arbeiten?
 because who.DAT his.NOM.PL friends ALL by Google work.3PL
 ‘because the friends of WHO all work at Google?’
 b. weil WER **alles** bei Google arbeitet?
 because who.NOM ALL by Google work.3SG
 ‘because WHO all works at Google?’
 c. weil du [mit WEM seinen Freunden] **alles** bei Google arbeitest?
 because you.NOM with who.DAT his.DAT.PL friends ALL by Google work.2SG
 ‘because you work with the friends of WHO all at Google?’

In addition, *alles* can be stranded via scrambling not only by a NOM agent, but also by a DAT experiencer subject, (77), or an ACC experiencer subject, (78). The relevant notion of ‘subject’, here, is thus not neces-

²⁷ Operating within \bar{X} -Theory, Lasnik and Saito conclude that this type of topicalization is specifically *adjunction* to TP because the landing site is higher than subject movement to Spec,TP.

sarily controlled by a specific position in the clause, like Spec,T in English or Icelandic. Instead, the natural class is the argument that is highest in the canonical word order.²⁸ Note also that a natural place for a slight intonational break is between the complex subject and *alles*. If the same kind of pause is not added there, but added after *alles*, the sentences are very degraded. This suggests that, as expected, *alles* is necessarily not forming a surface constituent with its associate.

- (77) a. weil [WEM seinen Kindern] **alles** kalt is'?
because who.DAT his.DAT.PL children ALL cold is
'because the children of WHO all are cold?'
b. weil WEM **alles** kalt is'?
because who.DAT ALL cold is
'because WHO all is cold?'
c. ?weil dir [wegen WEM seinen Kindern] **alles** kalt is'?
because you.DAT because.of who.DAT his.DAT.PL children ALL cold is
'because you're cold because of the children of WHO all?'
- (78) a. weil [WEM seine Eltern] **alles** dein Verhalten beeindruckt hat?
because who.DAT his.ACC.PL parents ALL your behavior impressed has
'because you impressed the parents of WHO all with your behavior?'
b. weil WEN **alles** dein Verhalten beeindruckt hat?
because who.ACC ALL your behavior impressed has
'because you impressed WHO all with your behavior?'
c. weil du [mit WEM seinen Bildern] **alles** meine Eltern beeindruckt
because you.NOM with who.DAT his.DAT.PL friends ALL my.ACC.PL parents impressed
hast?
have.2SG
'because you impressed my parents with the paintings of WHO all?'

Why would sentences where *alles* is stranded by subject scrambling be more acceptable than sentences where *alles* is stranded by object scrambling? Intuitively, subjects are more topic-worthy, in a way

²⁸For example, *wh*-indefinites surface in the canonical order—by assumption the base-generated order. To illustrate, the ACC subject is preferred to precede the NOM argument with *beeindrucken* 'impress'; (ib) is only acceptable if *wer* is not plainly existential, for speakers who allow this interpretation of *wh*-indefinites (see again section ??).

- (i) Warum ist das passiert?
Why did that happen?
a. weil wen wer/was beeindruckt hat
because who.ACC who.NOM/what.NOM impressed has
'because someone/something impressed someone'
b. weil {??wer/*was} wen beeindruckt hat
because who.NOM/what.NOM who.ACC impressed has

that needs to be made more precise. This is a general property that is called upon in German. Categories that can be construed more easily as topics, old information, etc. appear further to the left in the sentence—closer to the finite verb in verb second clauses, and closer to the complementizer in verb final clauses. ‘Topicality’ can explain the subject/object asymmetry to the extent that topicalization is \bar{A} -movement to a left-peripheral position of the descriptively so-called *middle field*—just below C^0 within the model we are assuming for German. To make the syntax of the ‘topicalization’ on hand more concrete, we may extend to German Lasnik and Saito’s analysis of English topicalization, Chomsky-adjunction to TP (Lasnik and Saito, 1992: section 3.2).²⁹ Assuming this analysis, the subject-associate sentences above receive the analysis in (79a).

- (79) a. $[TP_{\text{“topic”}} SBJ_1 [TP \dots t_1 \text{ alles }]]$
 b. $*[TP_{\text{“topic”}} [TP \dots OBJ_1 \dots t_1 \text{ alles }]]$

Following this logic, unacceptable object-associate sentences from the previous section must receive the analysis in (79b). Two questions naturally arise at this point: **(a)** are sentences with object-associates that receive the analysis in (79a) acceptable?, and conversely **(b)** are sentences with subject-associates that receive the analysis in (79b) unacceptable?

Indeed, two of my consultants found an object-associate sentence acceptable once I modeled it after the subject-associate sentences above. (Notice that the consultants did not immediately accept (80), but they did once I constructed a relevant context. This plausibly increased the topic-worthiness of the object during elicitation. In fact, I still find (80) marginal out-of-the-blue, where all I consider is the context for the echo question. A general bias against assigning the relevant status to objects is likely in place and should be taken into consideration.)

²⁹ One concern here: if that position is available to objects, too, and if weak object pronouns are in vP , then how does the generalization arise that objects cannot occur the left of weak object pronouns, for instance in double-object constructions? (See again relevant discussion in section 4.2.2.) Answer: there must be sentences where objects can indeed appear to the left of weak object pronouns; so generalization must apply to non-topics. In fact, these sentences don’t seem all that bad to me with a bridge contour, optimally with an intonational break:

- (i) a. ?weil den /APfel # der Peter dir {NICHT/nur UNgerne} geben wollte
 because the.ACC apple the.NOM Peter 2SG.DAT not/only unhappily give wanted.3SG
 ‘because, if we’re talking about the apple, Peter did NOT/only unHAPPily want to give (it) to you’
 b. weil den (/)APfel # ihr der PEter geben wollte
 because the.ACC apple her.DAT the.NOM Peter give wanted.3SG

- (80) ?weil du *WELCHE Freunde* **alles** eingeladen hast?
 because you.NOM which.ACC.PL friends ALL invited have.2SG
 ‘because you invited WHAT friends all?’

In contrast, when additional material is added mid-sentence, which would force parsing the object associate into a clausal height that is plausibly at most *vP*, an asymmetry reappears: the consultants found the versions of the sentence with the object right-adjacent to the pronominal subject to be clearly better than the one where the object is to the right of the demonstrative *dem*. The best version of (81a) has a slight intonational break after *WELCHE Freunde*, and the verb bears pitch accent for the VP constituent ([_φ *alles* VORgestellt]); an intonational break after the associate makes no difference in (81b).

- (81) a. ?weil du *WELCHE Freunde* *dem* **alles** vorgestellt hast?
 because you.NOM which.ACC.PL friends that.DAT.M.SG ALL introduced have.2SG
 ‘because you introduced WHAT friends all to him?’
 b. ?*weil du *dem* *WELCHE Freunde* **alles** vorgestellt hast?
 because you.NOM that.DAT.M.SG which.ACC.PL friends ALL introduced have.2SG

Note that scrambling to a position below the demonstrative *dem* in (81) is still possible. For instance, a temporal adverbial, which is base-generated above the base-position of the subject (Frey and Pittner, 1998), can separate the associate and *alles* in (81b) as in (82). The object associate therefore necessarily scrambled over the adverbial *gestern*. The sentence remains unacceptable, however, according to my intuitions.

- (82) weil du₁ dem₂ [*WELCHE Freunde*]₃ gestern [*vP* *t*₁ *t*₂ *t*₃ (??**alles**)
 because you.NOM that.DAT.M.SG which.ACC.PL friends yesterday ALL
 vorgestellt hast]?
 introduced have.2SG
 ‘because you introduced WHAT friends all to him?’

Together, it seems that the parse in (83a) *can* be given for (81a), while the parse in (83b) *has to be* given to (81b) (or (82) with *alles*).

- (83) a. [_{TP_{“topic”}} OBJ₁ [_{TP} ... DP ... *t*₁ *alles*]]
 b. *[_{TP_{“topic”}} [_{TP} ... DP ... OBJ₁ ... *t*₁ *alles*]]

The latter result is trivial: the demonstrative cannot occur high enough to accommodate movement to a high TP position. The former fact deserves some discussion. Specifically, there is a subject to the left of the scrambled object. If the subject is in Spec,TP, then how can the object be in the hypothesized topicalization position? Recall from section 4.2.2 and ?? (31) that weak pronouns in German appear higher in the clause. In particular, nothing can appear between them and C⁰ (finite verb in verb-second clauses, and complementizer in verb-final clauses). In section (31) I argued that a generalized version of Müller’s (2001) analysis of weak object pronouns is a desirable analysis for weak pronouns in German: a weak pronoun in German is linearized at the left edge of the syntactic projection in which it occurs (TP vs. vP, e.g.). In other words, weak pronouns are reshuffled within their projection. That means that the syntax of (81a) is actually (84a), where the subject is lower than the topicalized object, but the subject surfaces to the left of the object as in (84b) because both DPs are in TP, and the subject is linearized at the left edge of this projection.³⁰

- (84) a. [TP_{“topic”} OBJ₁ [TP SBJ [T’ ... DP ... t₁ alles]]]
 b. [TP =SBJ OBJ₁ <SBJ> [T’

If this analysis is on track, we expect an object associate to be unacceptable when the subject is a demonstrative (or full DP) rather than a weak pronoun. The prediction is borne out: compare (81a) to (85). Note that as with other sentences before, (85) can occasionally sound acceptable, but upon closer inspection it is challenging to assign the correct interpretation to it. It is thus crucial to judge the meaning contribution of *alles* with respect to an assumed or established context, for example an utterance like (86).³¹

- (85) ??weil der WELCHE Freunde dem alles vorgestellt hat?
 because that.NOM.M.SG which.ACC.PL friends that.DAT.M.SG ALL introduced has
Intended: ‘because he introduced WHAT friends all to him?’

- (86) ... weil der dem die Freunde vom Fussball, die Freunde vom Ballet UND die Freunde vom

³⁰ As suggested by the ‘=’ symbol in (84), subject pronouns can be described as encliticizing to complementizers and verbs in verb-second position, overall in the so-called “Wackernagel position” (named after the Indo-Europeanist Jacob Wackernagel). They form one prosodic unit with these two categories, as for instance in *dass sie* ‘that she’ [#das=se#] or *hat er* ‘has he’ [#hat=v#].

³¹ The judgment becomes sharper with multiple-*wh* questions, cf. (i).

- (i) *[Wer alles] hat welche Freunde dem alles vorgestellt?
 who.NOM ALL has which.ACC.PL friends that.DAT.M.SG ALL introduced
Intended: ‘Who-all introduced what friends all to him?’

Bogenschießen vorgestellt hat.

‘... because he introduced to him the friends from soccer, the friends from ballet, AND the friends from archery.’

Conversely, if the picture in (87) (=79) is right, we expect sentences to be bad when they have a subject associate that is too low to occupy this high TP position, as depicted in (88).

- (87) a. [TP_{“topic”} SBJ₁ [TP ... t₁ alles]]
 b. *[TP_{“topic”} [TP ... OBJ₁ ... t₁ alles]]

- (88) *[TP_{“topic”} [TP ... SBJ₁ ... t₁ alles]]

This fact is not immediately clear. Consider sentence (89) as the context utterance for the following test echo questions.

- (89) weil gestern die Himbeertorten, die Kirschtorten und die Hochzeitstorten im Laden
 because yesterday the raspberry.cakes the cherry.cakes and the wedding.cakes in.the shop
 rumstanden
 were.upright.around
 ‘because the raspberry cakes, the cherry cakes and the wedding cakes were hanging around in the shop’

Alles is clearly acceptable and easily interpretable in (89) when the subject *WELCHE Torten* is to the left of the adverbial, as in (90b). Frey and Pittner (1998) argue that temporal adverbials are base-generated just above the base position of subjects of transitive verbs. Given the prediction in (88), the sentence in (90a) is expected to be bad. I find it degraded, clearly worse than (90b). However, there is variation. Two out of three speakers that I elicited found (90a) and (90b) to be comparably acceptable.

- (90) a. %weil gestern *WELCHE Torten* **alles** im Laden rumstanden?
 because yesterday which.NOM.PL cakes ALL in.the shop were.upright.around
 ‘because WHAT cakes were hanging around in the shop yesterday?’
 b. weil [*WELCHE Torten*]₁ gestern t₁ **alles** im Laden rumstanden?

I found the same state of affairs with an animate agent subject, as in the pair in (91)–(92).

- (91) CONTEXT: Ich muss noch schnell Bier holen, weil morgen meine Freunde vom Schuhplatteln, vom Squash und vom Bogenschiessen vorbeikommen wollten.

CONTEXT: *'I need to go get beer because my friends from Schuhplatteln, from Squash and from archery were planning to come over tomorrow.'*

- (92) a. %weil morgen [WELCHE Freunde von dir] **alles** vorbeikommen wollten?
because tomorrow which.NOM.PL friends of you.DAT ALL come.by wanted
Intended: 'because WHAT friends of yours all wanted to come by tomorrow?'
b. weil [WELCHE Freunde von dir]₁ morgen *t*₁ **alles** vorbeikommen wollten?

It seems that three possibilities ought to be considered at this juncture:

- (a) the acceptability of the *a*-examples for those speakers reflects the reality, and the topicalization theory is on the wrong track; e.g., there is a subject-object asymmetry in the distribution of *alles*;
- (b) the acceptability of the *a*-examples for those speakers reflects the reality, but in a way that is consistent with the topicalization theory: e.g., the adverbial is also topicalized;
- (c) the acceptability of the *a*-examples for those speakers is an artifact: it sounds acceptable but there is actually no meaning that can be assigned to it: speakers ignore *alles* or swap it out for some other particle in their mind.

Conclusively testing option (c) is challenging. While it seems clear to me that it is unnatural to answer the *a*-examples in accord with the context, but natural to answer the *b*-examples in the same context, I am not confident that I interpreted the results from my elicitation along this dimension. Speakers were either very fast to respond, indicating that they may be using some task-specific strategy, or they took their time but got to a point where they were not confident about their intuitions.

Options (b), in contrast, seems testable, within the confines of this paradigm, and idealizing over the issues just mentioned about confirming question-answer pairs precisely with other speakers. According to option (b), the acceptability of the *a*-examples is due to the possibility of TP-topicalizing multiple XPs.

There are already some theoretical consideration that make this option plausible. If a conservative clause structure is assumed, it basically follows that the temporal adverbials in (90a) and (92a) are topicalized. Frey and Pittner (1998) argue that temporal adverbials are base-generated minimally c-commanding the base position of the subject. Let's assume that the subject is base-generated in vP, and so is the temporal adverbial (assuming some principle that ensures that merger of arguments precedes merger of adjuncts). The subject associate is complex; it must move for a sentence with right-adjacent *alles* to be acceptable. Next assume that movement is anti-local (e.g. Abels, 2003, 2012), at least banning movement from one specifier to another within the same projection (for example if movement is feature-driven by heads probing within their c-command domain; see Davis, 2020a,b for discussion). Then, the subject must have moved at least to TP to license adjacent *alles*, assuming the spine C-T-v-V. If the adverbial precedes the subject, it too must be in TP.³² Most plausibly it is topicalized there, or perhaps it can be base-generated in TP with an interpretation more akin to frame adverbials. Either way, if the adverbial is in TP, then there is room for the subject to be topicalized in TP as well, as illustrated in (93), making scenario (b) seems very plausible.

- (93) a. because yesterday *COMPLEX SUBJECT alles* V
b. because yesterday₁ [*COMPLEX SUBJECT*]₂ t₁ t₂ *alles* V
c. [_{CP} because [_{TP} yesterday₁ [_{TP} [*COMPLEX SUBJECT*]₂ [_{TP} [_{vP} t₁ [_{vP} t₂ *alles* [_{v'} V]]]]]]]]

I found two ways to further test this. Both involve taking away the option to topicalize the adverbial. Carrying on with the temporal adverbial first, I started from adding an object DP to the left of the temporal adverb. In English, where topicalization is more clearly marked by the position of the subject, speakers prefer the adverbial to come first when both an adverbial and a DP object are TP-topicalized:

- (94) a. ?I regret [_{CP} that [_{TP} yesterday₁ [_{TP} [the book]₂ [_{TP} I criticized t₂ t₁]]]]]
b. ??/* I regret [_{CP} that [_{TP} [the book]₂ [_{TP} yesterday₁ [_{TP} I criticized t₂ t₁]]]]]

³² This again follows only under conservative assumptions about the clause structure. It is entirely possible that the adverbial is even higher than TP. On this account, weak subject pronouns would then also have to be higher, and in the same projection to get the desired result. For instance, expressions like *weil* ('because') are not complementizers, but rather embed CPs, which would leave room for the adverbial with a "framing" interpretation to the adjoined to CP. What matters here is that (a) the position of the finite verb in verb-second clauses, elements that move to the edge of interrogative clauses, the complementizer *dass*, and expressions like *weil* occupy the same slot in the sense, for example, Wackernagel pronouns like weak subject pronouns and complementizer agreement in southern varieties occur right after to this position; (b) Wackernagel pronouns, these high adverbials, and complementizers pattern alike in that they all get deleted in sluicing (understood as TP deletion (Merchant, 2001), or even as C' deletion if syntactic operations can target intermediate projections).

The one speaker I elicited in German had a clear preference for moving the subject associate *WELCHE Lehrer* to the left edge of the middle-field.³³ The test sentences (95ab) were elicited each against the same context given in (95). Context and test sentence were read out to the speaker in pairs as a dialogue. The speaker found (95a) marginally acceptable, but found (95b) clearly better.

(95) CONTEXT: Der Peter hat heute ne 1 in Mathe gekriegt, weil ihm gestern der Chemie-Lehrer, die Physik-Lehrerin UND die Bio-Lehrerin mit seinen Hausaufgaben geholfen haben.

CONTEXT: *Peter got an A in math because the chemistry teacher, the physics teacher AND the biology teacher helped him with his homework yesterday.*

- a. ??Es haben dem Peter gestern *WELCHE Lehrer alles* mit seinen
EXPL have.3PL the.DAT Peter yesterday which.NOM.PL teachers ALL with his
HAUSAufgaben geholfen?
homework helped
'WHAT teachers all helped Peter with his homework yesterday?'
- b. Es haben *WELCHE Lehrer* dem Peter gestern *alles* mit seinen
EXPL have.3PL which.NOM.PL teachers the.DAT Peter yesterday ALL with his
HAUSAufgaben geholfen?
homework helped

Alternatively, we can try other *vP* adverbials. Certain (readings of) manner adverbials are classified by Frey and Pittner (1998) as event-related adverbial just like temporal adverbials. The event-related manner adverbials, however, differ from temporal adverbials in their ability to serve as topics or frame a scene. They are rather degraded in the pre-field position:

- (96) a. Es [_{C'} haben gestern/kurz (mal)/schnell (mal) die Lehrer dem Peter mit seinen
EXPL have.3PL yesterday/briefly once/quickly once the teachers the Peter with his
Hausaufgaben geholfen.
homework helped
'The teachers (briefly/quickly) helped Peter with homework (/yesterday).'
- b. Gestern/?*kurz (mal)/?*schnell (mal) [_{C'} haben die Lehrer dem Peter mit seinen
yesterday/briefly once/quickly once have.3PL the teachers the Peter with his
Hausaufgaben geholfen.
homework helped

³³ (i) served as a warming up, confirming that *alles* is compatible with the associate for this speaker.

- (i) a. Weisst du, welche Lehrer dem Peter gestern mit seinen Hausaufgaben geholfen haben?
'Do you know what teachers helped Peter with his homework yesterday?'
- b. Ne, ich hab keine Ahnung, welche Lehrer dem Peter gestern alles mit seinen Hausaufgaben geholfen haben.
'No, I have no idea what teachers (all) helped Peter with his homework yesterday.'

For me, the following contrast again appears when a complex subject is echoed with *alles*. For the context in (97), (98b), with the subject preceding the manner adverbial *schnell/schnell mal*, is clearly better for asking the echo question than (97a) where the subject follows the adverbial. Indeed, for me (97a) plainly does not seem to be fine way to ask this question. There is again some variation here. Another speaker found the initial contrast to be rather slim, slightly favoring (97b). Upon producing the two questions, the contrast became stronger for the speaker. However, the more questions about the paradigm I asked, the less clear the contrast became again. Clearly, this is challenging empirical territory.³⁴

(97) CONTEXT: Der Peter hat heute ne 1 in Mathe gekriegt, weil ihm **schnell (mal)** der Chemie-Lehrer, die Physik-Lehrerin UND die Bio-Lehrerin mit seinen Hausaufgaben geholfen haben.

CONTEXT: *Peter got an A in math because the chemistry teacher, the physics teacher AND the biology teacher **briefly/quickly** helped him with his homework.*

- a. ??Es haben schnell (mal) *WELCHE Lehrer* **alles** dem Peter mit seinen
EXPL have.3PL quickly once which.NOM.PL teachers ALL the.DAT Peter with his
HAUSAufgaben geholfen?
homework helped
'WHAT teachers all helped Peter with his homework yesterday?'
- b. Es haben *WELCHE Lehrer* schnell (mal) **alles** dem Peter mit seinen
EXPL have.3PL which.NOM.PL teachers quickly once ALL the.DAT Peter with his homework
HAUSAufgaben geholfen?
helped

Summarizing, both subjects and object can license *alles* in tails of “scrambling”. A subject-object asymmetry emerged, such that by-and-large subjects license *alles* more easily than objects. Probing further into the details, I suggested that the difference arises as a result of topicality given the context, and proposed the following analysis. Arguments can be topicalized in a TP-projection given that felicity conditions about the interpretation that is associated with that position are satisfied. This TP-topicalization is \bar{A} -movement and thus fits the A/\bar{A} asymmetry that I argued for in section 5.2.

³⁴ The judgments seem again clearer with multiple-*wh* questions, but I have not tested this more systematically.

- (i) a. ?Wann haben *welche Lehrer* **alles** dem Peter geholfen?
when have.3PL which.NOM teachers ALL the.DAT Peter helped
'When did what teachers help Peter?'
- b. Wann hat *{?welchen Lehrern}* der Peter *{?!/*welchen Lehrern}* **alles** geholfen?
when have.3PL which.DAT teachers the.NOM Peter which.DAT teachers ALL helped
'When did Peter help what teachers?'

- (75) a. [TP_{“topic”} XP-argument₁ [TP ... t₁ alles]]
 b. *[TP_{“topic”} [TP ... XP-argument₁ ... t₁ alles]]

This proposal has consequences for Reconstruction and movement in German more broadly. I address some of these briefly in section 5.3.4.3.

5.3.3 “Long-distance” scrambling

“Long-distance” scrambling is the descriptive term for scrambling that crosses a clause boundary. With infinitival complements, two types of embedding predicates must be distinguished: restructuring ones and non-restructuring ones. The difference is about whether phenomena that are typically clause-bound can apply across the supposed clause boundary or not—with restructuring ones they can, with non-restructuring ones they cannot. *Versuchen* (‘try’) is a restructuring predicate; *zögern* (‘hesitate’) is not. For example, the former allows clitic-climbing and movement of weak pronouns to the matrix “Wackernagel” position, while the latter does not.³⁵

- (98) a. Klar hab’ ich{=s} versucht [INF {es} anzufassen]!
 clear have.1SG I.NOM= it.ACC tried it.ACC to.touch
 ‘Of course I tried to touch it!’
 b. Klar hab’ ich{*=s} gezögert [INF {es} anzufassen]!
 clear have.1SG I.NOM= it.ACC hesitated it.ACC to.touch
 ‘Of course I hesitated to touch it!’

Similarly, scrambling is generally possible with the former, but not always with the latter.

- (99) a. als ich [meinen Ex]₁ versucht habe, [INF t₁ anzurufen]
 when I.NOM my ex tried have.1SG to.call
 ‘when I tried to call my ex’
 b. Ich hab’ [die Onkels und Tanten]₁ auch gezögert, [INF t₁ anzurufen].
 I.NOM have.1SG the.ACC uncles and aunts also hesitated to.call
 ‘I also hesitated to call my/our uncles and aunts.’

With this much established, I show in the following that, to the extent that scrambling out of the

³⁵ The distinction is an intricate topic. It is worth mentioning that it plays a role whether the infinitival is “extraposed” or not, with ‘extraposition’ in scare quotes because it is a matter of debate whether movement to the right is involved with restructuring predicates in these cases; this is often referred to as the “third construction”. For extensive discussion of these issues I refer the reader to the seminal work by Wurmbrand (2003).

infinitival complement is possible, distal *alles* can occur in the tail of long-distance scrambling. (100) are two examples where scrambling out of an infinitival complement is possible with both restructuring *versuchen* and non-restructuring *zögern*.

- (100) a. Ich hab' [den Papa, die Mama und den Julian]₁ auch schon
 I.NOM have.1SG the.ACC dad the.ACC mom and the.ACC Julian also already
 versucht, [_{INF} *t*₁ anzurufen].
 tried to.call
 'I also tried to reach dad, mom and Julian on the phone before.'
- b. Ich hab' [die Onkels und Tanten]₁ auch gezögert, [_{INF} *t*₁ anzurufen].
 I.NOM have.1SG the.ACC uncles and aunts also hesitated to.call
 'I also hesitated to call my/our uncles and aunts.'

The fact that scrambling is possible with both here plausibly indicates that these instances of scrambling are TP-topicalization of the kind discussed in the previous section. The addition of *auch/auch schon* ('also'/'already, too'). In fact, an adequate paraphrase for (100a–b) appears to be (101a–b). Prefacing (100) with *ah ja* ('oh yes/true') or (*ja*) *voll* ('(yes,) totally') would be natural connectors between what was just said and what the speaker of (100) is about to say.

- (101) a. 'Since we are on the topic of dad, mom and Julian, I've already tried to call them as well.'
- b. 'Let me switch to the topic of my/our uncles and aunts, them too I hesitated to call.'

In the tails of such scrambling, *alles* is again possible, as in the echo *wh*-questions in (102). Again the same care must be taken for the echo questions to be well-formed.

- (102) a. Du hast WEN₁ {*alles*} auch schon versucht, [_{INF} *t*₁ {*?alles*} anzurufen].
 you.NOM have.2SG who.ACC ALL also already tried ALL to.call
 'You also tried to reach WHO all on the phone before?'
- b. Du hast (dann) WEN₁ {*alles*} gezögert, [_{INF} *t*₁ {*?alles*} anzurufen].
 You.NOM have.2SG then who.ACC ALL hesitated ALL to.call
 'You hesitated to call WHO all (then)?'

Initial independent support for this scrambling targeting a high structure may be that the long-scrambled object can appear to the left of weak object pronouns, at least marginally.

- (103) ?Ich hab' [die Onkels und Tanten]₁ ihm gestern auch schon versprochen,
 I.NOM have.1SG the.ACC uncles and aunts him.DAT yesterday also already promised
 [INF *t*₁ anzurufen].
 to.call
 'The uncles and aunties I've also already promised him yesterday that I would call them.'

5.3.4 Some consequences of the TP-adjunction proposal

5.3.4.1 Is TP-topicalization clause bound?

The general question following the TP-topicalization proposal is why there appear to be so many restrictions on it. The biggest such restriction concerns the generalization that scrambling in German is clause-bound (Ross, 1967). If TP-topicalization is possible, and it is \bar{A} -movement, given that \bar{A} -movement is unbounded, how could it be clause-bound? In a way, in the previous section I showed that it is not entirely clause-bound as it can cross the clause boundary of a non-restructuring infinitival complement. However, the restrictions on crossing finite clause boundaries remain severe.

- (104) a. ?*weil [TP [WELCHE Torten]₁ der Peter meinte, [CP dass ich *t*₁ probieren soll]]?
 because which cakes the Peter reckoned that I try should
 b. *Der Peter meinte [TP [WELCHE Torten]₁, [CP dass ich *t*₁ probieren soll]]?
 the Peter reckoned which cakes that I try should
 'Which cakes did Peter say that I should try?'

Perhaps (105) is better; to my ear still more bad than good. I do not have anything interesting to add here other than pointing out that in English such examples, like (106), also have an intermediate status. How to compare the "intermediateness" across the two languages is an interesting question.

- (105) ??weil [die Onkels und Tanten]₁ der Peter gestern auch schon meinte, [CP
 because the.ACC uncles and aunts the.DAT Peter yesterday also already reckoned.3SG
 dass ich *t*₁ anzurufen soll].
 that I.NOM to.call should.1SG
 'The uncles and aunties I've also already promised him yesterday that I would call them.'

- (106) ??I regret that [TP [THIS manuscript]₁ you said [CP I should throw *t*₁ in the garbage]].

5.3.4.2 TP-topicalization and Superiority

Another consequence that should be addressed concerns superiority effects. I am not able to address this issue in detail here. However, the general question is whether TP-topicalization of a *wh*-phrase can void superiority just like A-scrambling can. Suggestive cross-linguistic evidence comes from so-called “optional *wh*-fronting” languages. These are languages where a *wh*-phrase can move all the way to the position from which it takes scope, or can stay in situ, or it can move to an intermediate Spec,C position. [Torrence and Kandybowicz \(2015\)](#) observe that in Krachi optional *wh*-fronting does not violate Superiority.

I leave this question open and note that examples like the following are worth further scrutiny. We may call them *follow-up questions*:

- (107) Und *wen* hat *wer* (#) *alles* eingeladen?
 and who.ACC has who.NOM ALL invited
 ‘And what about the question of who invited who-all?’

(107) can be naturally interpreted as a multiple-*wh* question – i.e. it is not necessarily an echo question in which one would naturally give a narrow answer for the echoed component of the question. The slight intonational break between *wer* and *alles* suggests that *alles* is stranded rather than adjacent. Intuitively, *alles* can be interpreted with the fronted *wh*-phrase *wen*. That would suggest that *alles* was \bar{A} -stranded by *wen*. If it was \bar{A} -stranded by *wen*, *wer* should count as an intervener and block the multiple-*wh* reading of the question. If instead intervention arises only for two active *wh*-phrases when one of them *wh*-moves over the other, then perhaps (107) indicates that *wen* TP-topicalized before *wh*-moving to Spec,C.

- (108) [CP *wen* [TP_{“topic”} ~~*wen*~~ [TP [_{VP} *wer* [_{VP} ~~*wen*~~ *alles* V]]]]]

If that is correct, then \bar{A} -movement other than *wh*-interrogative movement can obviate Superiority. This conclusion would mean that the results from section 5.2.2 arise only because the relevant discourse context to license the derivation in (108) is absent.

Note that this approach has broader implications than just for clause-mate *wh*-phrases. As I showed above, TP-topicalization can cross at least non-restructuring infinitival complements (non-finite CPs, by

hypothesis). In that regard, consider the contrast in (109) from Heck and Müller (2000: fn 32). Heck and Müller observe that whether an infinitival is restructuring or not (i.e. whether regular scrambling is possible across the clause boundary or not) has an impact on cross-clausal superiority. In (109b) the *wh*-phrase in the matrix clause (*wer*) intervenes for *wh*-movement of the *wh*-phrase in the embedded clause when the embedding verb is *zögern*, but not when it is *versuchen*; *zögern* is a non-restructuring verb, while *versuchen* is a restructuring verb.

- (109) a. Wer₁ hat t₁ versucht/gezögert [_β dem Fritz was₂ zu klauen] ?
 who has tried/hesitated ART Fritz.DAT what to steal
- b. Was₂ hat wer₁ versucht/?*gezögert [_β dem Fritz t₂ zu klauen] ?
 what has who tried/hesitated ART Fritz.DAT to steal

Now consider the *follow-up questions* in (110). Each one could be a follow-up to the question in (109a) with the other matrix verb. Or they could be follow-ups to (109a) with a different embedded verb (like DAT ACC *anhängen* ‘frame someone.DAT with something.ACC’). Focus in (110) will change accordingly. The contrast with (109b) is that now in (110b) superiority is obviated for the non-restructuring verb.

- (110) a. Und was₂ hat wer₁ versucht [_{INF} dem Fritz t₂ zu klauen] ?
 and what has who tried the.DAT Fritz to steal
 ‘Since we are on the topic of who tried/hesitated to steal what from Fritz/frame Fritz with what, who tried to steal what from him?’
- b. ?Und was₂ hat wer₁ gezögert [_{INF} dem Fritz t₂ zu klauen] ?
 and what has who tried/hesitated the.DAT Fritz to steal
 ‘Since we are on the topic of who hesitated/tried to steal what from Fritz/frame Fritz with what, who hesitated to steal what from him?’

This may be an effect of topicality, or givenness or antecedence in the discourse, if follow-up questions keep the set of referents roughly the same so that they are known and one keeps talking about them. This TP-topicalization idea is in tension with an alternative view for superiority obviation, namely the one based on *Discourse-linking* by Pesetsky (1987). Wiltschko (1997) argues that D-linking plays a role in superiority obviation in German, too. She argues that *wh*-phrases that are topicalized become D-linked and therefore do not count as interveners for *wh*-phrases that *wh*-move over them. The question then is whether the action of

the follow-up question is all with the moving *wh*-phrase or whether it dived up between the two *wh*-phrases, in the following way: is (110) possible because TP-topicalization both (a) allows *wen* to move into matrix clause, and (b) allow *wen* to move over *wer*, or is (110) possible because TP-topicalization (a) allows *wen* to move into the matrix clause, and (b) makes *wer* D-linked such that *wen* can move over it. This should be an interesting tension to explore in the future.

5.3.4.3 Scrambling and Reconstruction

The scrambling/TP-adjunction distinction I have argued for on the basis of *alles*-stranding has consequences for Reconstruction. Standardly, a hallmark of \bar{A} -movement is the ability to reconstruct for A-binding purposes, both for binding by the moved category and binding into it. In contrast, scrambling typically destroys the A-binding possibilities of the pre-scrambling position. If the latter is representative of A-movement more generally,³⁶ then the present proposal predicts a two-way divide for how “scrambling” and binding-reconstruction effects interact.³⁷ Parallel for the proposal for *alles* in (111), we predict that reconstruction for binding purposes is possible when the argument is in a TP-topicalization position but not when it is in any lower position.

(75) a. $[_{TP_{\text{“topical”}}} XP\text{-argument}_1 [_{TP} \dots t_1 \text{ alles }]]$

³⁶ As Howard Lasnik (p.c.) notes, it is far from obvious whether that should be true given that standard examples like the following are typically deemed as good:

- (i) [Pictures of [each other_{*i*}]] seem to [the men]_{*i*} to be ugly.

One difference that immediately comes to mind between these standard raising examples and scrambling is that raising crosses the binding domain (let’s assume it is TP), while scrambling does not. We can resolve the tension in the following way: If A-binding is computed in the course of the derivation, like famously proposed by Belletti and Rizzi (1988), we get one step closer as (i) is accounted for, but scrambling will still not be. However, if A-binding is computed cyclically, that is in the course of the derivation, and more specifically only at the end of each syntactic cycle, both results may follow. Assume that *v* is a cyclic node whether it is transitive or not. (i) would follow because at the matrix vP cycle *the men* can bind *each other*; if it does, and there must be a choice given that sentences like (ii) are ambiguous, the binding is fixed in that cycle for the rest of the derivation so that A-binding “reconstruction” is possible.

- (ii) [Which pictures of himself_{*i/j*}] did Rodrigo_{*i*} think [_{CP} that Tyler_{*j*} used in the experiment]?

With scrambling, if low scrambling always targets vP (or also VP), then there is no cycle at which the pre-movement binding configuration could be computed and fixed. A-binding possibilities are thus inevitably destroyed. This line of analysis would fit into a tradition of cyclic understanding of scope (Lasnik (1972) for negation-quantifier interactions; Sloan and Uriagereka (1988) for quantifier-quantifier interactions; Lasnik (2021) for “Q-lowering” in raising construction), and fits in with the proposal made by Quicoli (2008) for cyclic computation of binding.

³⁷ I distinguish between “binding-reconstruction” and reconstruction broadly construed as, in the parlance of the copy theory of movement, which copy of movement is interpreted at LF for any purpose. The distinction is at least a priori meaningful because it is not obvious that scope interactions, if treated as a reconstruction effect, align with binding-reconstruction.

b. *[TP_{“topic”} [TP ... XP-argument₁ ... t₁ alles]]

(111) a. [TP_{“topic”} XP-argument₁ⁱ [TP ... A-binderⁱ t₁]]

b. *[TP_{“topic”} [TP ... XP-argument₁ⁱ ... A-binderⁱ t₁]]

There is some suggestive evidence in favor of this conclusion. However, the facts are inevitably composite facts with considerations about canonical word order, maximal focus, and question-answer felicity conditions. Consider the question-answer pairs in (112)–(113). In both answers, an ACC object is A-bound by a negative quantifying DAT object to yield a bound pronoun reading. (112) is the baseline. Given that (112b) is acceptable, it means that it must be at least possible to base-generate the objects with the relation DAT > ACC. I indicate this with traces for convenience. Now, if the predictions for reconstruction in (111) are on point, then we predict that reconstruction is impossible when the ACC object is not high up in the TP domain. (113) shows that even when the (echo-)question is narrowly about the subject, the word order ACC > NOMDAT is still possible. That places the ACC argument in a backgrounded position in (113b), allowing reconstruction by hypothesis (111). Indeed, the reconstructed reading is possible.

(112) a. Was meinstest du? ‘*What were you saying?*’

b. Ich meinte, dass [sein₁ Kind]₂ die Maria [keinem Vater]₁ t₂ vorenthalten würde.
I said that his.ACC child the.NOM Maria no.DAT father deprive would
‘I was saying that Maria would not deprive a father of his child.’

(113) a. Wen meinstest du? ‘*Who were you saying?*’

b. Ich meinte, dass [sein₁ Kind]₂ die MaRIA [keinem Vater]₁ t₂ vorenthalten würde.
I said that his.ACC child the.NOM Maria no.DAT father deprive would
‘I was saying that Maria would not deprive a father of his child.’

The reason I presented (112)–(113) as question-answer pairs was to control for the position of the subject. Assume that when we narrowly answer a subject question, the subject stays in its base position in vP because it is focused. Then, the broad question in (114a) is compatible with the subject being high up in TP in the answer (114b), which will allow for the ACC argument to also be high up in TP (recall the intricacies on that matter in section 5.3.2). The reconstructed reading is natural for me. In contrast, when the question

is narrowly about the subject, as in (115a), the subject will stay low in the answer (115b) because it is focused, as in (113b). This forces the ACC argument to be represented lower in the structure, too, given that in (115b), in contrast to (113b), it follows the subject. Now I find the reconstructed reading hardly possible, if possible at all.

- (114) a. Was meinstest du? ‘*What were you saying?*’
- b. Ich meinte, dass die Maria [sein₁ Kind]₂ [keinem Vater]₁ t₂ vorenthalten würde.
 I said that the.NOM Maria his.ACC child no.DAT father deprive would
 ‘I was saying that Maria would not deprive a father of his child.’
- (115) a. Wen meinstest du? ‘*Who were you saying?*’
- b. ??Ich meinte, dass die MaRIA [sein₁ Kind]₂ [keinem Vater]₁ t₂ vorenthalten würde.
 I said that the.NOM Maria his.ACC child no.DAT father deprive would
 ‘I was saying that Maria would not deprive a father of his child.’

However, it is important to note that the contrast may also arise because of question-answer felicity considerations. The narrow answer for the subject might make the base order ACC>DAT disfavored over DAT>ACC, in general, and independent of the binding facts. We can now imagine that this effect interferes with judgments about meaning, because once something is “off”, as a person faced with the computational goal of understanding what is said, we may grab a slightly different representation.

I conclude by noting that the results for *alles* do not obviously align with the literature on binding-reconstruction. As far as I can tell, the consensus is slim. The literature focuses on reconstruction effects of Condition A with anaphor-binding, Weak Crossover (WCO) with bound pronouns, and Condition C with R-expressions. My take of the general picture from Reconstruction effects with binding is the following (cf. [Corver and van Riemsdijk, 1994b](#); [Frank et al., 1996](#); [Grewendorf and Sabel, 1999](#); [Haider, 2017](#); [Lechner, 2019](#)). Reconstruction of arguments is impossible for object scrambling to the right of the subject, let’s call it “short scrambling” as is often done. Short scrambling creates new A-binding possibilities and destroys old A-binding possibilities. Object scrambling to the left of the subject, call it “medium scrambling”, on the other hand, results in mixed behavior. It can create new A-binding possibilities, for example into the subject, but it can occasionally also reconstruct, allowing A-binding into it by a lower argument to be preserved.

This is shown in (116ab), respectively; ‘IO’ stands for indirect object, the higher internal argument, and ‘DO’ for direct object, the lower internal argument.

- (116) a. C^0 SBJ DO₁ IO t_1 SHORT SCRAMBLING
- (i) $*C^0$ SBJ [pro_i DP]_{DO} IO_i t_{DO}
- (ii) C^0 SBJ DO_i [pro_i DP]_{IO} t_{DO}
- b. C^0 DO₁ SBJ IO t_1 MEDIUM SCRAMBLING
- (i) C^0 [pro_i DP]_{DO} SBJ IO_i t_{DO}
- (ii) C^0 DO_i [pro_i DP]_{SBJ} IO t_{DO}

The full picture is much more complex. For instance, reconstruction becomes obligatory when the binder is the NOM subject; see in particular Frey (1993) and Frank et al. (1996) for discussion and two proposals. How this pattern of binding-reconstruction fits in with scope facts and parasitic gaps is yet another question (see Frey (1993) and Pafel (2005) for detailed investigations of scope in German; see Lechner 2019 for a calculus of how scope and binding reconstruct interact). An important question is whether reconstruction of medium scrambling is possible only when the binder is the subject or also when the binder is the other object. It should not be surprising that the general picture in (116) has led to various proposals concerning the A/ \bar{A} status of scrambling, which I will briefly address in section 5.3.5. An even more challenging question is how the “German” picture compares to other scrambling languages or other constructions in languages that don’t have scrambling, for instance English. See for instance Mahajan (1994) for discussion German and Hindi, and Lee and Santorini (1994) for discussion of German and Korean. Much work on English, in particular work that focuses on the argument/adjunct asymmetry of Anti-Reconstruction effects, assumes that Reconstruction is *obligatory* under \bar{A} -movement (see in particular Freidin, 1986; ?). Safir (2019: table 1) for instance summarizes the parameter “must reconstruct” as “mostly yes” for \bar{A} -movement. The assumption is far from obvious in German, however, given that regular movement to the pre-field Spec,C position exhibits all typical traits of \bar{A} -movement, but does not force binding-reconstruction unless the NOM subject is the binder. In addition, Safir (2019: 287f) notes that some work has argued that Reconstruction for Binding Theory purposes is possible also in A-movement chains, giving the following example (strike-though

added to indicate non-pronunciation; italics indicates availability of a bound-pronoun interpretation); but see Lasnik (2021); Lasnik and Funakoshi (2001) for a different position on A-movement reconstruction.

- (117) A policeman's account of *his* arrest seems to *every prisoner* [~~a policeman's account of *his* arrest~~ to be suspect].

This conclusion, too, seems to require further scrutiny to me as I do not find the bound-pronoun interpretation to be available in raising in German:

- (118) a. weil [seine_{j,?*i} Kinder]₁ (absurderweise) [keinem Vater hier]_i [_{t₁} die Besten zu sein]
because his.NOM children absurdly no.DAT father here the best to be
scheinen
seem.3PL
‘because, absurdly, his children seemed to no father here to be the best’
b. weil (absurderweise) [keinem Vater hier]_i¹ [seine_{j,i} Kinder]₁ _{t₂} [_{t₁} die Besten zu sein]
because absurdly no.DAT father here his.NOM children the best to be
scheinen
seem.3PL

I conclude this discussion by noting that it should be interesting to see in the future how *alles*-stranding facts align with binding-reconstruction effects and reconstruction effects more broadly.

5.3.5 Some consequences for theories of Scrambling

The literature on how Scrambling aligns with A- and \bar{A} -movement of languages without scrambling is dense. I discuss some basic consequences of the main conclusion of this section. In section 5.3.1 I concluded that, given that adjuncts can strand *alles* via scrambling, adjunct scrambling counts as \bar{A} -movement given the CLG. In section 5.3.2 I concluded that “scrambling” should be split into two types of movement: short scrambling and some medium scrambling are A-movement, while medium scrambling that goes all the way up to a TP-peripheral (adjunction) position is \bar{A} -movement.

- (75) a. [_{TP_{“topic”}} XP-argument₁ [_{TP} ... _{t₁} alles]]
b. *_{[TP_{“topic”}} [_{TP} ... XP-argument₁ ... _{t₁} alles]]

I argued that any argument that can move that high can in principle \bar{A} -move. I also argued that the movement

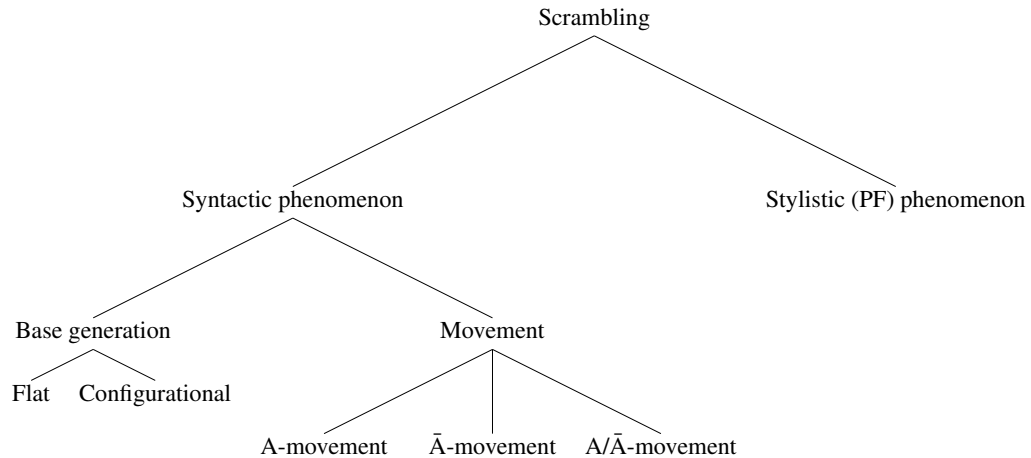


Figure 5.1: Proposals entertained for scrambling; Corver and van Riemsdijk (1994a: (14))

is conditional on felicity conditions on interpretation of discourse context and question-answer pairing. In other words, I argued that this type of \bar{A} -movement is tied to a particular (space of) interpretation(s).

I briefly address how these facts align with theories of scrambling given my read of the literature (Bošković and Takahashi, 1998; Corver and van Riemsdijk, 1994b; Fanselow, 2001; Frank et al., 1996; Grewendorf and Sabel, 1999; Lechner, 2019; Rambow, 1994; Webelhuth, 1992) (see also Haider (2017) for overview). Corver and van Riemsdijk provide a useful summarizing schematic of analyses entertained until then, see fig. 5.1.

The picture in (75) is not immediately compatible with theories where scrambling is generally \bar{A} -movement (e.g. Grewendorf and Sabel, 1999; Müller and Sternefeld, 1994). Perhaps their auxiliary assumptions, like Müller and Sternefeld’s proposal that German is generally underlyingly an ACC>DAT language, might complete the picture. That does not seem the case at first blush. The WCO facts addressed in 5.2.1, for instance, appear to remain a problem.

Similarly, (75) is not immediately compatible with proposals where scrambling can be both A-movement and \bar{A} -movement, but where scrambling can more or less freely be \bar{A} -movement within TP narrow (e.g. Mahajan, 1994; Webelhuth, 1992). In particular Webelhuth’s composite theory of scrambling, where a position is targeted that is both an A- and an \bar{A} -position, raises the question whether the \bar{A} -generalization is due to a ban A-movement, or a restricted availability for stranding under \bar{A} -movement. If it is the former, composite-chain treatments are not compatible with the \bar{A} -generalization for *alles*, while

if it is the latter, they are.

What comes closer are proposals that are based on a more fine-grained taxonomy of movement types. Frank et al. (1996); Lee and Santorini (1994) (based on a proposal by Saito (1992)) argue for a double distinction: A vs \bar{A} movement, and Op(erator) vs Var(iable) (or Non-Operator) movement. A-movement is about Case; Op-movement is to a position where operator-properties of the moving element are interpreted; Var-movement is to a position where operator properties are not interpreted. This latter type of position may thus be targeted by both A and \bar{A} -movement. The issue with such a proposal lies with the status of medium scrambling. It seems that this system also does not align with (75). Primarily because it predicts that vP internal positions can be Var positions which can be reached via \bar{A} -movement. The empirical basis of such cases is intricate, as I discussed in section 5.3.2 – in particular the question whether object-*alles* stranding is possible when the object surfaces to the right of the subject. Thus, while it may turn out that this is empirically correct, and that (75) must be abandoned in favor of the A/ \bar{A} -Op/Var system, or that both are correct, for now the proposal seems to be incompatible with (75) being the only distinction.

Finally, I turn to proposals of scrambling where there are no copies of A-movement to begin with. Bayer and Kornfilt (1994); Bošković and Takahashi (1998); Fanselow (2001); Neeleman (1994) argue that supposed landing sites of A-movement are actually base generated (with differing proposals for how to satisfy the Θ -Criterion); Rambow (1994) argues that scrambling A-movement is PF-movement. All of these proposal are compatible with the facts about *alles*-stranding in scrambling contexts.³⁸ In particular, proposals that further argue that scrambling with special interpretation is \bar{A} -movement (Bayer and Kornfilt, 1994; Neeleman, 1994) align even more closely with the picture in (75), though both authors refer primarily to focus rather than topicality. Neeleman (1994) for instance discusses examples where focus-expressions like ‘even’ or ‘also’ seem to contribute to assigning the hypothesized \bar{A} -movement representation. He focuses on the availability vs. absence of split topics: these are typically only acceptable with the moved NP in the prefield Spec,C position, but in (119) they are acceptable also with “scrambling” (adapted from Neeleman (1994: (20; 8+9))):

³⁸ Note that I limit myself to discussing the implications of *alles*-stranding in scrambling contexts, here. If my argument that raising is obligatory holds up (see again section 5.2.4), then the \bar{A} -generalization also holds up for *alles* independent of whether low scrambling is A-movement or base-generation.

- (119) a. dass [Bücher solcher Autoren]₁ [**selbst** Hans] seinem Sohn [nicht viele ₁] gibt
 that book of.such writers even Hans.NOM his.DAT son not many.ACC gives
 ‘Even Hans doesn’t give many books of such authors to his son.’
- b. dass Hans [Bücher solcher Autoren]₁ [**selbst** seinem Sohn] [nicht viele ₁] gibt
 that book of.such writers Hans.NOM even his.DAT son not many.ACC gives
- (120) a. [Bücher]₁ hat Hans nicht [viele *t*₁]
 books has Hans.NOM not many
 ‘As for books, Hans doesn’t have many.’
- b. *Hans hat [Bücher]₁ nicht [viele *t*₁]
 Hans.NOM has books not many

Such facts might not be about focus, but about topicality made clear in the context of focus. Interestingly, the subject in (120b) precedes the moved object. For the picture in (75) the question would again be whether the subject is actually itself also in a higher position. Facts like these are certainly interesting and should be tested more systematically for *alles* in the future.

I conclude by noting that base-generation accounts like the ones discussed above can account for the *scrambling* facts that make up the \bar{A} -generalization, but not necessarily all the facts. In section 5.2.4, I argued that the \bar{A} -generalization is also motivated by obligatory raising. I am unsure how these approaches would handle this datum. It seems that even if these approaches can account for some of the facts, part of the \bar{A} -generalization would remain on the table.

5.3.6 One consequence for the A/ \bar{A} distinction: Safir (2019)

Safir (2019) argues that the A/ \bar{A} distinction arises as the result of an optional operation of encapsulation in language. Objects of the syntactic computation, in particular DPs, can optionally be closed off by an additional layer of structure, for instance a PP-layer. The layer can be added at any point in the derivation. While this layer is silent and cannot be heard (or seen) in articulation, it has consequences for the continuation of the derivation so that its effects can be seen—the way in which these interact with other components of grammar gives rise to what we call the A/ \bar{A} -distinction. I mention two primary effects here for illustration. First, an encapsulated nominal will no longer be able to satisfy its needs for abstract Case (or, as Safir acknowledges, whatever gives rise to Case-Filter generalizations). That leads any derivation in which a nominal is encapsulated before it can reach a Case-licensing configuration to crash. Second, once

a nominal is encapsulated, it no longer c-commands out of this shell. The effect is that it can no longer bind (into) another XP. That derives the impossibility to A-bind after “ \bar{A} -movement” as an instance of movement after encapsulation.

There is one immediate consequence of Safir’s approach for *alles*-stranding. *Alles* can only be stranded by \bar{A} -movement. This means that any movement that strands *alles* must be preceded by encapsulation.

- (121)
- | | | |
|----|--|--------------------------------|
| a. | [_{A-pos} [_{DP} WH <i>alles</i>] ... | WH- <i>alles</i> in A-position |
| b. | [_{A-pos} [_{PP} [_{DP} WH <i>alles</i>]] ... | ENCAPSULATION |
| c. | [_{\bar{A}-pos} [_{PP} [_{DP} WH <i>alles</i>]] [_{A-pos} [_{PP} [_{DP} WH <i>alles</i>]] ... | “ \bar{A} -movement” |

However, how can *alles* be stranded once it is encapsulated? (The following discussion will look ahead somewhat at the discussion of how stranding works in section 6.4.) Sub-extraction of the associate would target a non-constituent. *Alles* does not appear in any positions that its associate cannot appear in so that there is no reason to believe that *alles* can be sub-extracted to create a remnant. Worse still, *alles* can be stranded in intermediate positions of \bar{A} -movement, so that the problem is entirely about the encapsulated representation and cannot be about the process of encapsulation, or some difference between the pre- and post-encapsulation representations.

5.4 *Alles*-stranding in other \bar{A} -movement constructions

If the CLG in (8) is correct, and *alles* is only licensed in the position of its associates \bar{A} -chain links, then, all else equal, we expect *alles* to be licensed in the tail of other \bar{A} -movement transformations than interrogative *wh*-movement. The scrambling facts of section 5.3 have shown that *alles* can be licensed by scrambling broadly construed as long as the type of movement is an \bar{A} -dependency. The following sections discuss the status of *alles* in relativization (section 5.4.1), topicalization to the “pre-field” position in Spec,CP (section 5.4.2), and parasitic gaps (section 5.4.3).

5.4.1 Relative clauses

Reis (1992a) already shows that *alles* can be licensed in relative clauses (Reis, 1992a: 471; glosses and translations added): in (122) *alles* is inside *wh*-exclamatives; in (123) it is inside restrictive relative clauses which can be interpreted as exclamatives; in (124) *alles* is in restrictive relative clauses; in (125) it is in a *wh*-conditional construction.³⁹

- (122) a. Wen der nicht alles kennt.
 who.ACC DEM.M.SG.NOM PTCL ALL knows
 ‘The people he knows!’
 b. Wo die schon alles gewesen ist.
 where DEM.F.SG.NOM already ALL been is
 ‘The places she’s been to!’
 c. Was für Leute der schon alles in Rezensionen verrissen hat.
 what for people DEM.M.NOM already ALL in reviews thrashed has
 ‘The people he’s thrashed in reviews!’
- (123) a. Die Leute, die der alles kennt.
 the people REL.PL.ACC DEM.M.NOM PTCL ALL knows
 ‘The people he knows!’
 b. Die Orte, wo/an denen der schon alles gewesen ist.
 the places where/at REL.PL.DAT DEM.M.NOM already ALL been is
 ‘The places he’s been to!’
- (124) a. ?Diejenigen Studenten, die alles den Test nicht bestehen, müssen ihn
 Those students REL.PL.NOM ALL the.ACC test not pass must.3PL 3SG.ACC
 wiederholen.
 repeat
 ‘All those (kinds of) students that have not passed the test have to take it again.’
 b. ?Such die Ingenieure raus, die alles Cahuilla sprechen.
 find.IMP the engineers out REL.PL.NOM ALL Cahuilla speak.3PL
 ‘Pick all the (kinds of) engineers that speak Cahuilla.’
- (125) ?Was für Leute/Wen auch immer du alles zum Essen mitbringst, ich bin
 what for people/who.ACC also always you.NOM ALL to.the eat bring.with.2SG I.NOM am
 gerüstet.
 armed
 ‘Whatever people you bring to eat with us, I’m equipped/ready.’

³⁹ I thank Martin Salzmann for helpful discussion of some of the issues in this section.

A number of caveats are in order. Reis argues that *alles* is compatible only with associates that are (a) operators that can occur in Spec,C, and (b) indefinite in the sense that they denote ‘open sets’, i.e. that “there is no anaphoric or deictic/situational link to an independently established antecedent set” (she bases this notion of definiteness on [Hawkins 1978, 1991](#)); see also again section 2.4. For instance, she notes that appositive relatives are definite in the relevant sense, as they “semantically function as anaphoric pronouns/[phrases]”, citing [Zimmermann \(1991: 264\)](#), and goes on to show that *alles* in appositive relatives is plainly unacceptable ([Reis, 1992a: ex 20'](#); glosses and translation added):

- (126) ??*Diese Studenten, die **alles** den Test nicht bestanden haben, ...
 these students REL.NOM.PL ALL the.ACC test not passed have.3PL
 ‘all these (kinds of) students, who have not passed the test’

Restrictive relatives will also often be unacceptable. Take for instance (127).

- (127) ??Ich habe die Studenten, die ich {**alles**} gestern {**alles**} getroffen habe,
 I have the students REL.ACC.PL I.NOM yesterday met have.1SG
 gefragt, ob sie zur Party kommen wollen; die Studenten, die ich heute getroffen
 asked if they to.the party come want.3PL the students REL.ACC.PL I today met
 habe, habe ich nicht eingeladen.
 have.1SG have I not invited
 ‘I asked all the students that I met yesterday if they wanted to come to the party, but I didn’t invite
 the students that I met today.’

Even if the second sentence comes first, making the restrictive interpretation clearer, for me, (127) remains unacceptable or at least rather odd. Given Reis’s examples above, however, I believe that the occasional (or even frequent) oddity should be attributed to the definiteness restriction. For the associate of *alles* to be an indefinite operator, the sentence must not suggest a discourse that provides an established antecedent set. The exclamative restrictive relatives like (123a) or (123b) are generally natural, and in fact, intuitively, always suggest open-ended reference.

With the caveats above in mind, it really looks like we should follow as a null hypothesis that the syntax of *alles* in relative clauses is the same as in questions, modulo independent differences between the constructions. I limit myself to discussing one property supporting this view, and one that initially appears to cast doubt, but can be understood as falling within the scope of what is expected.

In support of the null hypothesis, *alles* is available in intermediate clauses of (exclamative) restrictive relatives just as in questions, at least for speakers who accept the baselines.⁴⁰

- (128) a. (Alta!) Die Leute, die du {*alles*} gesagt hast, dass der
 old.M.SG the people REL.ACC.PL you.NOM ALL said have.2SG that DEM.M.NOM
 {*alles*} kennt!
 ALL knows
 ‘Man! All the (sorts of) people you said that he knows!’
- b. (Boa ey!) Die Sachen, die die {*alles*} dachte, dass der
 EXCL the things REL.ACC.PL DEM.F.NOM ALL thought that DEM.M.NOM
 {*?alles*} tun würde!
 ALL do would
 ‘Damn! All the (sorts of) things she said that he would do!’

The following property will initially look like a problem for the null hypothesis: While in interrogatives *alles* can occur within CP when it is right-adjacent to its *wh*-associate, in relative clauses, *alles* cannot occur in the CP domain.

Consider, for instance, (129)–(130):

- (129) a. Die Probleme, die {**alles*} du {*alles*} beseitigen musstest
 the problems REL.PL.ACC ALL you.NOM ALL get.rid must.2SG.PST
 ‘all the (sorts of) problems you had to eliminate’
- b. Die Orte, wo {**alles*} du schon {*alles*} gewesen bist
 the places where ALL you.NOM already ALL been are
 ‘all the (sorts of) places you’ve been to’
- (130) Die Probleme, die {*?/??alles*} der LUca {*alles*} beseitigen musste
 the problems REL.PL.ACC ALL the.NOM Luca ALL get.rid must.3SG.PST
 ‘All the (sorts of) problems that LUca had to eliminate’

Alles cannot occur right-adjacent to the relative pronoun. When the subject of the relative clause is a weak pronoun, such as *du* ‘you.NOM’ in (129), the sentence is unparseable; with a non-pronominal subject, *alles* improves for one speaker, though they still strongly prefer it to follow the subject, and it becomes available in the same position for me, though I still do not find it perfect, either. I believe that there are two issues at stake here: a prosodic factor, and a structural one. *Alles* to the left of subjects requires a particular prosody,

⁴⁰ Note that by and large, long-distance relativization like in (128) is very marginal in German. The baselines for (128), however, are acceptable for at least some speakers, including me. The fact for *alles* is naturally relative to the well-formedness of the baseline. In fact, it seems that the presence of *alles* even improves the sentences relative to the baseline without it.

namely one where the *v*P contains focus, most preferably on the subject. However, exclamatives carry their own particular prosody which, it seems, is not easily changed. Consider the following exclamative with a contrasted subject. The sentence is odd – in English, too, it seems – in particular when compared to a relative clause that is not itself an exclamative, but is merely contained in one:

- (131) a. *??? Die Leute, die der LUca zur Party eingeladen hat!*
 the people REL the.NOM Luca to.the party invited has
- b. *Schau dir mal die Leute an, die der LUca zur Party gebracht hat!*
 look you once the people at REL the.NOM Luca to.the party brought has
 ‘Look at the people that LUca brought to the party!’
- c. *??? The people that LUca invited to the party!*
- d. *Look at all the people that LUca brought to the party!*

The main prosodic difference between (131a) and (131b) is that in (131a) the relative pronoun is prosodically integrated into the head noun, like a clitic, while in (131b) it isn’t. In fact, for me, reading (131a) and (130) with a slight break between the head noun (*Leute*) and the relative pronoun (*die*) allows the right kind of prosody to give pitch accent to the subject. That in turn makes (130) acceptable for me with *alles* to the left of the subject.⁴¹

The structural factor distinguishing (129) and (130) is the following. In German, nothing can intervene between a weak subject pronoun and the finite verb in verb second position. By standard assumptions, the finite verb is in C when it is in verb second position. Thus, if (130) shows that *alles* can in principle occur to the left of subjects in relative clauses, then (129) shows that *alles* cannot occur inside CP in a relative clause. The rationale is as follows. *Alles* could not have been stranded to the left of the weak subject pronoun in (129), because nothing can structurally occur there. The only alternative for *alles* to surface in

⁴¹This is a rather painstaking way of establishing a seemingly small fact. However, this may be the best route to follow. Non-exclamatives may have a less restrictive prosody, but they are not as good with *alles* given that *alles* needs to associate with an open set. The easiest way for a relative clause to modify an open set is for the mother nominal to denote kinds rather than individuals (sorts of people rather than specific people). Non-exclamatives that have exactly the right properties are hard to construct. From initial consultations it seems that the following types of sentences are the best in retrospect, but I will not be able to re-run all the tests here. The contrast stands.

- (i) a. Von den Leuten [CP die {**alles*} der Luca {*alles*} aufgelistet hat] habe ich dann nur X, Y, Z eingeladen.
 of the people REL the.NOM Luca listed has have.1SG I then only X Y Z invited
 ‘Of all the people Luca listed, I ended up inviting only X, Y, Z.’
- b. Von den Leuten [CP die {**alles*} er {*alles*} aufgelistet hat] habe ich dann nur X, Y, Z eingeladen.
 of the people REL he.NOM listed has have.1SG I then only X Y Z invited
 ‘Of all the people Luca listed, I ended up inviting only X, Y, Z.’

that position is to be in a constituent with something in CP. That, however, is what is not acceptable, so that *alles* must be taken to not be able to occur within CP in relative clauses.

Conversely, *alles* cannot occur between the head noun of the relative clause and the relative pronoun. Consider (132), where *alles* cannot occur between the head noun (*Leute*; *Orte*), and the relative pronoun (*die*; *wo*).

- (132) a. Die Leute, {**alles*} die du {*alles*} kennst
the people ALL REL.PL.ACC you.NOM ALL know.2SG
‘all the (sorts of) people you know’
- b. Die Orte, {**alles*} wo du schon {*alles*} gewesen bist
the places ALL where you.NOM already ALL been are
‘all the (sorts of) places you’ve been to’

The restriction could be explained if the relative pronouns are operator phrases in Spec,C. Then, there would be nothing for *alles* to associate with in that spot between the head noun and the relative pronouns. However, if the relative pronouns are operator phrases, then why can *alles* not occur right-adjacent to them given that it can with *wh*-phrases such as *was* ‘what’ or *wen* ‘who’ in *wh*-questions? In other words, if *d-* and *wo* are operator phrases in Spec,C, it becomes a puzzle why the following structure cannot be assigned just in relative clauses:

- (133) ... [CP [OPP *alles*] [C' C ...]]

If, on the other hand, we assume that the relative pronouns are C-heads, and that *alles* can only associate with phrases, it would follow immediately why *alles* cannot be right-adjacent to *d-* or *wo*. The badness of (132) would have to follow from whatever prevents *alles* from occurring in Spec,C of intermediate clauses of long *wh*-movement. See again (134) from section (34).

- (134) [CP *Wem*₁ hat der Andreas {*alles*} gedacht, [CP {**alles*} [C' dass die
who.DAT have.3SG the.NOM Andreas ALL thought ALL that the.NOM
Georgine noch *t*₁ einen Schnapps einschenken würde]] ?
Georgine yet a.ACC schnapps pour would.3SG
‘Who-all did Andreas think that Georgine would pour another schnapps?’

There is an obvious challenge for this proposal, however. Note that in (135) *gegen die* ‘against

which’ and *an denen* ‘at which’ are clearly PPs; the relative pronouns inside the PPs ought to be phrasal.

Alles can nonetheless not be right-adjacent to the relative pronoun.

- (135) a. Die Leute, gegen die {**alles*} du {*alles*} vorurteile hast
the people against REL.PL.ACC ALL you.NOM ALL prejudices have.2SG
‘all the (sorts of) people against which you have prejudices’
- b. Die Orte, an denen {**alles*} du schon {*alles*} gewesen bist
the places at REL.PL.DAT ALL you.NOM already been are
‘all the (sorts of) places you’ve been to’

We can resolve the tension with the following assumptions: first, we hold on to the conclusion that *wo* is a C-head.⁴² Second, we postulate that *d-* (including *denen* in *an denen*) is the head of a complex phrase. The unavailability of *alles* would then parallel its unavailability with *welch-* ‘which’ in *wh*-questions (136a) and in relative clauses (136b). (See section 6.5.4 for details on this *complexity restriction*. In short, for most speakers *alles* cannot form a surface constituent with complex associates such as *welch-* NP, crucially not even when the head noun is elided.)^{43,44}

- (136) a. Welche Leute {**alles*} hast du {*alles*} eingeladen?
which people ALL have.2SG you.NOM ALL invited

⁴²For support for this assumption, see Brandner and Bräuning (2013), who argue on historical grounds that *wo* is a complementizer of the *wh*-series (*w*-pronouns) corresponding to the equative *so* of the non-*wh*-series (*d*-pronominals).

⁴³Note that if *d-* heads a phrase with an NP complement that is obligatorily elided under identity with the relative’s head noun NP, identity must either exclude Case, or be understood as a non-distinctness requirement (Chomsky, 1965; Ranero, 2019, 2021, to appear) where NOM, ACC and DAT are non-distinct with respect to each other. The former option can be implemented by assuming that (a) identity is computed over the size of the head-nominal which is modified by the relative clause, (b) NP/nP is modified by relative clauses, and (c) Case exponents D or some other higher nominal projection. Assumption (a) would also capture why the P-layer is never deleted under identity (cf. English *You spoke to the person that I spoke *(to)*).

- (i) a. die [NP [NP Leute], [CP [DP *die/denen*] [NP ~~Leute/Leuten~~]] [C’ OP ...]]]
b. die [NP [NP Orte], [CP [PP *an*] [DP *denen*] [NP ~~Orten~~]] [C’ OP ...]]]
a’. die [NP [NP Leute], [CP [DP *welche(n)*] [NP ~~Leute(n)~~]] [C’ OP ...]]]
b’. die [NP [NP Orte], [CP [PP *an*] [DP *welchen*] [NP ~~Orten~~]] [C’ OP ...]]]

Additionally, note that if the relative pronoun *wo* were ambiguous between a general relativizing C-head and a locative *wh*-phrase, we would expect *alles* to be available with *wo* whenever locations are the head of the relative clause. That is not what we find in (132). It must instead be the case that, while other *wh*-phrases can participate in relativization (e.g., *wie* ‘how’, *warum* ‘why’), *wo* is always just a C-head in that context. There are two pieces of initial evidence suggesting this is on the right track. First, one speaker who does not have *wo* in relativization of things or people (e.g. *die Leute, wo ich getroffen habe* ‘the people I met’) almost categorically prefers *P+d-* to relativize locations. Second, I am a speaker who accepts *wo* with people and things. I also accept *wie* ‘how’ and *warum/welhalb* ‘why/what-for’ in relativization. However, I do not accept *wann* ‘when’ for times (e.g., *am Tag/im Jahr, wann wir uns kennengelernt haben* ‘on the day/in the year we met each other’). I can only use *wo*, or *als* ‘when’, which is also used in equatives, similar to English *than*, and is also presumably a C-head, but of the *d*-series.

⁴⁴ I argue in section 6.5.4 that the restriction is due to some syntax-prosody mapping that has to do with there being a lexical head noun inside the associate which projects. Its presence affects the prosodic packaging. In order to be able to extend this account to the relative pronouns here, it must be the case that prosodic packaging and elision apply separately, and that the former precedes the latter.

Alternatively, adjacent *alles* might not be supported by relative pronouns because of lack of prosodic prominence. Relative pronouns can hardly be stressed so that even if *alles* can get integrated with the prosodic unit to its left, it would help because there is nothing that will be able to support it.

‘What people did you invite?’

- b. Die Leute, welche {***alles**} du {**alles**} kennst
 the people REL.PL.ACC ALL you.NOM ALL know.2SG
 ‘all the (sorts of) people you know’

Summarizing, I conclude that there is no reason to believe that the syntax of *alles* is any different in relative clauses than in *wh*-question. I thus conclude that the restrictions on adjacent *alles* with relative pronouns and *wo* give us no reason to reject that (137a) is at least *syntactically* possible, or to assume something like (137b) where *alles* combines with an operator of the right kind, but where the operator is a C-head.

- (137) a. [NP NP [CP [DP [DP *den/welche NP*] **alles**]₁ [C' [C₀ \emptyset] ... *t*₁ ...]]] PF: *
 b. *[NP NP [CP [DP \emptyset]₁ [C' [C₀ [C₀ *wo*] **alles**] ... *t*₁ ...]]]

5.4.2 Topicalization/“Pre-field filling”

Another movement operation that is not strictly interrogative *wh*-movement, but generally accepted to be \bar{A} -movement in German is “pre-field filling” (traditionally *Vorfeldbesetzung*), i.e. movement to Spec,C of verb-second clauses. I will, as is often done, call this transformation topicalization, but note that, in fact, pre-field filling is compatible with a number of interpretations; I will abstract away from this dimension in this section given that the focus remains on the A/ \bar{A} asymmetry, here.

To test whether *alles* can appear in the tail of topicalized associates, the associate must be an expression of the right kind to begin with—indefinite operator phrases as discussed in the previous section. Echo *wh*-questions (EwQs) provide the right starting point. As discussed in section 5.3.1, echo *wh*-phrases can associate with *alles*. In addition, Reis (2017) shows that echo *wh*-phrases cannot occur in specifically *wh*-interrogative positions. The following examples illustrates.

- (138) a. Du weißt, wo ich meine Artischocken kaufe.
 you know.2SG where I my artichokes buy
 ‘You know where I buy my artichokes.’
 b. *Du weißt, WO ich meine Artischocken kaufe?!
 you know.2SG where I my artichokes buy

(138ab) show that the *wh*-phrase that moves to Spec,C of embedded interrogatives cannot be questioned by an echo *wh*-question. This is an old fact which has been known to apply to English as well.

Given that echo *wh*-phrases cannot occur in interrogative Spec,Cs, a plausible conclusion is that Spec,CP in sentences like the following is actually filled by topicalization. Specifically, just like echo *wh*-phrases can scramble, here an echo *wh*-phrase is topicalized.

- (139) WEM₁ soll ich *t*₁ die Lösung schicken?!
 who.DAT should I the.ACC solution send
 ‘WHO should I send the solution?!’

Alles can indeed be stranded in this paradigm; consider (140).

- (140) a. WEM₁ soll ich *t*₁ **alles** die Lösung schicken?!
 who.DAT should I ALL the.ACC solution send
 ‘WHO all should I send the solution?!’
 b. [WEM seinen Freunden]₁ soll ich *t*₁ **alles** die Lösung schicken?!
 who.DAT his.DAT.PL friends should I ALL the.ACC solution send
 ‘The friends of WHO all should I send the solution?!’

Similarly, the following sentence where the echoed *wh*-phrase is in Spec,C of an embedded verb-second clause is also acceptable. This sentence is a little more marked for some speakers.

- (141) ?Du glaubst, [WEM seine Freunde]₁ stehen *t*₁ **alles** vor der Tür?!
 you believe who.DAT his.NOM.PL friends stand.3PL ALL before the door
 ‘You believe that the friends of WHO all are standing in front of the door?!’

It thus seems that *alles* can occur in the tail of topicalization, adding another construction to the picture that *alles* is stranded in \bar{A} -chains.

The last example is particularly important. For English, [Sobin \(1990, 2010\)](#) argued that two different types of echo *wh*-questions exist: *syntactic* EwQs, which have their own special syntax, and *pseudo* EwQs, which instead have only special echo-prosody but are otherwise syntactically regular *wh*-interrogatives. A key difference between the two EwQ-types in English is that pseudo EwQs undergo *wh*-movement to Spec,C along with subject-auxiliary inversion, (142c), while syntactic EwQs stay in situ, (142b). (‘U:’

stands for ‘antecedent utterance’; ‘E:’ for ‘echo’.)

- (142) a. U: Mary had tea with Cleopatra.
 b. E: Mary had tea with who?
 c. E: Who did Mary have tea with? (Sobin, 2010: ex 2)

Given that pseudo EwQs exist in English, why shouldn’t they also exist in German? This raises a potential problem. Pseudo and syntactic EwQs are very similar on the surface in German because movement to Spec,C is always possible in verb-second clauses, interrogative or declarative. Crucially, Spec,C of *embedded* verb-second clauses is strictly non-interrogative in German. Many verbs that allow embedded verb-second clauses don’t embed interrogatives, like *glauben* ‘believe’ in (143a). Even verbs that do, like *wissen* ‘know’, disallow embedded verb-second interrogatives, as in (143b)–(144).

- (143) a. Du glaubst, er/*wer steht vor der Tür.
 you believe he/who.NOM stands before the door
 b. Du weißt, er/*wer steht vor der Tür.
 you know he/who.NOM stands before the door
 ‘You know he/*who is standing behind/in front of the door.’
- (144) a. Weißt du, wer vor der Tür steht?
 know you who.NOM before the door stands
 ‘Do you know who is standing behind/in front of the door?’
 b. *Weißt du, wer steht vor der Tür?
 know you who.NOM stands before the door

The fact that the echo-*wh*-phrase in (141) is in Spec,C of an embedded verb-second clause thus means that the movement to Spec,C is not interrogative *wh*-movement. Instead, it must be topicalization, non-interrogative pre-field filling.⁴⁵ In conclusion, we can add another \bar{A} movement dependency to the list of

⁴⁵ Another way in which the two types of EwQs come apart is by the possibility of having “partially *wh*-marked” *wh*-phrases (see Sobin, 2010: 133f). Syntactic EwQs can have *wh*-phrases like *the WHAT/a WHAT/which WHAT*, but regular *wh*-interrogatives cannot (crucially including pseudo EwQs) (Sobin, 2010: 134):

- (i) a. *The what did Mary see? (non-EQ)
 b. *Who saw the what? (non-EQ)
- (ii) a. U: Who saw the flying saucer?
 b. E: Who saw the what?

This difference, however, cannot be used to block pseudo-EwQ syntax for the purposes of testing whether topicalization can strand

dependencies licensing *alles* in their chain links.

5.4.3 Parasitic gaps

Whether “German” has parasitic gaps (PGs) or not is a matter of ongoing debate. I will not review the facts or the literature here. While the meanings are accessible, and the sentences not terrible, myself and the speakers that I initially consulted, do not find PGs such as (145) equally good, or even better than the versions with an overt pronoun in (146). I leave the sentences unjudged. This is the opposite of what is typically found for English, where it is occasionally claimed that if a speaker has a preference between a gap and a pronoun, the preference is for the gap over the pronoun. This is important given that sentences like (146) could simply be instances of A-bound pronouns given that intermediate scrambling would make that possible in German.

- (145) a. Der hat [die Leute]₁ [ADV ohne *pg*₁ zu verabschieden] nach Hause geschickt.
 he.NOM has the.ACC people without to say.goodbye.to to home sent
 ‘He sent the people home without saying goodbye to them.’

alles, because *alles* appears to be incompatible with partially *wh*-marked associates:

- (iii) a. [Dem WEM]₁ soll ich *t*₁ (**alles*) die Lösung schicken?!
 the.DAT who.DAT should.1SG I ALL the.ACC solution send
 b. [Drei WAS]₁ hast du *t*₁ (**alles*) gegessen?!
 three.ACC what have.2SG you ALL eaten

Two solutions come to mind. For one, the incompatibility is plausibly due to the selection restrictions by *alles*. Recall that, as Reis (1992a) argued, *alles* selects *indefinite* operators, whose reference set is not pre-established in discourse (see section 5.4.1 for some discussion). It seems that having an overt determiner tampers with this condition. In that case, it must be that *drei* ‘three’ in (iiib) is not indefinite in the relevant sense, for whatever reason. It might also be possible that *some* determiner *can* indeed be found that would then allow *alles*.

On the other hand, and perhaps more plausibly, there may be a formal issue. *Alles* is associating with an XP that is properly contained by the moved constituent. For *alles* to be stranded, it must associate with the larger DP. The larger DP, however, cannot carry *wh*-features. We know this independently because partially *wh*-marked DPs cannot participate in regular interrogative *wh*-movement. The same extends to structures like (iv). ((ivb) doesn’t *sound* terrible, but I notice production issues with the sentence when people repeat it, making case errors or producing adjacent *alles* instead of distal *alles*—for me another hallmark of there being no well-formed representation for the string-meaning pair under consideration.)

- (iv) a. [Freunde von WEM {*alles*}] hast du {?**alles*} eingeladen?
 friends.ACC of who.DAT ALL have.2SG you.NOM ALL invited
 ‘Friends of WHO all did you invite?’
 b. [Freunden von WEM {*alles*}] hast du {??*alles*} geholfen?
 friends.DAT of who.DAT ALL have.2SG you.NOM ALL helped
 ‘Friends of WHO all did you help?’

This state of affairs raises interesting questions about pied-piping: why can the mother constituent not behave like a *wh*-phrase when PPs in German can. I return to these issues in more depth in sections 6.5.2 and 6.5.3

More interestingly for the present purpose, the unacceptability of these facts plausibly rules out a *floating analysis* of *alles*. In a floating analysis, of the likes by Dougherty (1970); Kayne (1975), *alles* would associate with the *wh*-pronoun inside the mother constituent, and then float to the top node. From the top node, *alles* would be stranded by movement of the remnant constituent. I see no way to rule out (iv) or (iii) on such an analysis.

- b. [Welches Haus]₁ hast du [ADV ohne pg₁ (sorgfältig) zu prüfen] gekauft?
 which.ACC house have.2SG you.NOM without carefully to inspect bought
 ‘Which house did you buy without (carefully) inspecting (it)?’
- (146) a. Der hat [die Leute]₁ [ADV ohne sie₁ zu verabschieden] nach Hause
 he.NOM has the.ACC people without them.ACC to say.goodbye.to to home
 geschickt.
 sent
 ‘He sent the people home without saying goodbye to them.’
- b. [Welches Haus]₁ hast du [ADV ohne es₁ (sorgfältig) zu prüfen] gekauft?
 which.ACC house have.2SG you.NOM without it.ACC carefully to inspect bought
 ‘Which house did you buy without (carefully) inspecting (it)?’

I thus simply remark here that for speakers who indeed prefer PG examples such as (145) over (presumably) pronominal A-binding examples such as (146), *alles* can become an interesting tool of investigation. For instance, the question arises whether PGs and ATB-questions have the same distribution of *alles* as would be expected by an analogous analysis, such as a sideward movement analysis (Nunes, 2004).

I leave (147a) unjudged. For (147b) I received all possible patterns of preference. My own judgments vary on a daily basis. With a ‘who’ question (147c), and *alles* above the adverbial, I can also get a plural pronoun. The occasional availability of *alles* below the adverbial may be interesting if stable. If distal *alles* requires to be in the tail of a local \bar{A} -movement step, then the pronoun or PG in the adverbial cannot be an A-bound pronoun, indeed suggesting a PG-derivation. Unfortunately, the variation among the few speakers I consulted, coupled with the fact that my own judgments vary very much on a daily basis, left me in the dark of what conclusions to draw. I hope that this may become a fruitful area of investigation in the future with solid baselines and controlled experimentation.

- (147) a. Was hast du {alles} [ADV ohne pg {alles} zu prüfen] {alles} gekauft?
 what have you without to inspect bought
 ‘What-all did you buy without inspecting?’
- b. Was hast du {alles} [ADV ohne es {alles} zu prüfen] {alles} gekauft?
 what have you without it to inspect bought
 ‘What-all did you buy without inspecting it?’
- c. Wen hast du {alles} [ADV ohne ihn/sie/pg {alles} zu kennen] {alles} eingestellt?
 what have you without him/them/pg to know hired
 ‘Who-all did you hire without knowing pg/him/them?’

5.4.4 *Tough*-movement and comparatives

Tough-movement constructions (cf. Chomsky, 1977) like (148) seem to support *alles* in the matrix clause, but not in the infinitival. Speakers don't reject them out-right, but are generally very displeased with them.

- (148) a. *Was* ist {**alles**} schwer [INF {***alles**} zu beschreiben]?
 what.NOM is ALL difficult ALL to describe
 'What-all is difficult to describe?'
 b. (Und) *was* ist {**alles**} leicht [INF {***alles**} einem Dreijährigen {**?*alles**} zu erklären]?
 and what is ALL light ALL a.DAT three.year.old ALL to explain
 '(And) what-all is easy to explain to a three-year-old?'

Perhaps this is due to the fact that *tough*-movement might involve both A- and \bar{A} -movement, but it is not clear how that would explain the fact. I will not go into analyses of *tough*-movement. Note that postulating that there is an obligatory step of A-movement by the associate inside the infinitival will not be an explanation. Inflecting *all-* does not seem to be available there either.

- (149) *Die* sind {**all-e**} schwer [INF {***all-e**} zu beschreiben].
 what.NOM is all-NOM.PL difficult all-NOM.PL to describe
 'Those are all difficult to describe.'

That is unusual. For many of the constructions where *alles* is not possible, an appropriate DP associate will license inflecting *all-* in the same position. This is certainly true for relative clauses (cf. Reis, 1992a) (cf. section 5.4.1), WCO-like configurations (cf. (150a) vs. section 5.2.1),⁴⁶ raising (cf. 5.2.4), and presumably also Restitutive Blocking (cf. (150b) vs. section 3.3).

- (150) a. *Die*₁ haben [ihre₁ Kinder] **all-e** ins Altersheim gesteckt.
 those.ACC have.3PL their.NOM children all-ACC.PL in.the hospice stuck.in
 'As for them, their children put them all into the hospice.'
 b. *weil* sie *die* *Türen* *wieder* **all-e** geschlossen hat
 because she.NOM the.ACC doors again all-ACC.PL closed has
 'because the doors, she closed them all again (Repetitive: OK; Restitutive: ?OK)'

⁴⁶ Though of course (150a) is not *per se* a WCO configuration given that the binding expression is not quantificational—that would not be possible with *all-*.

Perhaps, the embedded predicate and the matrix predicate form a complex predicate in some sense, for example through a process of reanalysis as proposed by Chomsky (1981). In fact, I find (149) with no arguments in the infinitival the best, examples with an argument that is almost idiomatic like in (150) acceptable, but examples with arbitrarily large argument like (151a) pretty much impossible:

- (151) a. ??*was* ist (**alles**) schwer [_{INF} [jemand(em), der farbenblind ist,] zu
 what is ALL difficult someone.DAT REL.NOM colorblind is to
 erklären/verbildlichen]?
 explain/illustrate
 ‘What-all is hard to explain/illustrate to someone who is colorblind?’
- b. *was* hast du (**alles**) versucht [_{INF} jemand(em), der farbenblind ist, zu
 what have.2SG you.NOM ALL tried someone.DAT REL.NOM colorblind is to
 erklären/verbildlichen]?
 explain/illustrate
 ‘What-all did you try to explain/illustrate to someone who is colorblind?’

If complex-predicate formation is a process that is limited to certain sizes of structure, for instance it can only create a minimal complex of predication (see again section 4.3.1) such that only minimal VPs can form the infinitival complement; this kind of minimal VP shell maximally contains a prototypical or idiomatically interpreted object, negation, and/or process-related adverbials.

To conclude this very explorational section, I now turn to comparatives. Comparative constructions (cf. Chomsky, 1977) like (152) can be better than *though*-constructions but are typically also rather marginal. (152a) was suggested to me by Martin Salzmann (p.c.), my judgment.

- (152) a. Es kamen mehr *Leute* zur Party [_{CP} als er (??**alles**) bewirten konnte].
 it came more people to.the party than he ALL cater.for could
 ‘More people came to the party than he could cater for.’
- b. Ich hab’ genau so viele *Torten* gegessen, [_{COMP} wie die Maria (***alles**)].
 I have exactly so many cakes eaten as the Maria ALL
 ‘I ate as exactly as many cakes as Maria did.’

5.5 Summary and conclusion

In this chapter, I revised the SSG in (152) in favor of the more restrictive generalization in (153):

(153) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

The revision was necessary because I showed that *alles* can only occur in positions from which its associate has \bar{A} -moved, stating the following generalization:

(154) *\bar{A} -generalization (ABG):*

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

In other words, I argued that *alles* cannot be stranded by A-movement. The arguments are based on derivations in which A-movement is necessary. Where that is the case, *alles* cannot occur in the tail of such A-movement. The configurations are: scrambling to an A-binding position in (anti-)Weak Crossover configurations, scrambling to obviate Superiority, movement to license abstract accusative Case, and subject-to-subject raising. I further showed that *alles* is indeed licensed by \bar{A} -movement rather than just, say, “*wh*-interrogative” movement. *Alles* can be stranded by CP-topicalization, and relativization, though it might not be licensed in parasitic gaps and comparatives, and is not licensed inside the infinitival of *tough*-movement. The chapter finally examined scrambling in closer detail and showed that *alles* is licensed by adjunct-scrambling but not freely by argument scrambling. I concluded that scrambling is not a unitary phenomenon in German, and that it should be understood as two separate types of movement for arguments: low movement to *vP* and perhaps *TP* which is always A-movement, and movement to a *TP*-peripheral position which is associated with topicality in some sense, and is always \bar{A} -movement.

- (75) a. $[_{TP_{\text{“topical”}}} XP\text{-argument}_1 [_{TP} \dots t_1 \text{ alles }]]$
b. $*[_{TP_{\text{“topical”}}} [_{TP} \dots XP\text{-argument}_1 \dots t_1 \text{ alles }]]$

This conclusion has consequences for theories of scrambling, Reconstruction, the A/ \bar{A} -distinction, clause-boundedness in German, and potential implications for Superiority. I addressed these issue in this chapter.

In the following chapter, I summarize the main empirical generalizations concerning invariant *alles*

and discuss how these generalizations argue for a **stranding analysis** of distal *alles*. The conclusion raises a number of questions in turn. I begin to address three major questions in the following chapter:

- (i) what **licenses** *alles*, i.e. what property of the associate does *alles* depend on?
- (ii) what is *stranding*, i.e. what are the mechanics of the separation procedure?
- (iii) what is the relation between *alles* and “complex” associates, and why does it appear that *alles* cannot occur right-adjacent to them?

Chapter 6: Dependency between *alles* and associate

6.1 Overview

This chapter serves two purposes. In section 6.2 I take stock of the empirical generalization that I have argued for so far, and summarize how these generalizations are explained by a movement analysis, and in particular by a stranding analysis of distal *alles*. The rest of the chapter addresses three core areas where many questions remain open, and I begin to answer them. The hope is that this second part of the chapter both encourages and facilitates future research into invariant *alles*, *wh*-quantifiers, *wh*-particles, *wh*-operators, quantifier float, “stranding”, pied-piping, and more. The three areas are:

1. What is the structure of the ‘source’ containing *alles* and the associate? (section 6.3)
 - (a) What is a licit associate?
 - (b) What is the category of *alles*?
 - (c) What is the structural configuration between *alles* and the associate?
2. What is “stranding”? What are the mechanics of the separation procedure? (section 6.4)
3. “Complex” associates don’t appear to always license *alles* in the same way. Is the syntax the same?
What can we learn from complex associates? (section 6.5)

6.2 Taking stock: empirical generalizations and conclusions

So far I have argued that the best empirical characterization of *alles*, adjacent and distal combined, is the one in (1).

(1) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position. (Metaphorically, *alles* “lives on” its associate’s \bar{A} -chain.)

I have argued for the CLG based on the following conclusions:

(2) *Properties making up the CLG:*

a. Distal *alles* and adjacent *alles* have the same lexical content:

They make the same meaning contribution, obey the same meaning restrictions, have broadly the same range of licit associates and co-occurring expressions; they cannot co-occur with each other.

b. Dependence:

Any one instance of *alles* depends on a specific associate.

c. Multiple *alles*:

The maximum number of *alles*’s per sentence is determined by the number of licit associates in that sentence.

d. Locality:

The domain in which *alles* and a chain link of its associate must co-occur at some point in the derivation is smaller than (a) the clause, (b) the phase, (c) plausibly even the phrase. As close as sisterhood or minimal c-command.

e. Distal *alles* and adjacent *alles* have the same category:

Distal *alles* does not distribute like clausal categories (adverbials or modal particles) and rather distributes like the associate that it has in a given derivation.

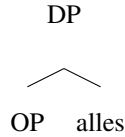
f. \bar{A} -generalization (ABG):

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

I have argued that the simplest way to derive the CLG is by postulating that distal *alles* and its

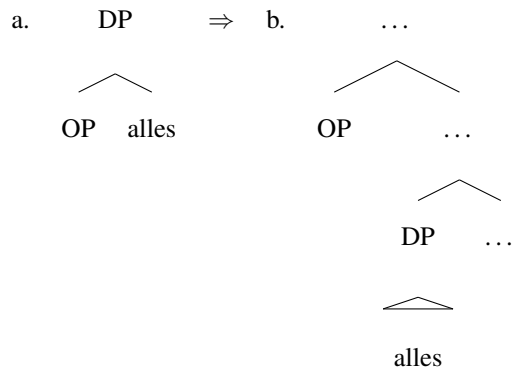
associate form a First-Merge constituent. Idealizing, we start from (3).

(3) *The only way to introduce alles into the derivation:*



(3) entails that sentences with distal *alles* are transformationally derived and involve a step of movement from the position in which distal *alles* is pronounced. This conclusion leans in important ways on the conclusions of Pafel (1991), who calls *alles* a “fragment” of the *wh*-phrase, and Reis (1992a), who notes that *alles* is either right-adjacent to the *wh*-phrase or to its trace; the result is also compatible with the discussion by Reich (1997), and the semantics for *alles* proposed by Zimmermann (2007); the conclusion is also broadly compatible with the D-structure assumed by Pafel (1996b).

(4) *Distal alles is derived from (3):*



While the process of (4) raises new questions and must be made more precise, the starting configuration in (3) carries a lot of explanatory power. I review what follows from it, what is compatible with it in the following.

(3) explains the **selective properties** of distal *alles* because it is in a configuration in which selection can naturally apply: sisterhood. (3) explains the fact that the **distribution** of distal *alles* is not like any known clausal category because distal *alles* always combines with its associate. (3) explains the extreme **locality** between distal *alles* and its associate’s chain links because they are sisters. The \bar{A} -generalization

(ABG) does not follow immediately from (3), but there are at least two natural approaches that can be followed, [McCloskey \(2000\)](#) and [Fitzpatrick \(2006\)](#); more on this in section 6.4. (3) explains why distal *alles* applies to a specific *wh*-phrase in the sentence instead of composing with the question denotation as a whole if the semantics is determined at the constituency level. Similarly, (3) allows a natural understanding of why the number of *alles*'s per sentence is determined by the number of licit associates because the associate constituent is the only way for *alles* to enter a derivation. Finally, the process in (4) explains the close **parallels** between adjacent and distal *alles*.

In what follows, I consider in closer detail what the structure of (3), and what the nature of the process in (4) may be. The two questions are very much interlinked: the precise nature of the ‘separation procedure’ depends on the details of the ‘source’, and vice-versa. I thus answer them going back and forth between the two issues and turning the screw a little on both as we go along.

6.3 What is the source?

The big questions concerning the source and the details of the separation procedure arise in the context of complex associates such as the ones in (5).

- (5)
- a. *mit wem* ‘with who’
 - b. *welche Torten* ‘what cakes’
 - c. *wem seine Freunde/wessen Freunde* ‘whose friends’

In the context of the analysis we are developing, they raise questions about where inside these complex structure *alles* can or has to be introduced, and why it appears not to be able to occur constituent-finally with some of them (sections 2.3 and 6.5.4). I thus start from simplex pronominal associates. It is worth building the model incrementally given that this interplay of issues has not been addressed in detail in prior literature on \bar{A} -Quantifier Float (\bar{A} -QF) – i.e. [Fitzpatrick \(2006\)](#); [McCloskey \(2000, 2020\)](#) and the literature on *alles*.

6.3.1 Structural configurations for selection

The fact that *alles* selects certain operator phrases is the first piece in the analysis. First, the selection can go in one of two directions: the operator phrase selects for *alles*, or *alles* selects for the operator phrase. Second, a selection relation suggests the following structural configurations. I make the simplifying assumption here that there is a structural description for *alles* that must be met upon introduction into the structure.

- | | | | |
|-----|----|--|----------------------------------|
| (6) | a. | [_{OpP} Op ⁰ allesP] | OP>alles; COMPLEMENTATION |
| | b. | [_{allesP} alles ⁰ OpP] | alles>OP; COMPLEMENTATION |
| | c. | [_{OpP} OpP alles] | alles>OP; ADJUNCTION/PREDICATION |

6.3.2 Operator status of the associate

My updated version of Reis’s generalization, repeated in (7) (=35), states that *alles* is compatible only with CP-scoping “open” operator phrases (see again section 2.4).

- (7) (Updated) Reis’s Generalization—category selected by *alles*:

***Alles* selects operator phrases** that

- a. must take scope from CP, and
- b. denote an open set.

The licit associates so far generally had a *wh*-part in common: *wh*-interrogatives (*wh*-INTs), echo *wh*-phrases (*wh*-ECHOs), *wh*-exclamatives, free relatives. *Wh*-indefinites (*wh*-INDFs), however, are not licit associates. It thus seems that the *wh*-morphology does not correspond directly to the piece of morpho-syntax that licenses *alles*. In other words, *wh*-ness is not a sufficient condition for *alles*. The decomposition of *who* and *what* into [WH + someone/something], which is cross-linguistically supported (Haspelmath, 1997) and adopted for instance by Lasnik and Saito (1992), appears not make the cut at the right joint.

Comparing *wh*-INTs and *wh*-ECHOs with *wh*-INDFs, all three are made up of a *w*-component, and ϕ -features; in the case of *welch*-phrases also the morpheme *-lch-*, which can express ‘kinds’ (Leu, 2008);

see (8). If *alles* indeed selects a certain class of operator phrases, then we could explain why *wh*-INDFs are not licit associates of *alles* if (a) *wh*-INDFs don't have the correct type of operator, or (b) *wh*-INDFs don't have an operator at all.¹ The first option seems unlikely given that all other associates of *alles* seem to be "indefinite" in much the same way as *wh*-INDFs (see again sections 2.4 and 5.4.1). If option (b) is correct, then the *w(h)*-morphology cannot correspond uniquely to the WH-operator. The only thing that distinguishes the *wh*-pronominal forms of *wh*-INTs, *wh*-ECHOs and *wh*-INDFs, is their prosody. *wh*-INTs can bear stress but preferably not a main accent, *wh*-ECHOs are always stressed and generally carry the main accent, *wh*-INDFs are always de-accented. I indicate the three levels of prosodic prominence by the crescendo lower-case<SMALLCAPS<ALLCAPS. With R-PPs, Reis (2017) further notes that *wh*-interrogatives and echo *wh*-phrases come apart in that the interrogative bears stress on the second syllable, while the echo phrase does on the *w*-syllable, "the operator part".

¹ Reis (2017) conjectures in her concluding remarks that *wh*-ECHOs are perhaps just focused indefinites. That analysis would raise the question whether *wh*-ECHOs have an operator component at all given that I assume that indefinites are plain variables. The following syntactic differences between *wh*-ECHOs and *wh*-INDFs may suggest otherwise. The former can have overt NP restrictions (ia), and be possessors (ib–c), while the latter cannot (ii) (though one speaker accepted a variant of (iib) but I suspect that they gave the parse 'I put someone.DAT a dent in their car', an ambiguity that generally needs to be controlled with these dative possessors).

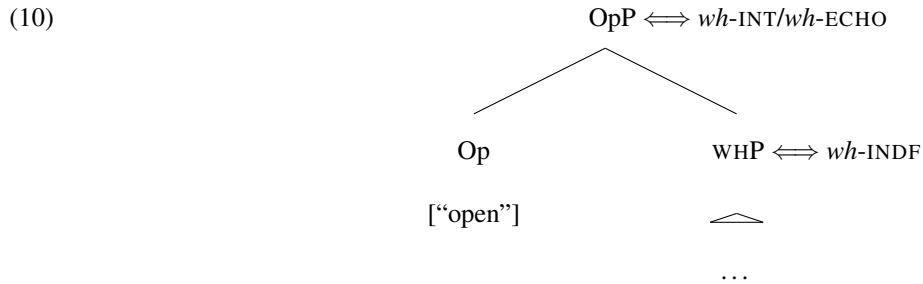
- (i) a. Ich soll [WELche Linguisten] ausgeladen haben?!
I.NOM should.1SG which.PL.ACC linguists uninvited have
'I supposedly uninvited WHAT linguists?'
- b. *Du hast [WEM sein Auto] aus Versehen eingedellt?!
you.NOM have.2SG who.DAT his.ACC car by accident put.a.dent.in
'You accidentally put a dent into WHOSE car?!'
- c. *Du hast [WESSen Auto] aus Versehen eingedellt?!
you.NOM have.2SG whose car.ACC by accident put.a.dent.in
'You accidentally put a dent into WHOSE car?!'
- (ii) a. Ich SOLL [welche (*Linguisten)] ausgeladen haben?!
I.NOM should.1SG which.PL.ACC linguists uninvited have
'I supposedly uninvited some (linguists)?'
- b. *Ich hab' [wem sein AUTO] aus Versehen eingedellt?!
you.NOM have.2SG who.DAT his.ACC car by accident put.a.dent.in
Intended: 'I accidentally put a dent into somebody's car?!'
- c. *Ich hab' [wessen AUTO] aus Versehen eingedellt?!
you.NOM have.2SG whose car.ACC by accident put.a.dent.in
Intended: 'I accidentally put a dent into somebody's car?!'

(8)

	interrogative	echo	indefinite	<i>gloss</i>
a.	W-EN	W-EN	w-en	WH-SG.ACC
b.	W-ELch-e	W-ELch-e	w-elch-e	WH-PL.NOM/ACC

- (9)
- a. waRUM ‘for what reason’
 - b. WArum ‘for WHAT reason’
 - c. **warum* ‘for some reason’

I thus propose the following idealized structure. I leave open what layers of the nominal projection OpP and WHP map to, and how.²



To explain Reis’s generalization, I assume that *wh*-indefinites, or indefinites in general, lack an operator layer and are instead plain variables, following Heim (1982). If (or whenever) (*wh*-)indefinites lack an

² See for instance Cardinaletti and Giusti (2006); Zamparelli (1995) for articulated structures of non-*wh* nominals. It is far from obvious, however, how structures of non-*wh* nominals map onto the structures of *wh*-nominals, especially in regards to their operator parts.

operator layer, *alles* can therefore not associate with them.^{3,4} (11a) is thus licit, but (11b) is not.

- (11) a.
- b. *

There is additional evidence to suggest that the picture in (11) is on the right track. First, consider what expressions can modify *wh*-interrogatives in comparison to *wh*-indefinites. Both *wh*-interrogatives and *wh*-indefinites can be modified by *von*-restrictions (12a) and adjectival restrictions (12b), but only *wh*-interrogatives can be modified by *alles*, unstressed *so* (12c), *zum Beispiel* (‘for example’) (12d). For ease of exposition, the sentences contrast multiple-*wh* questions with declaratives, such that the former (starting with *wer*) but not the latter (starting with *er*) allow the interrogative interpretation of the *wh*-in-situ.

- (12) a. Wer/Er hat gestern *wen* **von euch** eingeladen
 who.NOM/he.NOM has yesterday who.ACC of you.PL.DAT invited

³ Cardinaletti (1993); Cardinaletti and Giusti (2006); Cardinaletti and Starke (1999) argue empirically that prosodic deficiency correlates with structural deficiency. The prosodic deficiency of the *wh*-indefinite might be thus seen as convergent evidence for the lack of additional structure, the operator layer in particular. In fact, there is a parallel to the *wh*-paradigm in the non-*wh*-paradigm according to my intuitions. Consider the following contrast in prosody. To get maximal or VP-focus, the lexical verb has to be stressed alone only with anaphoric *ein-*, weil both the object and the verb are stressed with *jed-* ‘every/each’ and *kein-* ‘none’; if *ein-* is stressed, the numeral interpretation arises, with narrow focus such that the lexical verb does no longer bear comparable prosodic prominence.

- (i) ‘What happened?’ ‘I saw one/all of them/none of them.’
- a. Ich hab’ [einen geSEHen]
 - b. #Ich hab’ [EInen gesehen] (=one and not more)
 - c. *Ich hab’ [EInen geSEHen]
 - d. Ich hab’ [JEden geSEHen]
 - e. Ich hab’ [KEInen geSEHen]

⁴ I acknowledge two alternatives to the *wh*-indefinite puzzle.

(i) *Wh*-indefinites do have an operator component, but the operator does not *necessarily* scope from CP, thus they do not form a natural class with the other licit associates. I am not sure how this idea should be implemented.

(ii) *Wh*-indefinites are perfectly fine associates for *alles*, just like *dōu* is for *wh*-indefinites in Mandarin Chinese (e.g. ?). However, both *wh*-indefinites and *alles* are prosodically weak. A conspiracy of factors leads to the ill-formedness of the combination at PF. There is initial reasons to doubt this approach. The free-choice expressing *auch immer* ‘-ever’, as in free relatives (*wer auch immer p, q* ‘whoever *p, q*’) can bear stress but can also not associate with *wh*-indefinites (in contrast to Mandarin Chinese *wh*-indefinites, for instance).

- (i) Dann ess’ ich einfach *was* (***auch immer/auch IMmer**).
 then eat.1SG I.NOM simply what.ACC.INDF also always
 ‘Then I’ll just eat something/*whatever.’

‘Who invited [who of you]?’

‘He invited one of you.’

- b. Wer/Er hat gestern *wen* **interessant-es** eingeladen
who.NOM/he.NOM has yesterday who.ACC interesting-N.SG invited
‘Who invited [who that is interesting]?’

‘He invited someone interesting.’

- c. Wer/*Er hat gestern [*wen* **so**] eingeladen
who.NOM/he.NOM has yesterday who.ACC SO invited
‘Who invited [who SO]?’

‘He invited some plurality of people.’

- d. Wer/*Er hat gestern [*wen* **zum Beispiel**] eingeladen
who.NOM/he.NOM has yesterday who.ACC for example invited
‘Who invited [who for example]?’

‘He invited [some person for example].’

From (12) I generalize that the set of expressions that can modify *wh*-INTs is a proper superset of the set of expressions that can modify *wh*-INDFs. I conclude that the structures of *wh*-INTs and *wh*-INDFs are in a containment relation, as proposed in (10). Partitive and adjectival restrictions modify the WHP.⁵ *Alles*, unstressed *so* and *zum Beispiel* modify the operator-level of *wh*-INTs. Following Reis (1992a) I will call this class of particles ‘quantifying particles’ (QP).⁶

⁵ Partitive restrictions clearly have a more complex structure and likely do not modify their associate from the structural configuration proposed here. Since the focus is on *alles*, I abstract away from this issue. See Falco and Zamparelli (2019) for a recent overview of the syntax of partitives.

⁶ See Reich (1997) for *außer* (‘except’). See section 6.3.2.1 for discussion of *sonst* (‘else’) and *noch* (‘still; in addition’) with *wh*-INDFs.

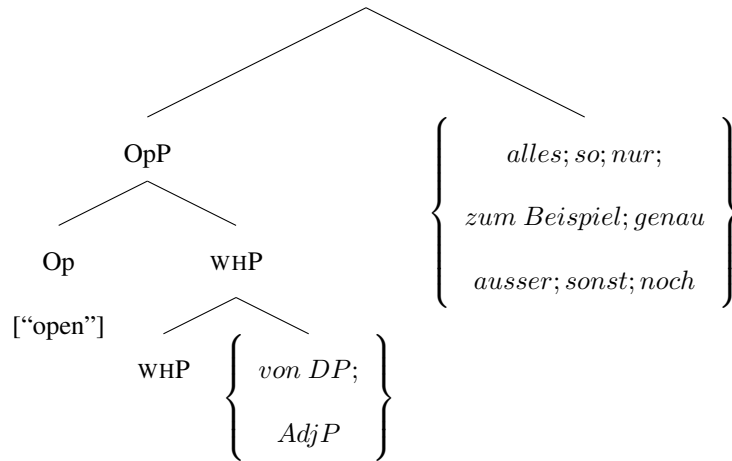
I add *nur* (‘only’) to the set given that it seems to behave just like the other members of this set. Its meaning contribution can be approximated as the instruction “pick only one contextually relevant domain (restriction)”. With *wen* ‘who’ in (iab) it intuitively means “out of all the relevant groups, pick one, ideally the most relevant one” which in the context of a question then also asks to describe this group or provide its members. Distal *nur* in (ib) can correspond to (ia), or it can receive a VP-focus interpretation which is not synonymous with (ia). *Nur* can also appear in the path of long-distance movement. Note that *nur* is prosodically exceedingly weak so that *wen* in (i) must be stressed and the liaison between the two expressions even tighter than with *alles*.

- (i) *Ja aber* ‘yes but’

- a. [*wen* **nur**] sollten wir *t* einladen?
who.ACC only should.1PL we.NOM invite
‘Who, of all people, should we invite?’
b. *wen* sollten wir *t* **nur** einladen?
‘Who, of all people, should we invite?’ OR
‘Who should we only invite?’
c. *wen* meinte der Peter **nur** [_{CP} dass wir *t* einladen sollten] ?
who.ACC reckoned.3SG the.NOM Peter only that we.NOM invite should.1PL
‘Who, of all people, did Peter say that we should invite?’

If *nur* (‘only’) and *sonst* (‘else’) would be interesting members of this set given that with referential expressions they function as focus operators.

(13)



The picture in (13) is compatible with the fact that restrictive relatives can also license *alles* in spite of exhibiting *d*- (non-*wh*) rather than *w*- (*wh*) morphology (section 5.4.1). Similarly, it makes sense that some speakers allow *alles* to associate with the supposed scope marker *was* of the WHAT-construction, in distal or adjacent position. In section 4.2.3.2 I argued against the argument status of *was* and reviewed evidence in favor of treating *was* as being minimally an operator (e.g., an operator expletive or the operator *wh*-feature).

The fact that *alles* and partitive *von*-DPs do not have the same structural relation to their associate (pace Pafel, 1996b) finds additional support by the fact that the latter cannot be stranded in intermediate clauses of long-distance *wh*-movement, or at least not as naturally as *alles* (section 4.2.3).

- (14) ??Wen hast du {von den Linguisten} gemeint, [CP dass wir
 who.ACC have.2SG you.NOM of the linguists reckoned that we.NOM
 {von den Linguisten} einladen sollten] {von den Linguisten}?
 invite should.1PL
 ‘Who of the linguists did you say/think that we should invite?’

Finally, I note that in work on *wh*-indefinites in other languages, it is often assumed that interrogative *wh*-phrases and *wh*-indefinites are both operator phrases of a comparable type. For instance, Cable (2007) shows that *wh*-indefinites combine with the same ‘Q’-marker and obey the same word order restrictions with respect to the Q-marker as interrogative *wh*-phrases. Unfortunately, discussing how *wh*-indefinites in German compare to *wh*-indefinites in other languages goes beyond the scope of this dissertation. However, it may be interesting to note that *wh*-indefinites in German don’t, in a basic context, have an *anyone*-

interpretation under negation.

- (15) weil ich nicht wen getroffen habe
because I.NOM not who.ACC.INDF met have.1SG
- a. ‘because it is not the case that I met someone’
b. *‘because I did not meet anyone’

Following the conclusion reached above, assuming that the morpho-syntactic relation between *wh*-interrogatives and *wh*-indefinites expresses universal properties of language, I suggest that in languages where (15b) is the resulting interpretation, the *wh*-indefinite has an operator layer comparable to the one of *wh*-interrogatives.⁷

6.3.2.1 Exceptions that confirm the rule

Wh-indefinites *can* occasionally be modified by Question QPs, including *alles*. However, the conditions in which they can be modified are special. The circumstances lead me to conclude that the layering in (13) is on the right track. Take for instance, the meaning expressed by English ‘else’. *wh*-INTs always express it through *sonst*, while *wh*-INDF typically make use of *anderes*, which more directly translates as ‘different’.

- (16) a. Wer sonst/*anderes würde das tun?
who.NOM else would.3SG that.ACC do
‘Who else would do it?’
- b. Ich soll wen anderes/*sonst einladen
I.NOM should.1SG who.ACC.INDF else invite
‘I should invite somebody else.’

It is hard to construct acceptable sentences with *wh*-INDF+*sonst*, and neither is it easy to find any appropriate examples by Google-searching the string “wen sonst”. However, the combination of a non-interrogative *wh*-phrase and *sonst* or other QPs is indeed possible. For instance, there are several hits on Google-search for “wen sonst auch immer” (‘who else ever’). Here the *wh*-INDF is clearly interpreted as a free-choice

⁷ See Cable (2007: section 4.2.4.2) for discussion of this issue from the opposite direction. Cable proposes that *wh*-indefinites always have an operator layer (a Q-morpheme, in particular) such that languages are puzzling, where *wh*-INTs have a Q but *wh*-INDFs don’t, like Ancash Quechua, or where *wh*-INTs have a Q but *wh*-INDFs can have a different Q that is incompatible with *wh*-INTs, like Sinhala.

wh-indefinite, and is typically at the end of a list. The dependence of *sonst* free-choice *auch immer* might indicate that free-choice indefinites are larger and contain an operator layer.

- (17) ...die vorgegeben hat, den kleinen Mann, die mittelständische Wirtschaft, die Jungen, die Pensionisten und **wen sonst auch immer** zu vertreten.

‘... which gave the directions to represent the small man, the middle-class economy, the youth, the retired, and whoever else.’ [link; June 21, 2021]

Parallel results can be found with *noch* (‘still/in addition’), which is natural with a *wh*-INDF in conjunction with *sonst*. *Noch* can modify *wh*-INTs directly, apparently undermining the subset-superset relation proposed in (13). However, *wh*-INDF-*sonst-noch* is intuitively only acceptable with exclamative character so that an operator layer is likely involved here as well. Interestingly, the following example from the internet includes *alles*. The sentence indeed seems very natural.

- (18) Versuchen sie also erst gar nicht diese Langs, Zollers, Zobeleys, ..., Ermels, Birkenmeiers, Barths und **wen sonst noch alles** zu identifizieren.

‘Don’t even try to identify those Langs, Zollers, Zobeleys, ..., Ermels, Birkenmeiers, Barths, or whoever else all additionally.’ [link; June 21, 2021]

Similar examples, in particular with *alles*, are possible also with *sonst* in the word order *sonst wer*, e.g. (19).

- (19) Nachdem wir dann die Bestätigungsmails weiterleiteten, war das System,
after.that we.NOM then the.ACC confirmation.email forwarded.1PL was the.NOM system
der Anbieter und **sonst wer alles** Schuld.
the.NOM provider and else who.NOM ALL guilty
‘... the system, the provider and whoever all else was guilty.’ [link; June 24, 2021]

The meaning here has a free-choice character as given in the translation. It is thus again likely that these examples have an operator component to them. *Sonst* bears stress in this combination which feels like a fixed expression. It is likely that *sonst* either relies on the presence of an operator, or that it provides the force itself, like for instance Saito (2017) building on Nishigauchi (1990) argues for combinations of

wh-indefinites and particles in Japanese.

6.3.2.2 Layering of modifiers is syntactic

The layering of the modifiers as proposed above is finally also supported by the impact that word order of different *wh*-modifiers can have on interpretation. When an operator-modifying quantifying particle (QP) such as *alles* co-occurs with a restrictor, such as *von DP*, both word orders are possible, and the order does not seem to affect the interpretation.

- (20) a. [*Wen* **alles von denen**] wolltest du einladen?
 who.ACC ALL of those want.PST.2SG you.NOM invite
 ‘Who-all did you want to invite, of those people?’
- b. [*Wen* **von denen alles**] wolltest du einladen?
 who.ACC of those ALL want.PST.2SG you.NOM invite

That is, there is no sense in which *alles* applies to the restrictor rather than to the *wh*-phrase as a whole in either of the word orders in (20).

In contrast, when *alles* co-occurs with other QPs, while it is not always clear what the difference in meaning is, exactly, it is intuitively clear to speakers that differences in meaning arise. The two clearest cases are *so-alles* in embedded interrogatives, and *nochmal-alles* in echo fragments. For the order of *so* and *alles*, speakers prefer the order *so*>*alles* with an explicitly exhaustive embedding predicate (*vollständig aufgelistet* ‘listed completely’) (21a), while they prefer *alles*>*so* with an explicitly non-exhaustive embedding predicate (*lückenhaft aufgelistet* ‘listed incompletely’) (21b). I elicited the judgments with the QPs in distant position, but for me the intuition carries over to the QPs in adjacent position.⁸

- (21) a. Der Peter hat vollständig aufgelistet, [_{CP} *wen* er **so alles** eingeladen hat].
 the.NOM Peter has incompletely listed who.ACC he.NOM SO ALL invited has
 ‘Peter gave a complete list of who he invited.’
- b. Der Peter hat lückenhaft aufgelistet, [_{CP} *wen* er **alles so** eingeladen hat].
 the.NOM Peter has incompletely listed who.ACC he.NOM ALL SO invited has
 ‘Peter gave an incomplete list of who he invited.’

⁸ One speaker indicated that for them the same contrast carried over to restrictive relatives:

- (i) a. Peter hat die ganzen Leute genannt, [_{RC} die er **so alles** eingeladen hat].
 Peter.NOM has the complete people named REL.ACC he.NOM SO ALL invited has
- b. Peter hat ein paar Leute genannt, [_{RC} die er **alles so** eingeladen hat].
 Peter.NOM has a couple people named REL.ACC he.NOM ALL SO invited has

In echo *wh*-questions, and fragments in particular, *alles* co-occurs very naturally with *nochmal* ('again'). It is not obvious what the difference in meaning is. I would paraphrase them as indicated in the translations in (22a–b).

- (22) a. *WEN* **alles nochMAL**??
 who.ACC ALL again
 'Say again all the people you just mentioned!'
- b. *WEN* **nochMAL alles**??
 who.ACC again ALL
 'Say again the people you just mentioned, and make sure it's all of them (this time)!'

Genau ('exactly') and *alles* also intuitively interact. While speakers again generally struggle to come up with good paraphrases, Hagen Blix (p.c.) suggested a paraphrase and context that is analogous to the effect I described for *nochmal* – *alles* above. He notes that, for him, the order *wh*>*alles*>*genau* expresses a request to make the exhaustiveness of the answer even more precise, for instance by including answers that were initially deemed not to be relevant. On the other hand, the word order *wh*>*genau*>*alles* simply expresses a request to be exhaustive about a precise level of answering the question.⁹

The fact that the word order of QPs has an impact on meaning suggests that scope, in the broadest sense, is involved. The asymmetry between the two classes indicates that the effect is syntactic when a difference in scope results, because the meaning is impacted. Where there is no difference in meaning, the word order reversal is plausibly not derived in narrow syntax, but rather at the PF interface.¹⁰ An interesting question arises as to how this kind of "scope" between the QPs is to be represented semantically. I hope that this discussion leads to further investigation of this phenomenon. Indeed, investigating how the scope of these expressions in *wh*-contexts relates to the scope of their pendants in non-*wh* contexts may also prove to be a fruitful way to tackle the distinction between *wh*-quantifier float with QPs (' \bar{A} -QF'), and inflecting quantifier float with A-chains ('A-QF'). In particular, the word order reversals that are possible in *wh*-quantifier float are generally not possible with A-QF. A natural alternative suggests itself: the word

⁹ Reich (1997) suggests that *genau* modulates "precision" by shifting the focus of our answer (or interpretation of the question) on the 'vertical' dimension (see again section 2.2.4). We might thus characterize the paraphrases as follows. On the latter reading (*genau*>*alles*) the instruction is to pick a "precision" on the vertical dimension, and be exhaustive in the horizontal answer. On the former reading (*alles*>*genau*), *genau* corrects the "precision" of the vertical dimension, such that the exhaustive answers are picked from a more inclusive domain.

¹⁰ I discuss this PF-phenomenon in some more detail in section 6.5.4.

order reversal is possible only in \bar{A} -QF *because* of a quantifier analysis plus optional pied-piping; “scope” effects are due to emphasis that is attributed to particular particles given the resulting prosody.

(23) ‘exactly all the/those people’

- a. Genau **all** *die* *Leute*
exactly all the/those people
- b. ***All** genau *die* *Leute*
- c. ?/?? **genau** *die* *Leute* **all-e**
- d. **die* *Leute* **genau** **all-e**
- e. **die* *Leute* **all-e** **genau**

(24) ‘exactly those all’

- a. *die* **all-e** genau
those all- ϕ exactly
- b. genau *die* **all-e**
- c. **die* genau **all-e**
- d. ***all(-e)** *die* genau

6.3.3 Semantics sketch

Based on the layered structure proposed above, I provide a sketch of the semantics for *alles* following the proposal of Zimmermann (2007: section 3.3). He assumes (following Cooper 1983; Jacobson 1995; Sternefeld 2001) that, first, “*wh*-items denote appropriately restricted sets of individuals”, such that the semantics of *who* and *where* are as given in (25a–b) (his (31a–b)).

- (25)
- a. $\llbracket \text{who} \rrbracket = \{x \mid x \in \text{PERSON}\}$
 - b. $\llbracket \text{where} \rrbracket = \{z \mid z \in \text{PLACE}\}$

Second, Zimmermann assumes (following Jacobson 1995) that simplex *wh*-words like *who* or *what* are semantically underspecified for number, such that they can contain both atomic and plural individual, as in (26) (his (32)):

$$\begin{aligned}
(26) \quad \llbracket \text{who} \rrbracket &= \{x \mid x \in *PERSON\} \\
&= \{\text{Peter, Klaus, Johann, Peter+Klaus, Peter+Johann+Klaus, } \dots\}
\end{aligned}$$

Third, he follows Krifka's (2001) analysis of *wh*-questions as structured propositions that consist of a question domain (QD) and a background predicate (BP). That allows Zimmermann to give a semantics of *alles* in which *alles* modifies directly its associate. The QD is given by the meaning of the *wh*-phrase like above, while the BP is provided the λ -abstract of the sentence minus the *wh*-phrase. In this approach, Zimmermann notes that the meaning of the *wh*-phrases can compose with the sentence in a point-wise fashion, yielding ultimately a representation that is familiar from Hamblin-Karttunen semantics for questions Hamblin (1973); Karttunen (1977)—a set of propositions.

With these assumptions about *wh*-questions in place, Zimmermann proposes that QPs (*alles* and unstressed *so*) can compose directly with the *wh*-phrases, “placing additional restrictions on their question domain”. This way, QPs contribute to the semantics of the question as a whole, while having access and being sensitive to the properties of its particular associate. (27) is the semantics he proposes for *alles* (his (34b)). DIV stands for ‘divisible’ (see again section 2.2.1).¹¹

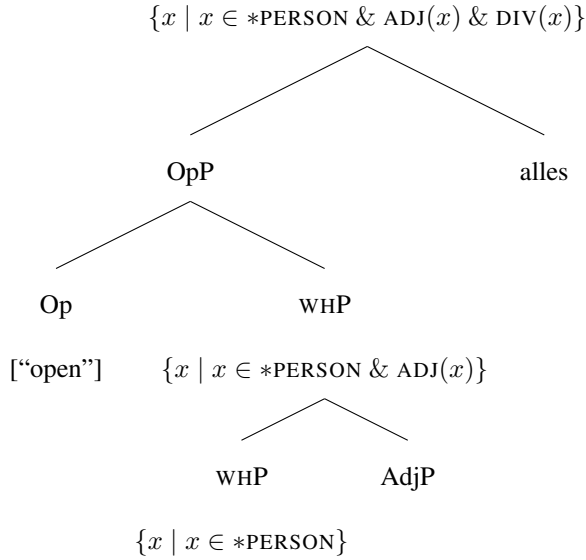
$$\begin{aligned}
(27) \quad \text{alles}' < P, Q > &= < P, \{x \mid x \in Q \ \& \ \text{DIV}(x) \ \& \ \neg \exists z [z > x \ \& \ z \in Q \ \& \ z \in P] \} > \\
&\qquad\qquad\qquad \text{plurality} \qquad\qquad\qquad \text{exhaustiveness}
\end{aligned}$$

With this semantics of *alles*, and the structure of the layered *wh*-phrase proposed above, we arrive at the composition in (28), which leaves out the open *P* variable for composition with the sentence. I also abstract away from the exhaustiveness component in the denotation of *alles*, but discuss it in more detail in the following section.

¹¹ A clear advantage of this proposal that Zimmermann highlights is that multiple *alles*'s are possible in multiple-*wh* questions. That was not possible in the semantics given by Beck (1996). I note, following discussion in Reich (1997), that a question like (i) is possible, where one *wh*-phrase is modified by *zum Beispiel* (‘for example’) and the other by *alles*, even though the two QPs are incompatible with each other on a single associate.

- (i) a. *Wer zum Beispiel hat wen alles eingeladen?*
 who.NOM for example has who.ACC ALL invited
 ‘Who, for example, invited who-all?’
 b. *#Wer alles zum Beispiel/zum Beispiel alles wurde eingeladen?*
 who.NOM ALL for example was invited

(28)



The two layers differ in their semantic contribution. At the WHP layer, the *domain* of quantification is *restricted*. At the OpP layer, information is added about (a) how the domain is partitioned, like the divisibility condition of *alles* and *so*, and (b) how members of this set are to be picked out, like the exhaustiveness condition of *alles*. In the context of questions, (b) makes sense intuitively given that an utterer uses QPs to set conditions on how members of the domain ought to be picked to answer the question.

6.3.4 “Open set” property of the associate: exhaustivity and D-linking

The second part of Reis’s generalization, repeated in (29) (=35), states that *alles* is compatible only with operator phrases that denote “open” sets (see again section 2.4).

(29) (Updated) Reis’s Generalization—category selected by *alles*:

Alles selects operator phrases that

- a. must take scope from CP, and
- b. **denote an open set.**

Here, I address what “open” may refer to. The precise notion of ‘open’ has consequences for the understanding of *alles* as ‘exhaustive’. Throughout this dissertation I have been somewhat undecided about

whether, and in particular *how*, *alles* adds an exhaustivity component to how the associate is understood. In some passages of this dissertation, I talked about the exhaustivity of *alles* as if it may be a conversational implicature, following in particular the discussion by Reich (1997). On that view, exhaustivity is not part of the meaning of *alles* directly. Rather, speakers infer that reactions to *alles*-statements, in particular questions, are complete. Alternatively, exhaustivity is part of the semantics of *alles*. This is what Beck (1996); Beck and Rullmann (1999); Zimmermann (2007) hold; Reis (1992a) remains largely agnostic on this issue. Zimmermann (2007) in particular argues that the exhaustivity component is a presupposition given that it can be canceled by adding *nur* ('only') or other qualifications to an answer. To be explicit, I adopt this latter view. I believe that in particular the sensitivity of embedded questions to properties of the embedding predicate favors the presuppositional view. I repeat the examples discussed by Reich (1997) and Zimmermann (2007) here:¹²

¹² There are two issues that complicate the matter of teasing apart whether the exhaustivity of *alles* is a presupposition or a conversational implicature. The first complication is "relevance". As is usual with regular universal quantifiers, the domain of quantification for *alles*-statements is also restricted to *some relevant domain* smaller than, say, the entire universe. The second issue concerns what *alles* quantifies over. Reis (1992a) claims that while *we*- ('who') questions can be answered with individuals, *welch*- questions must be answered with kinds. Indeed, this contrast is fascinatingly easy to replicate. Questions that can only plausibly be interpreted as referring to kinds are correspondingly the ones that speakers understand naturally out of the blue.

- (i) *Welche Torten* hast du **alles** bestellt?
 which.ACC cakes have.2SG you.NOM ALL ordered
 'What-all kinds of cakes did you order?'

For DPs that more naturally refer to nameable individuals, naming individuals directly is less natural than describing kinds or groups. Naming individuals becomes natural again when they are token answers to stand in for a group.

- (ii) *Welche Leute* hast du **alles** eingeladen?
 which.ACC people have.2SG you.NOM ALL invited
 'What-all kind of people did you invite?'
- a. Die Linguisten, die Leute vom Squash, und die Schach.
 'The linguists, the people from squash, and the ones from chess.'
- b. #Rodrigo, Mina, . . . , Andrew, Daiwei, . . . '
- c. Die Christine (und die Dolianas), die Eva-Maria (und die Kraus), . . .
 'Christine (and the (rest of the) Doliana family), Eva-Maria (and the (rest of the) Kraus family).'

In the answer in (iic), the parentheses need not be expressed. They can be left implicit given that the most relevant person is named, and it is understood from context that the rest of the family is invited, too, so that the named person is named for the whole group. These answers become more available the more people are part of the domain, for instance when describing who-all was at a party you are talking about. In fact, while the literature never extends this distinction to *we*- ('who') questions, I believe that in some sense the answers express kinds there, too. This is tricky to show more rigorously (see Pafel (1996a) for a similar point about the *was für* construction). It might become most visible in *wh*-exclamatives. The sentence in (iii) can have a negative connotation, expressing judgment about who was invited. Specifically, with *alles*, (iii) is intuitively understood as expressing judgment about the *groups*, or *kinds* of people that were invited.

- (iii) *Wen* der **alles** eingeladen hat!
 who.ACC he.NOM ALL invited has
 'All the people he has invited!'

These two factors complicate the question because, on the presuppositional view, the exhaustivity must hold for a *given* domain. However, what is given becomes less clear due to relevance and individual/group distinctions.

- (30) Peter listet *vollständig/??lückenhaft* auf, wen er *alles* getroffen hat.
 Peter lists completely/incompletely PRT whom he all met has
 ‘Peter gives an incomplete list of all the people that he met.’

If *alles* is exhaustive, an interesting question arises in connection with Fitzpatrick’s Conjecture, repeated in (31) (see again section 5.1):

- (31) *Fitzpatrick’s Conjecture* (FC):

The distribution of *non-exhaustive quantifiers* is universally restricted to their associate’s \bar{A} -chain.

Does *alles* fit in with the conjecture, so that *alles* and the phenomena described by Fitzpatrick are part of a broader cross-linguistic generalization? or are they part of separate phenomena? If they are part of separate phenomena, we may need two separate explanations for why the floating expressions is restricted to the \bar{A} -chain of the associate in both. I discuss here one way in which *alles* and non-exhaustive quantifiers are similarly ‘non-exhaustive’, at least similarly different from the way in which Fitzpatrick uses the term ‘exhaustive’. In short, it has to do with whether a quantifier relation, conceived of as functions from a restricted domain to a predicate, uses the full restricted domain or not. Typically, universal quantifiers are treated as implications between predicates, or subset relations between the extensions described by two predicates.

- (32) Every dot is blue.

- a. Given a relevant domain, $\forall x. Dot(x) \rightarrow Blue(x)$
- b. Given a relevant domain, $\{x : Dot(x)\} \subseteq \{x : Blue(x)\}$

What I would like to focus on here is how we zoom in on the restriction of the quantifier. An ‘exhaustive’ quantifier relation like *every NP* has the same input and output for its restriction. What I mean can be seen in the following example.

- (33) *Of those ones*, every dot is blue.

The italicized partitive in (33) makes the relevant restriction explicit—the dots that we, speaker and ad-

dressee, know about, anaphorically or deictically. The quantifier relation *every NP* is ‘exhaustive’ in the present sense because it takes each and every one of the members of the restriction, and it outputs each and every one of them for the purposes of the relation between predicates in (32).

In contrast, while *alles* exhaustifies something, the quantifier relation *wh-associate alles* also *filters* the restriction. Consider the example in (34).

- (34) *Welche von diesen Punkten sind alles blau?*
 which.NOM of these dots are ALL blue
 ‘What-all kinds of dots are blue?’

Imagine a context in which there are dots of three colors and of three sizes. Size (big, medium, small) is thus a salient property which is used to answer (34). Imagine also that there are small dots of all three colors, medium dots of all three colors, but that the big dots are only orange and green. A felicitous answer to (34) in this context would be (35).

- (35) Die Kleinen und die Mittलगrossen.
 ‘The small ones and the medium ones.’

However, in a context where all dots are blue, the corresponding answer is somehow rather odd, even in an experimental context in which one always have to answer with sizes.

- (36) ?#Die Kleinen, die Mittलगrossen und die Grossen.
 ‘The small ones, the medium ones, and the big ones.’

The same extends to simplex *wh*-phrases. Consider the question in (37).

- (37) *Wen von denen hast du alles eingeladen?*
 who.ACC of them have.2SG you.NOM ALL invited
 ‘Who-all of them did you invite?’

In a context where the restricted domain (RD) *von denen* (‘of them’) contains exactly three people or groups, answering the question with two people or groups is perfectly natural. However, answering with all

members is odd. This becomes especially clear when the RD contains just two people or groups; then the question becomes odd to begin with.

(38) $RD = \{\text{Tillmann, Lara, Veronika}\}$

a. Den Tillmann und die Lara.

‘Tillmann and Lara.’

b. #Den Tillmann, die Lara und die Veronika.

‘Tillmann, Lara, and Veronika.’

Of course, this may simply be due to the semantics-pragmatics of questions. However, I believe that it extends into embedded interrogatives. Consider the following example:

(39) Ich weiss, [_{CP} *wen* du von *denen* (#**alles**) eingeladen hast] ... nämlich alle!
 I know who.ACC you.NOM of them ALL invited have.2SG namely all
 ‘I know who (#-all) of them you invited. . . namely all of them!’

The continuation *nämlich alle* (‘namely all’) to express that, in fact, you invited all of them, is possible in the absence of *alles*. It is likely that there is still a little “playfulness” here, indicating that some amount of infelicity is overcome. However, when *alles* is part of the embedded interrogative, I find the continuation rather odd; infelicity arises, or it can no longer be overcome. This contrasts quite clearly with *every NP* quantifier relations as in (40).

(40) I know that, of those people, you invited every one of them.

I find the same contrast with the dots-context above:

(41) Ich weiss, [_{CP} *welche Punkte* (#**alles**) blau sind, nämlich die Kleinen, die Mittlgrossen und
 I know which.NOM dots ALL blue are namely the small.ones the medium.ones and
 die Grossen, also alle.
 the big.ones that.is all
 ‘I know what (#-all) kinds of dots are blue, namely the small ones, the medium ones, and the big ones, that is all of them.’

Overall, it seems that the combination of *alles* and *wh*-associate forces some amount of “filtering”,

of subsetting, to be done to the restricted domain of quantification. I assume that there is some underlying amount of infelicity in (40) which can be overcome in the absence of *alles*. I thus propose here that the filtering is due to the *wh*-operator, and that *alles* exhaustively quantifies over the subsetting restriction. This proposal has two consequences.

First, I believe that this property of the *alles*-associate quantification relation is shared with what Fitzpatrick call ‘non-exhaustive’ quantifiers. There may thus be a deeper fact about Grammar driving the \bar{A} -restriction for these floating quantifiers.

Second, I propose that the “openness” restriction on associates of *alles*, as discussed by Reis (1992a) and adopted so far, is exactly this subsetting restriction. The operator phrase that *alles* combines with cannot have the property of quantifying over the entire restricted domain. In the original discussion by Reis (1992a), ‘open’ means indefinite in the sense of Hawkins (1978, 1991) so that “there is no anaphoric or deictic/situational link to an independently established antecedent set”. The main thrust of this conclusion come from the comparison between *wh*-phrases and definite non-*wh* DPs, on the one hand, and restrictive relatives and appositive relatives; see again the discussion in sections 2.4 and 5.4.1. However, depending on how we interpret this, it is empirically incorrect. The examples above with partitive restrictions do anaphorically or deictically provide an independently established antecedent set. So in one sense, the characterization of “openness” by Reis is inadequate. On the other hand, the actual reference set that is used by *alles* is not the full reference set provided by the partitive. This must be the relevant sense of ‘open denotation’: the *wh*-*alles* relation establishes a new (set of) reference set(s) by subsetting and partitioning the restricted domain.

I conclude this discussion by turning to D(iscourse)-linked *wh*-phrases. D-linked *wh*-phrases are ones whose reference set is clearly restricted and individuated by the discourse (cf. Pesetsky 1987; Wilschko 1997). As such, if they are compatible with *alles*, they would also violate Reis’s formulation of “openness”. Off the bat, as Reis originally discusses, *welch*-phrases with *alles* must be interpreted as expressing ‘kinds’ rather than individuals (see the discussion in footnote 12). They thus complicate the picture, but I believe the facts remain the same. Pesetsky (1987: 120) notes that given the properties of D-linked *wh*-phrases, they are naturally used to refer back to “familiar” and pre-established entities of the discourse. He notes that

(42b) with the explicitly D-linked *wh*-phrase is natural, just like the pronoun *them* in (42a). The *wh*-phrase *who* in (42c), on the other hand, is less natural.

- (42) a. Some men entered the room. Mary talked to them.
 b. Some men entered the room. Which (ones) did Mary talk to?
 c. Some men entered the room. Who did Mary talk to?

The D-linked *wh*-phrase thus points back to a reference set, like a pronoun does, and then asks to pick members of that set. In a way, we might thus say that non-D-linked *wh*-phrases instead ask the addressee to provide a new reference set, or a new way to partition the given reference set so as to answer the question. *Alles* is compatible with the equivalent of (42b), with the caveat that the answers (and the partitioning of the reference set) is about kinds.

- (43) Vier Personen betraten den Raum. [*mit welchen* (von denen)] hat die Maria **alles** gesprochen?
 four people entered the room with which of them has the Maria ALL spoken
 ‘Four people entered the room. Which (ones) did Maria talk to?’

The fact that this example is felicitous and acceptable indicates that a ban against being linked to an anaphorically pre-established reference set is too broad a restriction. Rather, the “openness” has to do with the fact that a new reference set is created from the restricted domain as part of the *wh*-*alles* quantifier relation.

6.3.5 The subset distribution of *alles*

One of the pieces of the CLG is that *alles* has no distribution of its own in the clause: it’s distribution is strictly a subset of its associate’s, given a derivation.

This fact is explained by the stranding hypothesis so long as *alles* cannot be moved outside of the constituent [WH+*alles*].¹³ An *extraposition*, or *remnant movement* derivation of *alles*, such as in (44) must be excluded somehow. Indeed this also means that these derivations are the wrong analysis for distal *alles*.

¹³ Given the prosodic deficiency of *alles*, it is of course *possible* that *alles* can be moved, but that the positions that it would be able to reach by direct movement would leave it hanging in a position in which *alles* remains prosodically unsupported to the point that the sentences are judged unacceptable.

- (i) a. *(Nochmal) **alles** hat dich WER angerufen?
 again ALL has you.ACC who.NOM called
 Intended: ‘WHO-all called you?’

- (44) a. EXTRAPOSITION:
- (i) [DP WH alles]
 - (ii) [DP WH ~~alles~~] (...) alles
- b. REMNANT MOVEMENT:
- (i) [DP WH alles]
 - (ii) alles (...) [DP WH ~~alles~~]
 - (iii) [DP WH ~~alles~~] ... alles (...) [~~DP WH alles~~]

If *alles* is a modifier, on a par with an adjective as assumed above, it follows that *alles* cannot be moved out of the mother constituent (or not all, as a phrase at least) given that modifiers cannot be extracted or extraposed in German (cf. Pafel, 1996b). The restriction would also follow if *alles* itself is an operator that takes its associate as a complement because that would presumably make *alles* a left branch and left branches cannot be extracted in German. The following discussion of McCloskey (2000) and Fitzpatrick (2006) can serve as inspiration.

The same line of argumentation suggests that a *floating* analysis (Dougherty, 1970; Kayne, 1975) of *alles* would be wrong, too. In a floating analysis, *alles* would first locally extrapose to the edge of the source, and then the associate would (remnant movement) sub-extract to strand *alles*. Put simply, *alles* first floats up, and is then stranded.

(45) FLOATING:

-
- b. ?*weil dich (nochmal) **alles** WER angerufen hat?
 because you.ACC again ALL who.NOM called has
Intended: 'WHO-all called you?'
- c. *Wen hast du angerufen (gestern) **alles**?
 who.ACC have.2SG you.NOM called yesterday ALL
Intended: 'Who-all did you call, yesterday?'

However, the sentences in (i) are bad to terrible even when additional material is added that might give prosodic support. (ic) is interesting because two speakers suggested that they can get *alles* in sentence-final, extraposed position. I was not able to replicate the result with my core pool of speakers, or myself. If the variation holds up, we would need to consider the availability of multiple grammars for *alles* in "German". If Fitzpatrick's partitivity conjecture is correct, and there are a number of possible syntactic links to non-exhaustivity as I discussed on page 238, then perhaps these speakers have a syntax for *alles* that is parallel to that of *was-für-NP*, which can be extraposed for some speakers, or partitive *von-DP* which can generally be extraposed and fronted (suggesting that it may be a complement contra Pafel (1996b), as typically assumed in the partitive literature (cf. Falco and Zamparelli, 2019)). Indeed, Pafel (1996b) proposes the same structure for *von-DP* and *alles*: adjunction to the associate's DP-layer.

- (ii) [Von den Linguisten]₁ hast du [WEN ₁] eingeladen?
 of the linguists have.2SG you.NOM who.ACC invited

- a. [DP WH Q]
- b. [DP [DP WH ~~alles~~] alles]

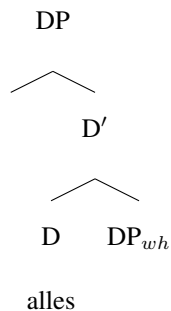
While this kind of analysis does not entail that *alles* should be able move outside the source, I see no compelling reason to pursue it: if *alles* can move source-internally, why not to the outside of the source, for example fronting to Spec,C or right-extrapositing? Conversely, if the actual separation depends on movement by the associate out of a shared source, why rely on floating rather than direct sub-extraction? I thus do not entertain a floating analysis for the same reason as the extraposition or remnant movement analysis.

6.3.6 Connection with previous proposals for sources of \bar{A} -QF

6.3.6.1 Quantifier analysis: McCloskey (2000)

McCloskey (2000) assumes the following structure for *wh*-all in West Ulster English.¹⁴ He assumes that *all* is a quantifier that takes the associate as its complement, following much prior work on inflecting quantifier float with A-chains ('A-QF').

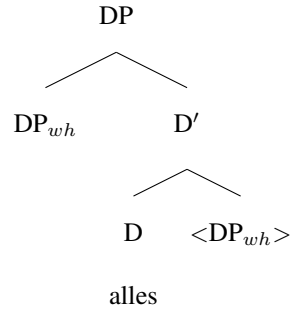
(46) *Quantifier analysis:*



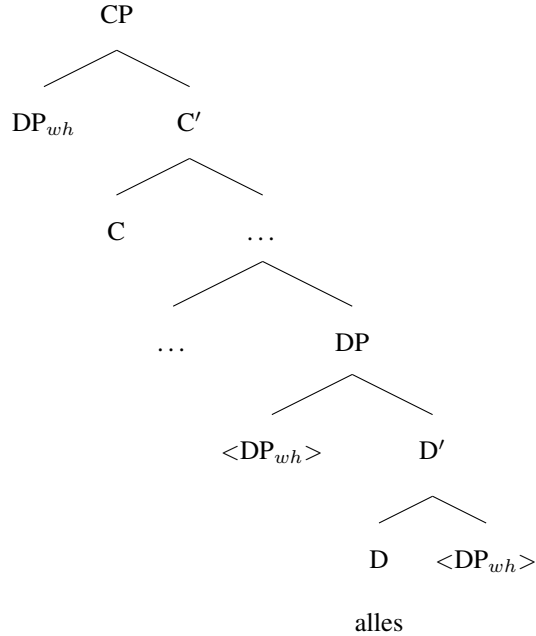
From there, he proposes a sub-extraction analysis of *all*-stranding. The associate strands *all* by moving out of the DP headed by *all*, first moving through Spec,*all*, then on to CP.

¹⁴ He does not argue for it in opposition to other sub-extraction or stranding options given that the focus of the paper is primarily on the distribution. In more recent work (McCloskey, 2020) he acknowledges that an adjunction structure is a valid option as well.

(47) a.



b.



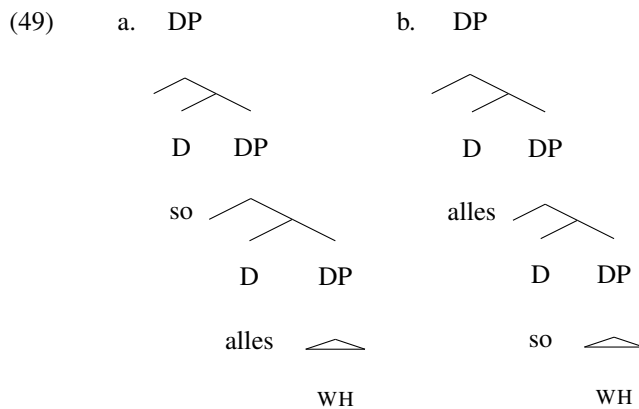
The structure in (47) can capture the selection property because there is sisterhood between the quantifier/particle and the associate. However, there are several reasons not to adopt this analysis for *alles* in German. First and foremost are the differences between A-QF and \bar{A} -QF argued for by Reis (1992a) — summarizing, there are differences in ability to be stressed, ability to take PP or genitive associates, and interpretive differences with *welch*-phrases and possessor structures. I add two relevant facts here that have to do with the stacking of quantifiers vs. QPs.

Consider the behavior of *alles* and *genau* with a *wh*-phrase in (48). Both can be added, and in both word orders (48a). Nothing of the sort is possible with *genau* and the determiner-quantifier *all-* (48b).¹⁵

¹⁵ However, the following example is possible. Pafel (1996b) analyzes A-QF *all-* as an adjunct to DP. A parallel analysis for A-QF and \bar{A} -QF may thus be possible somehow, with *genau* and *alles* able to adjoin to both *wh*- and non-*wh*-associates. The responses are intuitively best with a gesturing demonstrative. The impossibility of (iB-4) remains a difference in comparison to the *wh*-paradigm with *alles*.

- (48) a. Was {alles genau; genau alles} wolltest du bestellen?
 what.ACC ALL exactly wanted.2SG you.NOM order
 ‘What-all exactly did you want to order?’
- b. ?*{Genau all-e, all-e genau} (drei) Bauchtaschen hab’ ich gekauft.
 exactly all-PL.ACC three fanny.packs have.1SG I.NOM bought
Intended: ‘I bought all (three) fanny packs, to be precise.’

Extending the quantifier sub-extraction analysis to *alles* also predicts the wrong facts for how *alles* stacks with other QPs on the *wh*-associate. By extension, QPs other than *alles* should receive an analogous analysis. Thus, we would arrive at the starting structures in (49) for a sentence where both *alles* and unstressed *so* associate with a *wh*-interrogative. There is no obvious reason why one order should be excluded—according to my consultants, both word orders for *so-alles* are available in adjacent position.

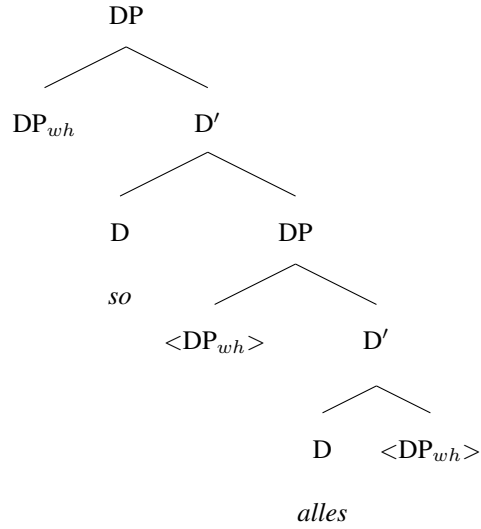


Considering (49a). All else equal, the sub-extraction analysis leads to (50) as the derivation that strands both particles: the associate moves through the specifiers of both projections. This is warranted by whatever reason the associate has to move to the specifier of the mother DP in derivations with a single particle.¹⁶

- (i) A: Welche magst du haben?
 which.PL.ACC want.2SG you.NOM have
 ‘Which ones do you want to have?’
- B: 1) Genau DIE alle.
 exactly those all
 2) DIE alle genau.
 3) *{Genau} alle DIE {genau}
 4) ?*DIE genau alle

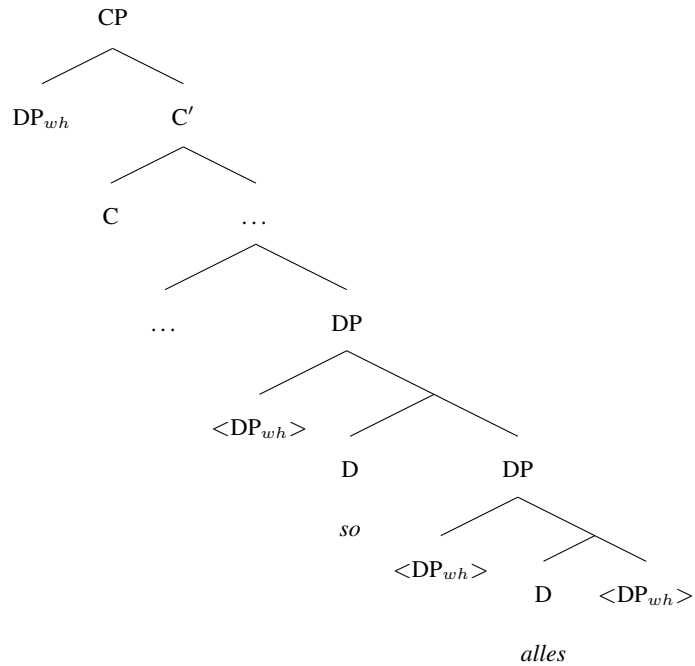
¹⁶ As will become clear, allowing the associate to escape the mother DP by moving straight to the higher specifier will not change the end result unless this option is the only option. It is not clear based on what principles that option should be forced. I thus ignore this option.

(50)

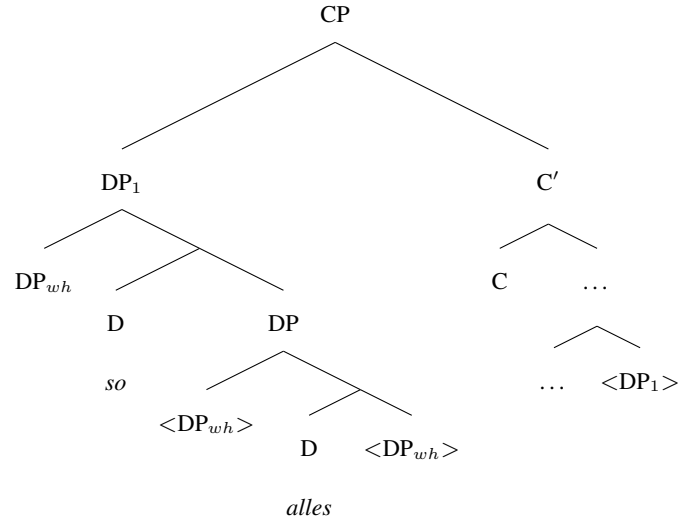


From (50), the associate can *wh*-move on, stranding the particles (51a), or the entire DP is moved in a pied-piping derivation (51b). In McCloskey's system (see especially more recent work; [McCloskey 2020](#)), the mother DP carries a *wh*-feature, and, assuming Phase Theory and that DP is a phase, the choice of pied-piping vs. sub-extraction is given because the associate is at the DP phase edge. The choice of stranding vs. pied-piping can be made from any projection.

(51) a.

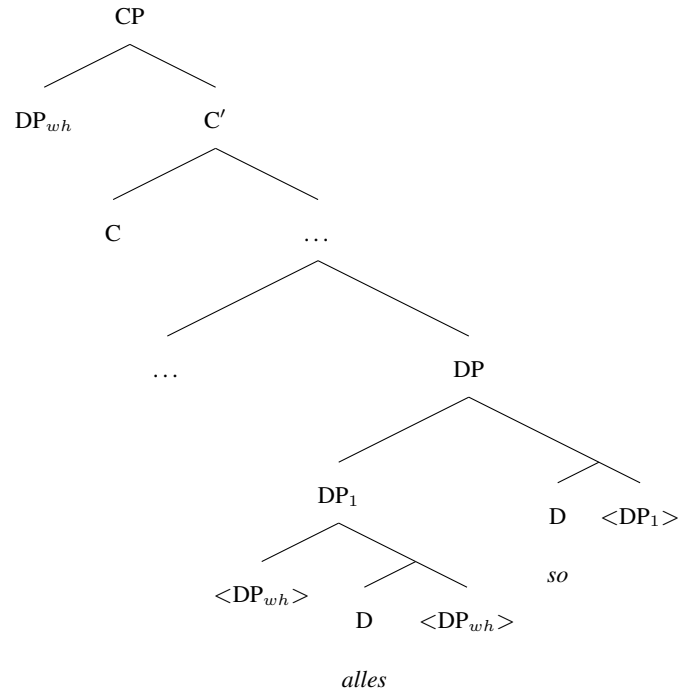


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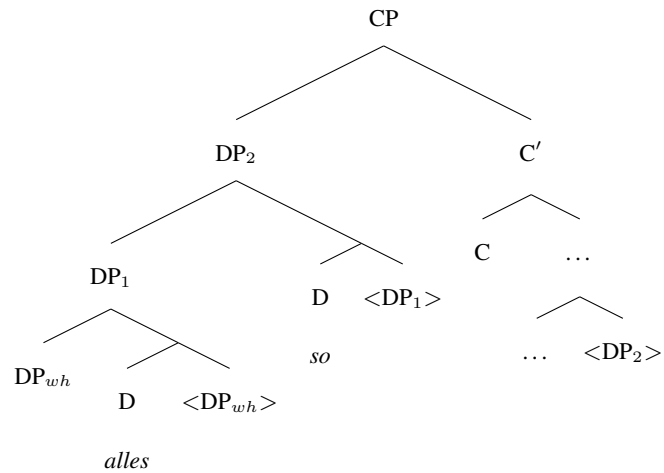


By starting with converse structure (*alles*>*so*), we arrive at the mirror results. So far so good. If QPs are quantifiers, we can also understand why they can take scope with respect to each other as discussed in section 6.3.2.2. However, the word order reflects the wrong scope. An explicitly exhaustive matrix predicate is judged to be clearly preferred with the order *so-alles*; an explicitly non-exhaustive matrix predicate with *alles-so*. Scope thus seems to go right-to-left given that *alles* explicitly corresponds to exhaustiveness and *so* is compatible with non-exhaustiveness. Perhaps the effect is not due to scope and rather by binding: whichever particle binds off the variable of the associate first determines the effects. One problem with that alternative is that the following derivations might be possible, where the associate pied-pipes along the lower particle over the higher one. In (52), the associate first moves to Spec,*alles* to get to the phase edge, then to Spec,*so*. Now the word order of the particles is reversed, and the associate can strand both particles (52a) or pied-pipe both of them (52b) (or strand only one of them).

(52) a.



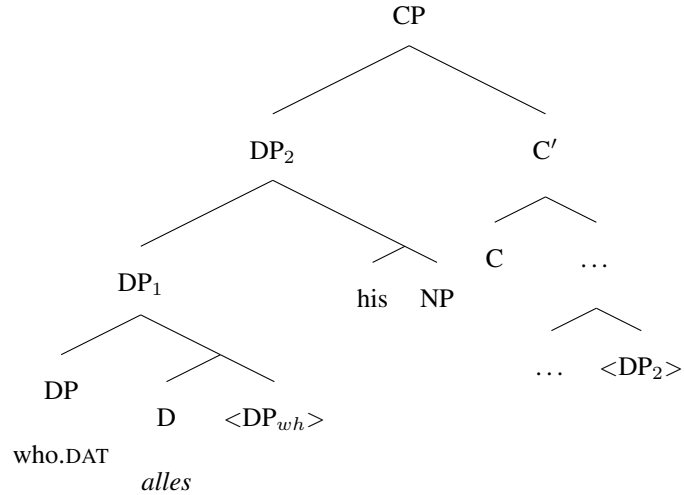
b.



If these derivations are possible, then particle order should not lead to meaning differences. The stranding derivation in (52a) might be ruled out if moving out of the phase-edge of a phase-edge ([_{DP} [_{DP} [_{D'}]] [_{D'}]) is impossible.¹⁷ However, I see no way to rule out the pied-piping derivation in (52b). Dative possessors can keep *alles* adjacent to them or the whole DP can strand *alles*. The structural configurations would thus plausibly be analogous on this account.

¹⁷ A freezing violation (broadly, movement out of a moved category) cannot be used to explain the issue because intermediate stranding derivation would generally violate freezing on this analysis.

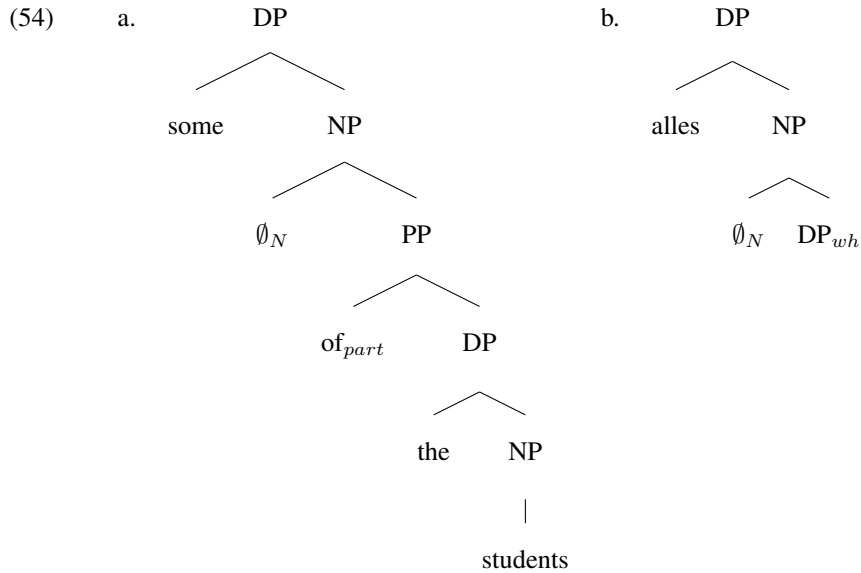
(53)



Perhaps there are independent reasons that the analysis could work. I will not pursue it further given the challenges outlined above.

6.3.6.2 Partitive analysis: [Fitzpatrick \(2006\)](#)

[Fitzpatrick \(2006\)](#) argues that there is a class of expressions he calls *stranded adnominal FQ*, with the following properties: they are quantificational, non-exhaustive, morphologically invariant, and strand their associate only via \bar{A} -movement. This class bears strong resemblance to the class of QPs that includes *alles*. Fitzpatrick (chapter 5) argues that these quantifiers have a partitive relation to their associate. In analogy to (54a) (*his* (11)), his structure for *alles* would be as in (54b).



The separation procedure proceeds as with McCloskey (2000), with sub-extraction of the associate moving through the specifier of the quantifier/particle. The structure in (54b) is meant to also avoid a potential issue of anti-locality (comp-to-spec movement; (Abels, 2003)) given that the associate is not the complement of the quantifier/particle, but rather the complement of the complement.

However, the connection with partitivity ought to be taken seriously. For instance, Giusti (1991: 341) notes that according to Werner Abraham (personal communication to her), the inflection *-es* on *alles* is likely an old partitive genitive marking. In that connection it may be interesting to note that in Austrian varieties the pendant to *alles* is *aller*, where *-er* may be an old partitive DAT marking that shows up on quantifiers. Giusti also notes that many other separable expressions also add a partitive meaning, such as locative *in DP*, free-choice *auch immer*, *für NP* split, adjectival restrictions.

Partitivity thus appears to be an attractive property. There are a number of reasons that also call doubt on this analysis, however. First, in German, the associate inflects normally for case. This is atypical for partitive structures. If there is a hidden partitive P in the structure, this preposition would presumably govern a particular case such that the associate would bear invariable case. The silent P would need to have the status of *für* in the WHAT-FOR construction (see e.g. Blümel, 2012; Corver, 1991; Leu, 2008; Pafel, 1996a), where the NP of the structure *was-für-NP* ‘what-for-NP’ behaves as the head nominal. Even if there is no silent P, as in the structures that Fitzpatrick uses, the silent head noun, which projects the

NP complement of the adnominal quantifier, and which embeds the associate, would presumably block all relations between a case assigner and the associate. It would make sense to draw inspiration from the WHAT-FOR construction (WS). [Leu \(2008\)](#) proposes that *was* and *für* form a constituent which denotes ‘what kind’ and functions syntactically as a modifier of the head NP. Analogously, we may postulate that *alles* forms a constituent with the partitive P (and, presumably, the silent N). If that is correct, the structure of WS and *wh-alles* must be different because they behave rather differently. While there it seems like they are both affected by the outside in the same way – in particular being sensitive to intervention effects –, the way the separation procedure applies must be different. [Pafel \(1996b\)](#), for example, argues that there are two separate types of separation constructions, and puts the two phenomena separate bins; see p. 157 in particular.¹⁸ If *alles* is indeed tied to partitivity, the connection must be historical and not overtly visible in the ways that we expect from partitive syntax. Fitzpatrick’s conjecture about partitivity being the *syntactic* link to non-exhaustivity may still be correct, but based on the syntax of *alles* it seems to me that the link cannot be a bi-conditional from non-exhaustivity to one particular syntactic structure of partitivity. It has to be a one-to-many (hopefully, few) mapping.

6.3.7 Summary

In this section, I discussed how to implement the selective properties of *alles*. In line with Reis’s generalization, according to which *alles* associates with CP-dependent operators that are referentially “open”, I proposed that *alles* merges with an operator phrase. I articulated the proposal further by proposing that Reis’s generalization excludes plain *wh*-indefinites because these lack the required operator layer. I argued that *wh*-interrogatives and echo *wh*-phrases have more syntactic and prosodic freedom. In particular, I argued that the set of expressions that these *wh*-phrases can associate with, and the set of syntactic environments in which they can occur, are a proper superset of those of *wh*-indefinites. I concluded that *wh*-interrogatives and echo *wh*-phrases are in a structural containment relation with *wh*-indefinites, where the former have an operator layer but the latter don’t—that is they are mere variables as [Heim \(1982\)](#) proposes for indefinites.

¹⁸ Pafel argues that the extraction differences follow from the internal structures of Group I vs. Group II sources. Group I nominals properly contain the to-be-extracted XP (e.g. *für-NP*), while in Group II the to-be-extracted XP is adjoined to the associate so that the XP is “contained but not included” the barrierhood is affected differently.

I also discussed what structural configuration *alles* and its associate are in. In particular, I discussed issues arising with a quantifier analysis of *alles*, where *alles* is a quantifier (D, or Q head) that takes the associate as its complement. Fitzpatrick (2006)’s version of the quantifier analysis, however, where the complement of the quantifier is a partitive which contains the associate, displayed a number of attractive properties. In particular, the potentially partitive morphology of *alles*, as well as its connection with “non-exhaustivity” that Fitzpatrick argues is the key difference between \bar{A} -QF and A-QF are worth keeping in mind.

6.4 Separation procedure

With a structure in mind for pronominal associates we are ready to tackle the separation procedure.

6.4.1 Goals

The fact that the separation procedure starts from one general source explains a number of generalizations, as discussed in section 6.2. However, the source alone cannot explain the following facts. They are thus the *explananda* of the separation procedure.

(55) *Explananda of the separation procedure:*

a. The \bar{A} -Generalization (ABG):

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

b. Barriers for movement:

The associate can be a subject, an object, or an adverbial.

c. Intermediate stranding:

Separation is possible in intermediate positions, i.e. after movement and before the final landing site.

6.4.2 Derivations entertained

I primarily entertain and discuss two procedures: sub-extraction and complementary deletion of copies of movement. The former option holds that the separation procedure is fundamentally a narrow syntactic phenomenon, while the latter holds that it is fundamentally an interface phenomenon. In addition, I discuss a proposal that does not meet minimalist desiderata, but will prove rather useful in various places as a first level of approximation—a level of analysis that we can hold onto. I discuss the two main options with respect to each goal after I present the derivations.

6.4.2.1 Adjunction to *wh*-traces

This description serves primarily as a descriptive tool to hold on to an intermediate level of analysis. (Reis, 1992a) concludes that *alles* can appear (a) adjacent to a *wh*-phrase, or (b) adjacent to a *wh*-trace. Pafel (1996b) further elaborates on this kind of analysis, giving primarily details about A-QF of inflecting *all-*. He proposes that *all-* is a modifier that uniformly right-adjoins to empty nominal categories.¹⁹ The empty category is a tail of movement, adopting a representational, rather than purely derivational, theory of movement.²⁰

(56) [DP ASSOCIATE]₁ ... [DP [DP₁ *e*] *all-e*]

If we extend Pafel's analysis to *alles* in the spirit of Reis, we arrive at (57).

(57) [DP WH-ASSOCIATE]₁ ... [DP [DP₁ *t_{wh}*] *alles*]

This analysis raises many questions. Primarily, it requires abandoning attractive principles such as the Inclusiveness Condition (Chomsky, 1995), which essentially states that transformations may add no more to a derivation than what is available in the lexicon. A consequence is that traces, and in particular *wh*-traces are an unlikely object of the narrow syntactic computation given that it would presume the existence

¹⁹ To capture agreement and meaning correlations, he proposes that the empty category must be co-denotational with the associate.

²⁰ Pafel does not elaborate on the model of “representational theory of movement” he has in mind. It is fair to assume that the crucial property is that empty categories are not “left by movement” but rather are already there in D-structure, and locality of movement derives from binding of A-traces vs. \bar{A} -traces, such as in Chomsky (1981). Note that this is, essentially, what Sportiche (1988) argued for as a “stranding” analysis even though in work that assumes a derivational analysis of movement this subtlety is often overlooked.

of such a specialized lexical item in our mental lexicon.²¹ A representational approach plausibly also requires syntactic binding, which presumably requires indexation—another addition to the derivation that goes beyond the lexicon.

For theoretical reasons, I will not pursue this approach further. However, it should be clear that it trivially captures all four empirical goals as long as (a) *wh*-traces are a primitive of the theory, and (b) *wh*-traces come as, at least, DPs and PPs. It will also fare well in capturing the generalizations I discuss in section 6.5. It thus leave it here as a helpful level of analysis in want for a successful deduction of (a) and (b) from general principles.

6.4.2.2 Sub-extraction

McCloskey (2000, 2020) and Fitzpatrick (2006) propose sub-extraction as the separation procedure for the \bar{A} -QF constructions they discuss. This procedure can start with either a complementation structure as in (58a), or an adjunction structure as in (58b).

- (58) a. $[\text{AllesP } \text{alles } [\text{OpP } \text{Op } \text{WHP}]]$ COMPLEMENTATION
b. $[\text{OpP } [\text{OpP } \text{Op } \text{WHP}] \text{ alles}]$ ADJUNCTION

From there, the associate moves, without *alles*, and exits the source. With complementation, the process proceeds through the edge of *AllesP*. For them the assumption is that the corresponding projection is a DP. Given that DPs barriers for movement (for example through the phase edge in Phase Theory assuming that DPs phases (see Citko, 2005)).

- (59) a. COMPLEMENTATION:
(i) $[\text{AllesP } \text{alles } [\text{OpP } \text{Op } \text{WHP}]]$ \implies
(ii) $[\text{AllesP } [\text{OpP } \text{Op } \text{WHP}] [\text{alles}' \text{ alles } [\text{OpP } \text{Op } \text{WHP}]]]$ \implies

²¹ Even worse, *alles* can be separated from PPs. As Pafel implicitly acknowledges (p. 162), this would mean that a PP-*wh*-trace must exist as a primitive of the theory such that *alles* can adjoin to it when associating with PPs. Even still, examples like (i) (Pafel, 1996b: fn 8), where PP-extraction and *alles*-stranding are interleaved, seem to follow naturally from the representational approach. An open issue is why *alles* cannot be stranded inside the DP that the PP associate is a complement of; see section ??

- (i) $[\text{Von wem}]_1 \text{ sind } [t_1 \text{ alles}]_2 [\text{die } \text{Vorlieben } t_2] \text{ bekannt?}$
of whom are ALL the.NOM hobbies known
‘Whose hobbies are well known?’

- (iii) $[_{OpP} Op\ WHP] \dots [_{AllesP} \{_{OpP} \text{Op-WHP}\} [_{alles'} alles \{_{OpP} \text{Op-WHP}\}]]$
- b. ADJUNCTION:
- (i) $[_{OpP} [_{OpP} Op\ WHP] alles]$ \Rightarrow
- (ii) $[_{OpP} Op\ WHP] \dots [_{OpP} \{_{OpP} \text{Op-WHP}\} alles]$

With adjunction, it is less clear whether an OpP-internal movement step is required.²²

6.4.2.3 Complementary deletion

The copy theory of movement (Chomsky, 1993), broadly construed, holds that movement is an operation whose output is a chain of fully-fledged occurrences of a subtree of the syntactic derivation.²³ The *wh*-movement derivation of (60a) thus minimally has the representation (60b) in narrow syntax. The *wh*-phrase is fully represented in each position where it occurred in the course of the derivation.

- (60) a. $[_{DP} \text{What food}]_1 \text{ did you cook } t_1?$
- b. $[_{CP} [_{DP} \text{what } [_{NP} \text{food}]]] [_{C'} \text{ did } [_{TP} \text{you } [_{vP} \text{you } [_{VP} \text{cook } [_{DP} \text{what } [_{NP} \text{food}]]}]]]]]]$

In this theory, the interfaces (LF–CI, PF–SM) deal with the complex object in their own proprietary way. This may yield asymmetries between pronunciation and interpretation. Overt *wh*-movement is the typical poster child of this asymmetry as it is pronounced in CP but interpreted for its thematic properties in its base position. At first approximation, the PF–SM interface thus ‘interprets’ the chain such that the highest link of the chain is worked with, while the LF–CI interface ‘interprets’ the chain such that the lowest chain link is worked with. The standard technical implementation after Chomsky (1995) is to construe ‘interpretation of link L_n in chain CH’ as ‘deletion of all links in CH but L_n ’; (cf. Chomsky, 1995).

- (61) a. *Interpretation at PF–SM:*
- $[_{CP} [_{DP} \text{what } [_{NP} \text{food}]]] [_{C'} \text{ did } [_{TP} \text{you } [_{vP} \text{you } [_{VP} \text{cook } \{_{DP} \text{what } [_{NP} \text{food}]]}]]]]]]$
- b. *Interpretation at LF–CI:*

²² Empirically, vPs/VPs can be fronted to Spec,C in German, with or without adverbials that modify what are presumably exactly these verbal projections. It thus seems that in the verbal domain, an XP that a YP adjoined to can be freely “extracted” to the exclusion of YP. In the nominal domain, adjective-stranding is more restricted, but it is still possible in so-called “topic-splits” (see Ott (2012)).

²³ I leave the issue of how chains are formed unaddressed; see Chomsky (1995); Nunes (2004). I also do not address Multidominance theories of chain formation/movement (see Citko, 2011).

[_{CP} [~~DP what~~ [~~NP food~~]] [_{C'} did [_{TP} ~~you~~ [_{VP} you [_{VP} cook [_{DP} what [_{NP} food]]]]]]]

However, the *wh*-phrase in (60) is interpreted also in CP for its operator properties. The standard assumption after Chomsky (1995) is that the chain can be interpreted ‘complementarily’. Indeed this is a plausible assumption if ‘interpretation’ is a procedure of the interfaces. If narrow syntax “pre-processed” chains differentially for each interface, we lose generality. Thus, for the purposes of the LF–CI interface, the chain is manipulated such that the syntactic equivalent of the semantic operator is ‘interpreted’ in CP, and the syntactic equivalent of the semantic restriction is ‘interpreted’ in the base position (or somewhere on the A-chain). Parallel to above, ‘interpretation of X in constituent Y’ is construed as ‘deletion of anything but X in constituent Y’.

(62) *Representation for LF–CI interface:*

[_{CP} [_{DP} what [~~NP food~~]] [_{C'} did [_{TP} ~~you~~ [_{VP} you [_{VP} cook [_{DP} ~~what~~ [_{NP} food]]]]]]]

Capitalizing on this model, we may construe the separation procedure as an interface phenomenon which complementarily interprets the chain at the PF–SM interface. Slightly more specifically, in cases of distal *alles*, the interface interprets the chain in a way that a full link is interpreted, but complementarily across two links.²⁴ I illustrate the idea with the following picture:

(63) *Separation as complementary deletion:*

a. [_{CP} [_{DP} *wen alles*] [_{C'} hat [_{TP} der Peter [_{VP} [~~DP wen alles~~] [_{VP} gestern [_{VP} [~~DP wen alles~~] eingeladen]]]]]]

b. [_{CP} [_{DP} *wen alles*] [_{C'} hat [_{TP} der Peter [_{VP} [_{DP} ~~wen alles~~] [_{VP} gestern [_{VP} [~~DP wen alles~~] eingeladen]]]]]]

c. [_{CP} [_{DP} *wen alles*] [_{C'} hat [_{TP} der Peter [_{VP} [~~DP wen alles~~] [_{VP} gestern [_{VP} [_{DP} ~~wen alles~~] eingeladen]]]]]]

‘Who-all did Peter invite yesterday?’

²⁴ See Fanselow and Ćavar (2002) (“Distributed Deletion”), and Nunes (2004) (“scattered deletion”) for two approaches. Both approaches rely on there being additional features involved whenever a (part of a) link is pronounced. Indeed for *alles* it seems that Information Structural (IS) and prosodic considerations are involved in the choice between (a) stranding and no stranding, and (b) where to strand. See again the discussion of Pafel effects, and the effect of prosodic restrictions of *alles* on outcome. I discuss scattered deletion in more detail in section (74).

The main property of this account is that separation is *not* a narrow syntactic phenomenon. While we expect there to be effects of movement of the whole constituent, we do not expect any effects of movement that apply just to the associate. In addition, given the bifurcating model we are assuming, where narrow syntax maps separately onto the interfaces PF–SM and LF–CI, we expect the position of *alles* to have no influence on LF–CI. Of course, this prediction is complicated by the fact that the position of *alles* may have an effect by virtue of marking a chain-link of the associate (see again chapter 3).

6.4.3 Deriving the ABG

(55) *Explananda of the separation procedure:*

- a. The \bar{A} -Generalization (ABG): Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

The ABG cannot follow from the same-source hypothesis alone because one and the same associate can undergo A-movement as well as \bar{A} -movement, in the same derivation. *Alles*, however, can only be stranded in the tail of \bar{A} -movement (chapter 5). Explaining the ABG with properties of the source would thus likely entail abandoning attractive properties of the language model like the Projection Principle (e.g. Chomsky, 1986b), the notion, before Merge entered the scene, that transformations cannot insert (meaningful) morphemes into the structure after D-Structure, or if the Merge-hypothesis is assumed, that derivations are driven by a lexical array and/or obey the Inclusiveness Condition (Chomsky, 1995) – see again the brief discussion in the context of the *wh*-trace adjunction analysis of *alles* in section 6.4.2.1.

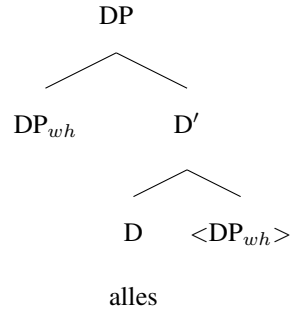
A sub-extraction analysis fares better than a complementary deletion analysis in deriving the ABG. There are two solutions to the problem provided in the literature. For the complementary deletion approach, the challenge is what an A vs. \bar{A} distinction might mean for the PF–CI interface given that the distinction is generally a syntactic, or semantic one (operators vs. variables), but not a morpho-phonological one.

6.4.3.1 Sub-extraction: improper movement

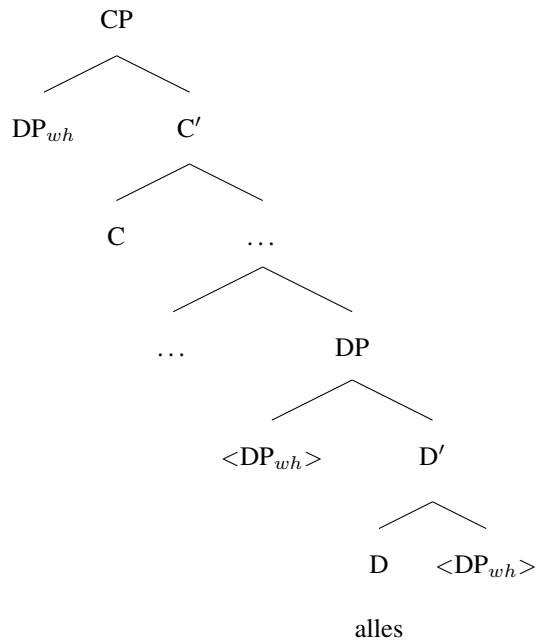
McCloskey (2000) explains the impossibility for *wh-all* in West Ulster English to be stranded by

A-movement as an Improper Movement violation.²⁵ His quantifier source requires the associate to move to the edge of the source for subsequent sub-extraction.

(64) a.



b.



For McCloskey (2020) this is necessary to escape the phase assuming Phase Theory and that DP is a phase. As McCloskey (2000) already discusses, the first step to Spec,D is plausibly \bar{A} -movement given that the associate needs to eventually *wh*-move to Spec,C. We may add the consideration that A-movement through Spec,D may not be possible in English anyway. At any rate, if the associate \bar{A} -moves to Spec,D, then *alles* cannot be stranded by A-movement. The reason is that if the associate A-moves out of DP after having \bar{A} -moved to Spec,D, it would constitute an instance of Improper Movement.

This solution is dependent on a quantifier analysis of the source.

²⁵ See again section 5.2.1.

6.4.3.2 Sub-extraction: A-over-A locality

[Fitzpatrick \(2006\)](#) suggests a different solution to the \bar{A} -restrictions he discusses. He capitalizes on the fact that, whether the relation between the quantifier/particle and the associate is complementation or adjunction, the mother constituent involves a containment relation between two DPs:

- (65) a. $[\underline{DP}_1 [\underline{D}_1 \text{ alles } \underline{DP}_2]]$ COMPLEMENTATION
 b. $[\underline{DP}_1 \underline{DP}_1 [\text{XP alles}]]$ ADJUNCTION

Fitzpatrick proposes that A-over-A locality is at issue with these structures. He notes that A-movement is about properties of DPs. Thus, in structures like those containing \bar{A} -FQs, there are two potential target DPs in the structure, one containing the other. Moving the contained DP would cross a dominating DP, an A-over-A violation ([Chomsky, 1964, 1973](#)), or, more generally, depending on details of how it is analyzed, a violation of Minimality ([Chomsky, 1995; Müller, 2011; Oka, 1993; Rizzi, 1990](#)).²⁶

- (66) *DP ... $[\underline{DP} \dots \underline{DP} \dots]$

In contrast, \bar{A} -movement does not target properties of a DP, specifically. Rather, in the case of *wh*-movement, it targets the properties of the *wh*-phrase. In this way, the contained DP and the mother DP differ, and no A-over-A violation ensues, for instance because for the purposes of this step of the derivation, the representation is merely that in (67b).

- (67) a. $DP_{[+wh]} \dots [DP_{[-wh]} \dots \underline{DP}_{[+wh]} \dots]$
 b. $[+wh] \dots [D \dots [+wh] \dots]$

A consequence of this approach is that A-QF is incompatible with sub-extraction, as [Fitzpatrick \(2006\)](#) proposes.

²⁶ Given that the two DPs are not in a c-commanding relationship, many of the formulations of Minimality will actually not apply. This issue is not insurmountable, for instance, if a Feature-over-Feature version of the A-over-A principle is adopted (see [Müller \(2011\)](#) for much discussion).

6.4.3.3 Interpretation of A-chains

How could a complementary deletion approach account for the ABG?

First, consider what the ABG translates to considering chains with identical links throughout:

(68) *alles* cannot be pronounced on A-chains

The general statement in (68) is possible because a chain link can be simultaneously part of a A-chain and an \bar{A} -chain. For instance, in the derivation in (69), the link L A-scrambles to A_Σ , then \bar{A} -moves to \bar{A}_{SC} via successive-cyclic movement, and on to \bar{A}_{SC} . In this derivation, the link L in position A_Σ is both the head of the A-chain, and the tail of the \bar{A} -chain. Chains are given as a set of occurrences that are defined by their syntactic context in (69ab) (cf. [Chomsky, 1995](#); [Nunes, 2004](#)).

- (69) $[\bar{A}_C L [\bar{A}_{SC} L [A_\Sigma L [A_\theta L V]]]]$
- a. A-chain: $((L, A_\theta), (L, V))$
 - b. \bar{A} -chain: $((L, \bar{A}_{SC}), (L, A_\Sigma), (L, A_\theta))$

Finally, non-pronunciation can in principle result from the pronunciation mechanism, or it could result from lack of material to choose from, i.e. the chain/chain-link is not present at in the PF–SM representation at all because narrow syntax did not provide it.

CHAIN UNIFORMITY One way to reduce non-uniform chains like (69) which contain both an A-chain and an \bar{A} -chain was proposed for the LF–CI side in [Chomsky \(1989, 1995\)](#). Chomsky proposed a principle of Chain Uniformity—(70) for our purposes (cf. [Chomsky, 1995](#)).

(70) A chain must be uniform with respect to its A/ \bar{A} -status.

He postulates that a legitimate LF object must either be a uniform A-/ \bar{A} -chain, or an operator-variable pair. He proposes that mixed chains can still be legitimate LF objects as long as they can reduce to an operator-variable pair. It is not clear why PF–SM would care about what constitutes a legitimate LF object. If the reduction applied in narrow syntax, in preparation for the interfaces, it seems we could extend this idea to

PF–SM, and delete all links except two to prevent *alles* from being pronounced on any other. However, this approach is clearly too strong. It comes at the cost of deleting not just all A-chain links except for one, but also all \bar{A} -chain links except for one as well. We wrongly predict that *alles* in positions of intermediate movement, in particular of long-distance \bar{A} -movement, is impossible. The approach undergenerates.

A-MOVEMENT LEAVES NO COPIES Another possibility to get (68) is by assuming that A-movement does not leave copies. The consequences of this approach are far reaching. Evaluating them goes beyond the scope of this dissertation.²⁷

One thing bears mention. On any approach where non-pronunciation of *alles* on A-copies results from the absence of A-copies at PF–SM, it seems that, all else equal, distal *alles* should be absolutely impossible in the corresponding positions. However, this was not always the case. The contrasts were clear, but the absolute judgments varied from person to person and from paradigm to paradigm (see again chapter 5 in detail). This is not an argument against this approach, given that a linking hypothesis between magnitude of effects and inferences is missing (a general problem; see ?). But it is an issue that is worth bearing in mind.

CYCLIC CHAIN REDUCTION I turn to options of (68) that result from the interpretive mechanisms. Norbert Hornstein (p.c.) suggests that the following distinction may be capitalized on in the context of Phase Theory:

- (71) a. A-chains are always contained within a phase
 b. By and large, \bar{A} -chains cross phase boundaries

For instance, we might assume that the PF–CI interpretation of chains (e.g. Nunes’s *Chain Reduction*) applies cyclically.²⁸ By applying cyclically, any A-chain will automatically be reduced. Typically, chain reduction entails that the head of the chain is preserved, and the other links are reduced/chopped. Given

²⁷ Tangential evidence might come from the discussion whether A-movement reconstructs or not. Chomsky (1995) for instance claims that A-movement reconstruction is never possible. If that is true, it would follow straightforwardly if there were no A-copies in the first place. See Lasnik (1999, 2001, 2004) for discussion in the context of Exceptional Case Marking; see also Lasnik (2021); Lasnik and Funakoshi (2001) for more discussion of (lack of) A-movement reconstruction.

²⁸ The idea PF computation is cyclically interleaved with narrow syntax is empirically supported from a range of phenomena and analyses. See for instance, Chomsky et al. (1956) on stress assignment in phrases in English, Matushansky (2006) on cliticization, or Uriagereka (2012) for general approach to “Multiple Spell-Out”.

that A-chains are always contained in the phase, this entails that, typically, only the head of an A-chain is ever preserved. For instance, by the end of the phase vP in (72a), the PF representation is (72b) given the reduction in (72c). In a way, this emulates the result of Re-Merge in Fox and Pesetsky’s Cyclic Linearization model (Fox and Pesetsky, 2003, 2005a,b).²⁹

- (72) a. $[_{vP} [_{DP} \text{ wen alles}] [_{vP} [_{DP} \text{ wen alles}] V]]$
 b. $[_{vP} [_{DP} \text{ wen alles}] [_{vP} \{\cancel{DP \text{ wen alles}}\} V]]$
 c. vP PF-cycle: $((DP, v'), (DP, V)) \Rightarrow (DP, v')$

We thus get the desired result that *alles* cannot be pronounced in tails of A-movement because A-chains are always reduced at the phase level. An immediate question is how two chain links can ever be pronounced complementarily if chain reduction applies cyclically – something to be figured out. Assume that cyclic chain reduction is but the pre-processing of chains: At the phase level, the whole phase is evaluated, the chain reduced, and the resulting representation saved to memory (the PF workspace).³⁰ The derivation proceeds through all cycles, until the narrow syntactic computation is complete, and we arrive at a full PF representation. In this representation, there are as many chain links as there are phases, given that in each phase the current chain was reduced to one link. But a chain will still have multiple links overall at the level of representation at which global optimization as discussed in Nunes (2004) applies. This is where scattered deletion may apply and *alles* be pronounced in a separate chain link than its associate.

There is one interesting issue that arises in the context of this proposal. Note that (71b) correctly states that \bar{A} -chains cross phases only ‘by and large’. \bar{A} -chains can occasionally also be contained within a phase, like A-chains. The only principled way to apply cyclic chain reduction is to reduce these chains as well. Otherwise, we would be restating the facts by referring to ‘A’ vs. ‘ \bar{A} ’ chains. The prediction is that exactly when \bar{A} -movement occurs within a phase, *alles* cannot be pronounced in the tail of \bar{A} -movement, either. Some initial evidence comes from *wh-all* float in West Ulster English (WUE). McCloskey (2000:

²⁹ It is important to note, however, that Cyclic Linearization alone does not suffice to explain the ABG. The ABG is thus independent of “intermediate stranding effects”; see in particular Davis (2020b).

³⁰ These assumptions force to give up the idea that “transfer” (Chomsky, 2001, 2004) is what renders syntactic objects opaque to further computation. However, the model of transferring the complement of the phase head has come into question in several places (e.g., Bošković (2016); Doliana and Kurokami (2021) coming from syntax, or Sande et al. (2020) coming from phonology). If what is transferred is the entire phase, transfer cannot render the entire transferred object opaque or \bar{A} -movement would not exist.

section 7) notes that, in subject questions, *all* can be stranded in the base position but not in TP. His analysis of *all*-stranding leads him to conclude that the constituent *who all* cannot move through TP (see again discussion in section 5.1).

- (73) a. Who was throwing stones [_{vP} all around Butchers' Gate] ?
 b. *They were throwing stones [_{vP} all around Butchers' Gate]. (McCloskey, 2000: 77)

McCloskey consequently concludes that the EPP is optionally violable in (WU) English. However, the *possibility* to directly move to Spec,C is not sufficient. It is necessary for *who* to always proceed directly to Spec,C. Else, there will be derivations in which *all* can be stranded in Spec,T, contrary to fact. By hypothesis, the EPP is still satisfied in the general case—i.e. non-*wh* subjects still always move to Spec,T. Then, the question becomes what bans only *wh*-subjects from satisfying the EPP and moving through Spec,T.³¹ The current proposal of cyclic chain reduction might help. We could follow McCloskey in assuming that the EPP is *optionally* violable as follows: assume that subjects are either base generated in TP or in vP; assume further that optionality comes from fact that when the subject is base generated in vP, it does not need to move through TP. Now, if the subject is base-generated in vP, \bar{A} -movement out of the vP phase allows “stranding” of *all*. When it is base generated in TP, movement to CP is within the phase so that *all* cannot be “stranded” in TP.

However, two main issues in connection to \bar{A} -chains remain. Essentially, as this proposal stands, if phases force movement to their edges, only chain-links of \bar{A} -movement that are at the phase edge will survive. This would mean that distal *alles* is predicted to occur only at the phase edge.³² This is incorrect as I have argued—distal *alles* can occur in the associate’s base position, both with arguments and adjuncts. While the resulting descriptive generalization in (74) might still hold, deriving this by cyclic chain reduction in a phase-theoretic model would presumably force us to give up on the idea that phases force movement through their edges (the Phase Impenetrability Condition; Chomsky (2001)). I must leave this issue open here.

³¹ That is, of course, assuming that subject *wh*-questions also involve movement to Spec,C. See for example ? ****[FILL IN: Pesetsky paper ref, where he also notes adverbial scope]****.

³² This result is, in a way, very similar to the late-adjunction proposal by Zyman (to appear) for *exactly*-stranding in English. I wonder whether the idea proposed here could deduce his proposal. Unfortunately, that would lead us too far afield.

(74) *Hypothesized descriptive generalization:*

Distal *alles* occurs on tails of cross-phasal movement.

Corollary: All cases of *alles* in its associate's base position involve movement of the associate *across* a phase boundary.

FEATURE CALCULUS OF CHAIN REDUCTION Finally, the weakest approach I can envision is one that rests solely on the general interpretive mechanism at PF. Nunes (2004), for instance, proposes that feature-checking plays a crucial role in determining what chain link is optimally kept after Chain Reduction. Essentially, the more features checked, the more optimal a candidate for keeping. On such an account, the A-movement vs. \bar{A} -movement distinction may have to do with the feature calculus. Assume that A-movement always checks a feature, but that \bar{A} -movement does not always check a feature. Any higher occurrence of an A-chain thus checks more features and will be invariably favored over lower copies of A-movement.³³ On the other hand, copies of \bar{A} -movement may occasionally check an equal amount of features, giving rise to (apparent) optionality between intermediate copies of \bar{A} -movement.³⁴ Specifically, we may assume that successive-cyclic movement is not feature-driven, but rather is a possibility that is not ruled out by narrow syntax so long as it leads to convergent representations at the interfaces (as in the spirit of Bošković (2007)). Intermediate occurrences of \bar{A} -movement are thus all equally suitable candidates for pronunciation at PF. Crucially, we need to assume something to allow intermediate occurrences of \bar{A} -movement to become comparably optimal to the head of the \bar{A} -chain. The head of the \bar{A} -chain inevitably checks an operator-related feature in its final landing site and would thus inevitably be favored over the lower links. We may assume that satisfaction of independent requirements, in particular prosodic ones, can balance out the feature-checking calculus. If this can be satisfactorily implemented, the ABG follows. If we assume that scattered deletion is free, we are done.³⁵ If we take into consideration economy, scattered deletion involves more operations than deletion of the full copy (see also Bošković and Nunes (2007)): full chain

³³ Another way of posing the question of how to derive the ABG from a chain-pronunciation algorithm is to ask how, assuming the movement theory of control (Boeckx et al., 2010; Hornstein, 1999), copies of A-movement are pronounced in the context of Backward Control where the controllee rather than the controller is overt (as argued for Tsez by Polinsky and Potsdam (2002)).

³⁴ Optionality in optimization is a difficult technical matter. See for instance Prince and Smolensky (2004) for some discussion. I leave the question open whether what is observed is “true” optionality or only apparently so.

³⁵ Nunes (2004: section 1.6.3) suggests that scattered deletion is possible at all because the contexts for one and the same sub-part (X of ‘([W X], C₁), ([W X], C₂)’) are different in each chain link because the context of the mother constituent ([W X]) is different. This relies on viewing chain links as occurrences that are defined by context, a way to avoid indexation (cf. Chomsky, 1995).

reduction involves two reductions in (75a), while scattered reduction involves three in (75b) (number of applications notated as superscripting).

(75) Chain = (([W A], X), ([W A], Y), ([W A], Z))

[_U [W A] [_X [W A] [_Y [W A] Z]]]

a. [_U [W A] [_X [~~W A~~² [_Y [~~W A~~¹ Z]]]] “Regular reduction”

b. [_U [W A³] [_X [W² A] [_Y [~~W A~~¹ Z]]]] “Scattered reduction”

The question is thus under what circumstances scattered deletion becomes available. I suggest two options here, and leave the matter open. First, [Bošković and Nunes \(2007\)](#) argue that the pronunciation of Bulgarian verb-clitic clusters can be resolved through scattered deletion because independent requirements are in effect that would lead to no convergent pronunciation without it. Assume that the prosodic requirements of *alles* (see again section 2.5) conspire to force scattered deletion: when the associate – for whatever independent reason – doesn’t carry enough prosodic prominence to support *alles*, scattered deletion is possible because the more economical derivation crashes. This may be one independent factor that “balances out” the status of intermediate occurrences of \bar{A} -movement in comparison to the head of the \bar{A} -chain.

Overall, it appears that while we have not found a straightforward solution, a complementary deletion analysis of *alles*-separation does provide angles of attack to derive the ABG.³⁶

6.4.4 Barriers for extraction

(55) *Explananda of the separation procedure:*

- b. The associate can be a subject, an object, or an adverbial.

For a complementary deletion approach it does not matter whether the associate is an object, subject or adverbial, nor does it matter whether it is a complement, a specifier, an argument or an adjunct.

³⁶ In contrast, for instance, extending an analysis based on symmetry-breaking movement [Al Khalaf \(2019\)](#); [Ott \(2012\)](#) seems hopeless. In such an analysis of FQ, the quantifier and its associate are in a predication relation, in an XP-YP structural configuration. Such symmetric-Merge structures are assumed to be generable, but to violate interface conditions such that they must be either re-labeled to an X-YP structure, or broken by movement to a XP or YP structure. The *type* of movement thus seems to be at right angles with what saves the configuration. A-movement should be just as able to do the trick for *alles* as \bar{A} -movement. Indeed, Ott proposes this analysis for A-QF of inflecting *all-* in German.

For a sub-extraction approach to separation, however, it does matter. In particular, subjects and adjuncts are known to often be barriers for sub-extraction. A classic example is the asymmetry between sentences like (76a) vs. (76b/c).

- (76) a. Who₁ did you [_{V'} file [_{DP} a report [_{PP} about *t*₁]]] ?
 b. *Who₁ did [_{TP} [_{DP} a report [_{PP} about *t*₁]]] [_{VP} worry you] ?
 c. *Who₁ did you [_{V'} scare Tom [_{PP} with [_{DP} a report [_{PP} about *t*₁]]]] ?

In German, too, subjects can be barriers for extraction, e.g. (77) (Pafel, 1996b: (9a,10a), adapted).

- (77) a. *[Von Penrose]₁ hat [der Freund *t*₁] diese Theorie entwickelt.
 of Penrose has the.NOM friend this.ACC theory developed
Intended: 'The friend of Penrose developed this theory.'
 b. ?*[Von wem]₁ sind [einige Bilder *t*₁] unansehnlich?
 of whom are some.NOM pictures unsightly
Intended: 'Some pictures of whom are unsightly?'

While subjects are not *always* barriers for extraction in German, this detail need not concern us here given that distal *alles* is, as far as I was able to establish, always possible.³⁷ Parallel sentences to (77) are possible with *alles*, where the associate is, by hypothesis, extracted from the subject.

- (78) a. Wer₁ hat [*t*₁ **alles**] diese Theorie entwickelt?
 who.NOM has ALL this.ACC theory developed
 'Who-all developed this theory?'
 b. Wer₁ ist [*t*₁ **alles**] unansehnlich?
 who.NOM is ALL unsightly
 'Who-all is unsightly?'

The same applies to adverbials. Sub-extraction of a complement from an adverbial as in (79a), or extraction of a modifier as in (79b) is impossible. In comparison, hypothesized *alles* sub-extraction from a comparable source in (79c) is natural.

- (79) a. *[Von Penrose]₁ bist du [mit [dem Freund *t*₁]] in die Schule gegangen.
 of Penrose be.2SG you.NOM with the friend in the school gone

³⁷ See in particular the literature on *melting* effects. Müller (2011) offers extensive review; see also Uriagereka (2012: section 2.5).

Intended: ‘With the friend of Penrose, you went to school.’

- b. *[Mit dem Staubsauger]₁ hab’ ich [DP den Freund *t*₁]] angerufen.
 with the vacuum have.1SG I.NOM the friend called.on.phone

Intended: ‘I called [the friend with the vacuum cleaner].’

- c. [Mit wem]₁ bist du [*t*₁ alles] in die Schule gegangen?
 with who be.2SG you.NOM ALL in the school gone
 ‘Who-all did you go to school with?’

Of course, the comparison between (79c) and (79a/b) is not minimal. For example, In (79b), there is a DP layer over the extracted PP, while in (79c), by hypothesis the PP is contained by an identical label. Other factors may thus be at issue. For a sub-extraction analysis of *alles* to be viable, the structural configurations must be minimally different and explain the contrasts.

6.4.5 Intermediate stranding

(55) *Explananda of the separation procedure:*

- c. Separation is possible in intermediate positions, i.e. after movement and before the final landing site.

Sub-extraction is compatible with this generalization, but requires that moved constituents, or specifiers, not be islands for extraction. This is incompatible with some proposals to the argument-adjunct asymmetry and/or linearization (see Uriagereka (2012) and Müller (2011) for much relevant discussion).

In addition, if Fitzpatrick’s proposal to derive the ABG from A-over-A locality is adopted, successive-cyclic movement cannot be feature driven (in line, for instance, with Bošković (2007)). If successive-cyclic *wh*-movement were feature-driven, intermediate representations such as (80a) would result. In (80a), both the associate and the mother constituent have a *wh*-feature, because both have undergone, or will be undergoing, *wh*-movement in the course of the derivation. Thus, subsequent sub-extraction as in (80b) will violate A-over-A locality (of Feature-over-Feature locality, see footnote 26; Müller, 2011).

- (80) a. [DP_[+wh] WEN alles] ... [~~DP_[+wh]~~ WEN alles]
 b. [DP_[+wh] WEN] ... [DP_[+wh] [~~DP_[+wh]~~ WEN] alles]

Separation by complementary deletion does not run into either of these two issues. But see the discussion of “scattered deletion” in section (74).

6.4.6 Open Questions

6.4.6.1 There and Beck again

A key component of the complementary deletion approach is that there is but one movement chain: the unit *associate+alles* moves together start to finish. This has the consequence that the chain is interpreted independently by the two interfaces PF–SM and LF–CI. Intervention effects like the famous Beck effects are rather unexpected, at least at first blush (see again section 3.2). I point out a potentially interesting niche to explore in the future. In particular, we may formulate the following descriptive hypotheses about the intervention effect (restricted to syntactically interrogative contexts):

- (81)
- a. Intervention (intervener, *alles*) occurs whenever the intervener c-commands *alles*.
 - b. Intervention (intervener, *alles*) occurs only with specific portions of the chain.
 - c. Intervention (intervener, *alles*) occurs only in specific domains of the sentence.

I do not have any more specific hypotheses in mind for why any of (81) should be favored over another. However, if I understand Beck’s focus-intervention proposal correctly, (81a) is the main hypothesis on the table.

In light of this, I suggest that we look at long-distance movement context. Beck (2006: 5) notes that while the *wh*-scope-marking construction is affected by cross-clausal intervention (see again section 4.2.3.2), speaker who allow CP-extraction do not exhibit intervention effects.

- (82)
- a. *Was glaubt niemand wen Karl gesehen hat?
 what believes nobody whom Karl seen has
 ‘Who does nobody believe that Karl saw?’
 - b. Was glaubt Luise wen Karl gesehen hat?
 what believes Luise whom Karl seen has
 ‘Who does Luise believe that Karl saw?’
 - c. %Wen glaubt niemand daÃ§ Karl gesehen hat?
 whom believes niemand that Karl seen has

‘Who does nobody believe that Karl saw?’

(Beck, 2006: (8))

I disagree with the remark about (82c). I only find the single-pair reading acceptable. I have a similar intuition about (83a). I am not certain that the distributive reading (‘DIST’) is impossible. However, the non-distributive reading (‘NDIST’) is much preferred. We can test for the distributive reading more explicitly by using Pafel’s diagnostic from 3.2.1. Consider (83b). The bound-pronoun in the restriction of the *wh*-phrase makes it clear that the distributive reading is the only reading. However, the sentence is now very hard to interpret. It would be perfectly natural with *jeder* substituted for *er*, but that would bring the non-distributive reading back on the table.

- (83) a. [*Welche Aufgabe*]₁ hat jeder geglaubt, [_{CP} dass ich *t*₁ lösen würde]?
 which assignment has everyone believed that I solve would
 ‘Which assignment did everyone believe that I would solve?’ NDIST > ??DIST
- b. ??[*Welche von den Aufgaben, die er_i gestellt bekommen hat*]₁, hat jeder_i geglaubt, [_{CP} dass ich *t*₁ lösen würde]?
 which of the assignments REL he posed gotten has has everyone believed
 dass ich *t*₁ lösen würde?
 that I solve would
 ‘Which of the assignments that each person received did each person believe that I would solve?’ DIST

Perhaps this is due to the fact that these are “inner islands” (Ross, 1984). Cinque (1990) extensively documented the loss of pair-list readings across weak island boundaries. Nonetheless, I believe that it will be valuable to explore in more depth how *alles* fits into this picture in the contexts of the three hypotheses in (81), and in the context of the boundary conditions that this dissertation places on how to analyze the separation procedure of *alles*.

- (84) *Wen* hat {**alles**} nur der PEter {**alles**} gedacht, [_{CP} dass wir {**alles**} eingeladen haben]?
 who.ACC has ALL only the Peter.NOM ALL thought that we.NOM ALL invited
 have
 ‘Who-all did only Peter think that we invited?’
- (85) *Wen* hat {**alles**} jeder {**alles**} gedacht, [_{CP} dass wir **alles** eingeladen haben]?
 who.ACC has ALL everyone.NOM ALL thought that we.NOM ALL invited have
 ‘Who-all did everyone think that we invited?’

Judgments are not obvious so that I have not attempted to check them more systematically with other speakers. I thus leave the sentences without judgment. For me, in (84), the two matrix-*alles* questions sound equally acceptable.

Relatedly, there is one more consideration for Beck effects that arises in the context of this dissertation. What distinguishes the “intervened” patterns in the *a*-examples from the “resolved” patterns in the *b*-examples is that in the *b*-examples the “victim” of intervention moved over the intervener.

- (86) a. ?**Wer* hat nur dem Peter **wen** empfohlen?
 who.NOM has only the.DAT Peter who.ACC recommended
Intended: ‘Who recommended who only to Peter?’
- b. ?**Wen*₁ hat sie nur dem Peter *t*₁ **alles** empfohlen?
 who.ACC has she.NOM only the.DAT Peter ALL recommended
Intended: ‘Who-all did she recommended only to Peter?’
- (87) a. *Wer* hat **wen**₁ nur dem Peter *t*₁ empfohlen?
 who.NOM has who.ACC a.DAT professor recommended
 ‘Who recommended who only to Peter?’
- b. *Wen* hat sie **alles** nur dem Peter empfohlen?
 who.ACC has she.NOM ALL only the.DAT Peter recommended
 ‘Who-all did she recommended only to Peter?’

Suppose that what matters is A-movement over the intervener. Not because A-movement is special, but because \bar{A} -movement over an intervener will cause problems downstream, for instance because \bar{A} -dependencies are interpreted as operator-variable pairs by LF, and if there is a variable in the scope of a focus operator, then we get intervention in the sense of Beck (2006). However, I have argued that *alles* cannot be stranded by A-movement. That means that (87a) is compatible with there being no member of the \bar{A} -chain c-commanded by the intervener. In (86a), in contrast, the associate *who* necessarily \bar{A} -moved from the position marked by *alles*. The chain is interpreted in a way that puts a variable in the c-command domain of the intervener. This means that for the *a* and *b*-examples to be uniform, there cannot be any LF-A-movement (contrary to, e.g., Case-movement at LF as in Chomsky (1995)). This would also entail that the other split construction receive the same analysis, and that those split constructions, too, cannot be A-stranded. Mild evidence in favor of this approach comes from A-QF *all*–, if we assume a movement for this kind of split phenomenon (cf. Merchant, 1996): Variant *all*– is not subject to intervention effects.

- (88) a. *Die* hat sie nur dem Peter **all-e** empfohlen
 those.ACC has she.NOM only the.DAT Peter all-ACC.PL recommended
 ‘Them all she recommended only to Peter.’
- b. *Die* hat sie **all-e₁** nur dem Peter *t₁* empfohlen
 those.ACC has she.NOM all-ACC.PL only the.DAT Peter recommended

In a model of syntax in which LF-movement does not really exist, but rather everything happens in narrow syntax, it becomes an interesting question how to cash out the statement that “there is no LF-A-movement”. Parallel to the discussion of chain reduction in section 6.4.2.3, it would mean that A-chains are either trivial before they even arrive to the interfaces, for instance because A-movement leaves no traces, or that they are reduced in a more radical way as a “pre-processing” step of the interfaces. What is interesting to note is that this may be an area in which some amount of symmetry between the interfaces in how they deal with chains could arise as an artifact – or design feature – of how A-chains in particular are construed.

6.4.6.2 Stranding inside DP

PPs can be extracted out of DPs in German under favorable circumstances (see e.g. [Abels, 2003](#); [Blümel, 2012](#); [Fanselow and Ćavar, 2002](#); [Müller, 2011](#); [Ott, 2012](#); [Pafel, 1996b](#)). Given a stranding analysis of *alles*, and the fact that *alles* can associate with and be stranded by PPs, we predict that *alles* can be stranded inside DPs. This is, however, never the case. I have not been able to construct acceptable examples. The only mention of this I have found in the literature is [Pafel \(1996b: 151\)](#), in passing as an example that there *are* restrictions on *alles*-extraction.

- (89) a. ?*[Von wem]₁ sind [die Vorlieben [*t₁ alles*]] bekannt?
 of who.DAT are the.NOM hobbies ALL known
Intended: ‘Whose hobbies are well known?’ ([Pafel, 1996a: \(17\)](#))

Even worse, [Pafel \(1996b: fn 8\)](#) shows that what “seems to be a combination of PP Extraction and *w-alles* split” is acceptable. I agree with the judgment.

- (90) [Von wem]₁ sind [*t₁ alles*]₂ [die Vorlieben *t₂*] bekannt?
 of whom are ALL the.NOM hobbies known
 ‘Whose hobbies are well known?’

Given that I argued that *alles* has no dependency with anything else in the clause, such that “being trapped inside a DP” should not impact its status, it is not immediately clear what this contrast should follow from. Perhaps, it is a prosodic effect, along the lines of what I discuss in section 6.5.4, where the presence of a lexically projected NP messes with the ability of *alles* to incorporate prosodically. (91) is indeed better; however, it does not control for the possibility that the pronoun moved over previously-stranded *alles* as in (90).

- (91) [Von wem]₁ sind [die [t₁ alles]] bekannt?
 of who.DAT are those.NOM ALL known
 ‘Whose (hobbies) are well known?’
- a. [Von wem]₁ sind [die [t₁ **alles**]] bekannt?
- b. [Von wem]₁ sind [die t₂]₃ [t₁ **alles**]₂ t₃ bekannt?

6.4.6.3 Multiple *alles*’s in ATB

- (92) *Alles to chain correspondence* (A2C):

There can be no more than one overt *alles* per chain.

The A2C in (93) may distinguish between a sub-extraction and a complementary deletion approach. In particular, in section 4.4.5 I showed that in across the board (ATB) questions like (93), *alles* can be repeated in each conjunct.

- (93) a. *Wen*₁ hat der Peter [C₁ erst t₁ **alles** eingeladen] und [C₂ dann wieder t₁ **alles** ausgeladen]?
 who has the Peter first ALL invited and then again ALL uninvited
 ‘Who-all did Peter first invite and then uninvite again?’
- b. [Wem seine Studenten]₁ hat [C₁ die Masha t₁ **alles** eingeladen] und [C₂ der Howard t₁ **alles** ausgeladen]?
 who.DAT his.PL students has the Masha ALL invited and the Howard ALL uninvited
 ‘The students of who-all did Masha invite and Howard uninvite?’

I noted the sentences are acceptable also when there is an *alles* in one of the conjuncts. When there is only one *alles*, there appears to be no change in meaning or felicity conditions. I suggested that in some relevant sense *alles* seems to apply to both conjuncts. However, it is not easy to tease apart whether the ATB nature

of the interpretation is due to parallelism restrictions on how ATB questions are interpreted, or whether it is due to the presence of a second *alles* in narrow syntax. See again ?? for discussion and a potential way forward. Depending on our assumptions about the analysis of ATB movement, and therefore about the conditions for ATB-interpretation of *alles*, this may be a fruitful playing ground to distinguish between analyses of the separation procedure. It may be interesting to note in this regard that one speaker reported distinctly preferring sentences with two *alles*'s present in the coordinate structure over sentences with just one. By and large, I tend to agree with this speaker, but this judgment needs to be tested more carefully.

6.5 Complex associates

Having narrowed down the range of possible sources and possible separation procedures, in this section I address the issue of complex associates. Two main issues arise in the context of non-pronominal associates such as *mit wem* 'with who' or *welche Torten* 'what cakes'. On the one hand, a stranding analysis of distal *alles* forces us to conclude that *alles* can associate with constituents that are larger than the structure [Op+WH] that I have argued for on the basis of pronominal *wh*-associates (section 6.5.1). I will argue that the strangeness of this conclusion is not forced by a stranding analysis, but rather that interpretive restrictions on adjacent *alles* force this conclusion independently (section 6.5.2).

On the other hand, another set of facts about adjacent *alles* with complex associates appears to indicate that the maximal size of the associate is in some way always smaller than the proposed [Op+WH] (section 6.5.4). We reach a seemingly contradictory state of affairs. I conclude that the morpho-syntax (of German) conspires to create this tension and propose a layering of the *wh*-phrase that draws important connections to the literature on the interrogative operator Q (Cable, 2007; Watanabe, 1992) and *wh*-particle association in Japanese (Saito, 2017).

6.5.1 Pied-piping generalization

If we focus on just *wh*-interrogative associates, the following generalization emerges for what XPs distal *alles* can associate with:³⁸

³⁸ I ignore here specific adverbial *wh*-pronouns, such as *warum/wieso* 'why', *wann* 'when', etc.; see again section 2.3. The generalization is meant to address the structure more than the semantic content. Nonetheless, it remains an open question why these *wh*-forms cannot associate with *alles*.

(94) *Pied-piping generalization (PPG):*

If an XP can occur in selected interrogative Spec,C, then it is a licit associate for distal *alles*.

The PPG trivially covers all simplex *wh*-phrases we have discussed so far.

(95) *Simplex wh-phrases:*

Ich frage mich, *'I wonder'*

- a. [CP [DP *wen*] [C' C_[+wh] du **alles** fragen solltest]]
 who.ACC you.NOM ALL ask should.2SG
- b. [CP [DP *wem*] [C' C_[+wh] du **alles** helfen solltest]]
 who.DAT you.NOM ALL help should.2SG
- c. [CP [DP *wer*] [C' C_[+wh] ihm **alles** geholfen hat]]
 who.NOM him.DAT ALL help should.2SG
- d. [CP [PP *wo*] [C' C_[+wh] sie **alles** ihren Fisch einkauft]]
 where she.NOM ALL her fish buys
- e. ...

Similarly, complex *wh*-phrases such as *welch*-phrases (96a), left-branch possessors (96b–c), and *was-für*-phrases (96d) are licit associates.

(96) *Complex DP edge-wh-phrases:*

Ich frage mich, *'I wonder'*

- a. [CP [DP *welche Torten*] [C' C_[+wh] du (alles) kaufen solltest]]
what.ACC cakes you.NOM ALL buy should.2SG
- b. [CP [DP [DP *wem*] seine Freunde] [C' C_[+wh] du (alles) fragen solltest]]
who.DAT his.ACC.PL friends you.NOM ALL ask should.2SG
- c. [CP [DP *wessen* Freunde] [C' C_[+wh] du (alles) fragen solltest]]
whose friends.ACC you.NOM ALL ask should.2SG
- d. [CP [DP *was für Leckereien*] [C' C_[+wh] sie (alles) einkauft hat]]
what for yumyums she.NOM ALL bought has
- e. ...

Complement possessors, however, cannot move to (selected) interrogative Spec,C.³⁹ These phrases

³⁹ I take this judgment to be uncontroversial even though there are occasionally different reports in the literature, in particular in the context of “massive-pied-piping” relative clauses; see for instance some reports in Heck (2009).

can also not associate with distal *alles*. (We ignore echo *wh*-phrases for now.)

(97) *Complex DP non-edge wh-phrases:*

Ich frage mich, ‘I wonder’

- a. *_{[CP [DP Die Freunde [PP von wem]] [C' C_[+wh] du (alles) fragen solltest]]}
the.PL.ACC friends of who you.NOM ALL ask should.2SG
- b. _{[CP [DP Die Mütter [PP von {wen /welchen Olympia-Athleten}]] [C' gingen [TP}
the.PL.ACC mothers of who what olympia-athletes went.3PL
1953 (*alles) auf einen brutalen Hungerstreik]]?
1953 ALL on a brutal hunger.strike
‘The mother of {who /what Olympic Athletes} went on a brutal hungerstrike in 1953?’ (for
welche, e.g., ‘the ones of the German, the Italian, and the Polish biathletes’)

Turning to PPs, we see the same pattern as for DPs above—adding the P-layer does not change anything.

(98) *PP wh-phrases:*

Ich frage mich, ‘I wonder’

- a. _{[CP [PP mit [DP wem]] [C' C_[+wh] du alles trainieren könntest]]}
with who you.NOM ALL train could.2SG
‘who you should train with.’
- b. _{[CP [PP für [DP wen]] [C' C_[+wh] du alles arbeiten könntest]]}
for who you.NOM ALL work could.2SG
‘who you could work for.’
- c. _{[CP [wegen [DP welchen Lobbyisten] [C' C_[+wh] wir alles diese Probleme}
due.to what lobbyists we.NOM ALL these.ACC problems have.1PL
haben]]
‘because of what lobbyists we have these problems.’
- d. _{[CP [PP über [DP [DP wem] seine Eltern]] [C' C_[+wh] wir alles sprechen sollten]]}
over who.DAT his.PL parents we.NOM ALL talk should.1PL
‘whose parents we should talk about.’

The conclusion we have reached so far is that *alles* is always first-merged with the associate and separated from it in the course of the derivation. The data above that make up the PPG naturally lead to the conclusion that *alles* can start out the derivation as the sister of any of these structures. Idealizing over the

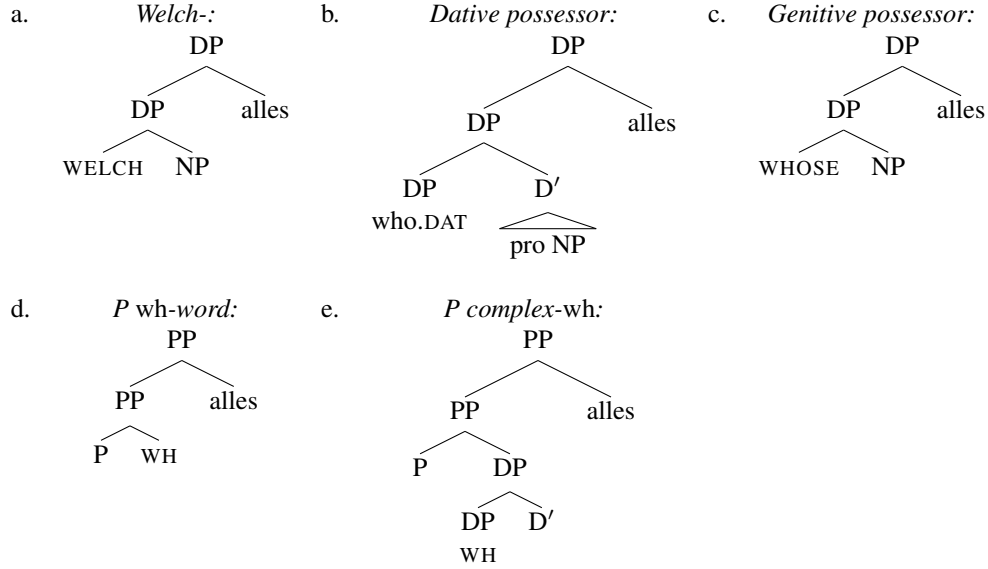


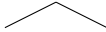
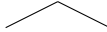
Figure 6.1: Overview of complex associates (not an exhaustive list)

internal structure, we have the stages in the derivation in fig. 6.1.

In all of these cases, *alles* merges with a structure that is larger than the one we have argued for on the basis of DP *wh*-words.⁴⁰ This tension is not new. It occupies pretty much the entire literature on *wh*-pied-piping (see Cable (2007); Heck (2004, 2009) for recent discussion). One type of approach, at least since Chomsky (1973),⁴¹ falls under the rubric of “feature percolation”. On such an approach, the features of the operator that is connected to movement, optionally trickle up. This is to implement the idea that the computational goal of *wh*-movement is to get the *wh*-feature into a local configuration with interrogative C (cf. Chomsky, 1995). When the features do percolate up, the highest projection with the feature must move, accounting for the difference in size of what is overtly moved. On this account, *alles* can associate with all of the structures above because its sister always bears a *wh*-feature. Based on the conclusions reached in section 6.3.2, the *wh*-feature must crucially be a feature of the operator-layer of the *wh*-phrase, which distinguishes it from *wh*-indefinites. *Alles* would thus uniformly associate with XPs that have a [+*wh*] feature; to distinguish the *wh*-ness from the operator-properties, we may also notate this as [+Op].

⁴⁰ In fact, given that *alles* can associate with *wo* ‘where’, it is perhaps not surprising that *alles* can also associate with larger PP *wh*-phrases.

⁴¹ See also Postal (1972) for some early discussion.

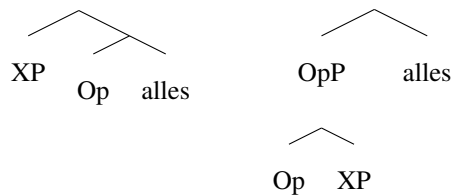
- (99) a.  \approx b. 

Another type of approach is to assume that the operator itself has the flexibility to merge with different-sized constituents; this is the Q-morpheme approach (see for instance [Watanabe \(1992\)](#) for an early precursor; [Hagstrom \(1998\)](#); in particular [Cable \(2007\)](#)). Taking this approach, *alles* uniformly associates with an Op-associated XP.

- (100) 

(100) is not just a notational variant of (99). It fundamentally distinguishes itself from the percolation approach. The Q-approach holds that the computational-level goal of “*wh*”-movement is Q-movement, i.e. to get Op into a local configuration with interrogative C.⁴² Two options for how Op associates with XP arise: adjunction/modification, and complementation.⁴³ If XP is *modified* by Op, how do the selective properties of *alles* arise? Typically, selection of a Y for a ZP is blind to whether ZP is modified by an XP or not. Selection would arise more easily if (a) *alles* modified Op, or (b) Op takes XP as its complement such that Op projects.

- (101) a. *Op-modification* b. *Op projects*

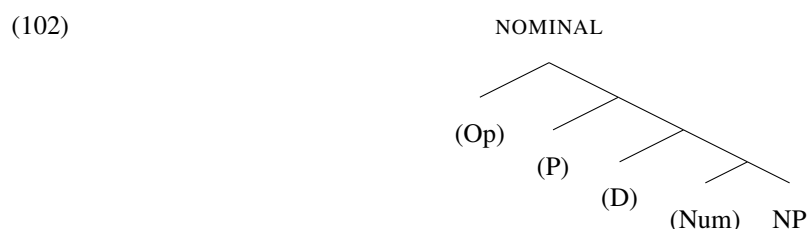


However, if Op took XP as its complement, how would the transparency of XP be preserved? Whether Op is there or not, XP always behaves as XP for the non-*wh* portion of its derivation. This is trivially true when

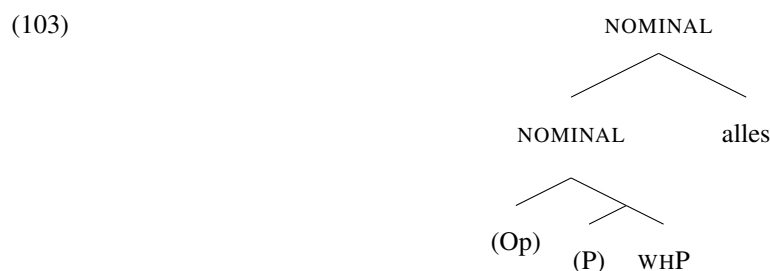
⁴² I ignore the option of satisfying interrogative C via binding or long-distance Agree given that I do not discuss *wh*-in-situ languages in depth. See [Cable \(2007\)](#), as well as [Saito \(2017\)](#) for discussion.

⁴³ [Cable \(2007\)](#), for instance, proposes that *wh*-fronting languages have Q-complementation, while *wh*-in-situ languages have Q-adjunction. The fact that the former leads to a QP-projection forces movement (with unclear implicit assumptions of why head-movement is not possible, here), while adjunction allows the possibility to adjoin to clausal projections.

we consider Case assignment to DPs, subject-verb agreement, and, at the risk of circularity, the distribution of XP preceding *wh*-movement as diagnosed by *alles*. If Op was to take XP as its complement, it would therefore need to be part of the extended nominal projection.⁴⁴ A standard assumption about extended projections is that they are fixed sequences. Given that Op can take both DPs and PPs as its complement, it seems that the most natural conclusion is to assume that both P and Op are members of the nominal functional sequence, with P and Op being optional.⁴⁵



Assuming the idealized layer WHP, we have (103) as the updated version of the complementation analysis (102b). (Again, the representation should be viewed as a stage in the derivation—either modification, or movement through a specifier of *alles*.)



In conclusion, given the PPG, *alles* associates with constituents that are larger than the OpP I argued for in section 6.3 on the basis of Reis’s generalization and the distinction between *wh*-indefinites and *wh*-interrogatives in German. In this dissertation I have argued for the Same Source Hypothesis (SSH), the assumption that there is one first-Merge configuration from which adjacent *alles* and distal *alles* are derived, from which a stranding analysis follows. Given the SSH, the outstanding question is how to combine Reis’s generalization with the PPG. In other words, *what is the syntactic-semantic natural class that alles selects*,

⁴⁴ This is something that Cable (2007) rejects. Indeed, if Op/Q is part of the extended nominal projection, we risk losing the parallelism that he argues for between *wh*-fronting and *wh*-in-situ languages, and P-stranding becomes a problem.

⁴⁵ If Op could take either DP or PP as its complement, complementation and adjunction would end up being very similar.

and which licenses *alles*?

For a feature-percolation approach, it is the statement in (104a);

- (104) a. *Feature-percolation:*
alles is licensed in the configuration [[+Wh-Op] _]
- b. *Q-morpheme:*
alles is licensed in the configuration [Q(P) _]

6.5.2 No sub-association by distal *alles*

A similar generalization to the PPG arises in the context of how distal *alles* is interpreted with possessors. Specifically, I argue that distal *alles* is always interpreted for the entire associate. I formulate this generalization as the following condition on its interpretation:

- (105) *No sub-association for distal alles(NSA):*

In a structure [XP YP ZP], where both XP and YP are in-principle licit associates of *alles*, distal *alles* may not be narrowly interpreted for YP to the exclusion of XP.

Consider again the DAT possessor associate in (106) (=5 in chapter 2).

- (106) A: DENEN/DEREN ihre AUtos wurden gestohlen.
 ‘THEIR cars got stolen.’
- a. *Wem sein(e) Auto(s) wurde(n) alles gestohlen?*
 who.DAT his.NOM(PL) car(s) PASS.3(PL) ALL stolen
 ‘Whose car(s) all got stolen?’

If we focus on the grammatically singular version of (106), we can gather two separate readings of the possessor question. We may call (107a) a *distributive* reading, and (107b) a *group* reading.

- (107) *Wem sein Auto wurde gestohlen?*
 who.DAT his.NOM.SG car PASS.3SG stolen
 ‘Whose car got stolen?’

- a. (i) A: Meins. B: Meins auch. C: Ja, meins auch.

DISTRIBUTIVE

A: 'Mine.' B: 'Mine, too.' C: 'Yea, mine, too.'

READINGS

(ii) A: Das von der Mare, das vom Sigi, und das vom Sepp.

A: 'Mare's, Sigi's, and Sepp's.'

b. A: Unseres. / Das (Auto) von der Mare, dem Sigi und dem Sepp.

A: 'Ours.' / 'The one of Mare, Sigi, and Sepp.'

GROUP READINGS

If we add *alles* to (107), as in (108), only the distributive reading is possible.

(108) *Wem sein Auto wurde alles gestohlen?*
who.DAT his.NOM.SG car PASS.3SG ALL stolen
'Whose car got stolen?'

a. DISTRIBUTIVE READING: OK

b. GROUP READING: #

It thus seems that *alles* can only associate with the whole, pied-piped constituent, but not narrowly with the *wh*-phrase contained in it. It is possible to push back on this conclusion by noting that the group reading for (108) appears to violate the divisibility condition on *alles*. In a way, 'the one of X, Y, Z' is a singleton answer. This may well be, but the same kind of answer can be given to the following question that asks about possessors (109b):

(109) Q: *Wem gehört alles dieses Auto?*
who.DAT belongs ALL this.NOM car
'Who-all does this car belong to?'

a. A: Der Mare, dem Sigi und dem Sepp.

'To Mare, Sigi, and Sepp.'

b. A: Das ist das Auto von der Mare, dem Sigi und dem Sepp.

'That's the care of Mare, Sigi, and Sepp.'

More to the matter, *alles* is compatible with the group reading when it is adjacent to the possessor, and the question is an echo question.⁴⁶ In (110a) the distributive reading is also available, while in (110b) the

⁴⁶Note that, with a singular head noun, it is less clear whether *alles* is available inside a non-echo *wh*-interrogative associate. It is not clear why it is not equally available there, at this point. I doubt that distal *alles* with a singular head-noun would be a different

distributive reading is infelicitous due to world knowledge (if this does not make immediate sense to the reader, assume that only one party wins the elections).

- (110) a. *WEM alles sein Auto wurde gestohlen?*
 who.DAT ALL his.NOM.SG car PASS.3SG stolen
 ‘Whose car got stolen?’ GROUP; DISTRIBUTIVE
- b. *WEM alles seine Partei hat die Wahlen gewonnen?*
 who.DAT ALL his.NOM.SG party has the elections won
 ‘Whose party won the elections?’ GROUP; #DISTRIBUTIVE

When *alles* is stranded, again only the distributive reading survives. Thus, (111a) is unambiguous, and (111b) infelicitous.

- (111) a. *WEM sein Auto wurde alles gestohlen?*
 who.DAT ALL his.NOM.SG car PASS.3SG ALL stolen
 ‘Whose car got stolen?’ DISTRIBUTIVE; #GROUP
- b. *#WEM seine Partei hat alles die Wahlen gewonnen?*
 who.DAT his.NOM.SG party has ALL the elections won
 ‘Whose party won the elections?’ #DISTRIBUTIVE; #GROUP

I conclude that when *alles* is stranded, it necessarily associates with the larger constituent. I illustrate this with the following schemas, which are intended to be ambiguous between a scattered deletion and a sub-extraction representation.

(112) *No sub-extraction by distal alles:*

- a. $*[DP_1 [DP_2 [DP_2 WH] \text{ alles}] [D' D NP]] \dots \{DP_1 [DP_2 \{DP_2 WH\} \text{ alles}] [D' \cancel{D NP}]\}$
- b. $[DP_1 [DP_1 [DP_2 WH] [D' D NP]] \text{ alles}] \dots [DP_1 \{DP_1 \{DP_2 WH\} [D' \cancel{D NP}]\} \text{ alles}]$

On a percolation account, the ban on sub-association follows straightforwardly if separation is sub-extraction. The following two are possible starting configurations, but only (113a) provides the right constituency for sub-extraction, namely the lower DP_1 . (113b) would require unlikely movement inside the DP.

syntactic category, e.g. a clausal distributive operator. We would incorrectly expect it to be available in other contexts rather than plainly being parasitic on the *wh*-associate; we might also incorrectly expect it to be able to co-occur with associate-internal *alles* with a DAT possessor structure where the head noun is plural. Instead, it obeys the *alles*-to-chains correlation just as any other instance of *alles*.

- (113) a. [DP₁[+wh] [DP₁[+wh] [DP₂[+wh] WH-POSS] [D' *pro* NP]] *alles*]
 b. [DP₁ [DP₂[+wh] [DP₂[+wh] WH-POSS] *alles*] [D' *pro* NP]]

The Q-approach can explain the ban on sub-association if there is a restriction on Q-Op to *necessarily* combine with the larger constituent. Cable (2007), for instance, proposes that QP can only be selected by lexical categories (s-selection), but not by functional categories (c-selection). He calls this the QP-Intervention Condition. The consequence is that D or (functional) P cannot take QP as their complement or selected specifiers (possessors, in particular). Whatever derives this, the effect is that, assuming that *alles* combines with the Q-layer, *alles* cannot directly associate with anything smaller. This raises the issue of how “internal *alles*” is ever possible, to which I turn in section 6.5.3.

6.5.2.1 Consequences for the separation procedure

A percolation account relies on the explicit representation of the *wh*-Op feature on the projection that moves. Thus, this analysis has consequences for the separation procedure and the \bar{A} -generalization. One way to derive the ABG in a sub-extraction analysis was to resort to relative locality—a (featural) A-over-A effect. However, if *alles* adjoins to its associate, rather than taking it as a complement, the XP dominating *alles* and its associate is, by definition of how we typically think of adjunction, identical to the label of the associate. Thus, both the mother DP and the associate bears a *wh*-Op feature, and sub-extraction would violate relative locality.⁴⁷ It would become necessary to assume that the feature that is associated with movement is inserted in the course of the derivation.⁴⁸ If *alles* and its associate are in a complementation relation, this issue does not arise. In a comparative deletion approach to stranding based on scattered deletion, the technical question becomes whether it is possible to state the upstairs deletion of *alles* in (112a) in a way that does not entail deletion of the downstairs *alles*. What is required is that the two instances have different contexts. (To be precise, ‘contexts of contexts of contexts’, given that only the Source-external context will be different.) I see no reason why this should not be the case. Ruling out (112a) on a scattered deletion approach would then require some alternative explanation. Sub-extraction of

⁴⁷ The issue is parallel to VP-fronting with or without adverbials that modify the fronted verbal projection

⁴⁸ In a way that is akin to the insertion of a P-like element in the deduction of the A/ \bar{A} distinction proposed by Safir (2019), for example.

the complement is clearly favored here.

On a Q-approach, (112a) does not raise the same issue as we concluded that the initial configuration is not available. However, the Q-approach has consequences for the separation procedure that are worth commenting on. First, if *alles* adjoins to QP, the A-over-A deduction of the ABG is at risk for the same reasons I discussed for the percolation approach—the computational goal is Q-movement, but if the configuration is such that one QP dominates another QP, we run into an A-over-A issue. If, on the other hand, *alles* takes QP as its complement, we violate Cable’s QP-Intervention Condition given that *alles* is likely a functional category. Finally, if *alles* adjoins to Q directly, and Q adjoins to the associate, we also lose Cable’s QP-Intervention Condition, and the availability of mixed stranding patterns such as in (114), where one QP is adjacent and one is distant, become rather mysterious.

- (114) a. [*Wen genau*] hast du *alles* eingeladen?
 who.ACC exactly have.2SG you.NOM ALL invited
- b. [*Wen alles*] hast du *genau* eingeladen?
 who.ACC ALL have.2SG you.NOM exactly invited
 ‘Who-all exactly did you invite?’

6.5.3 “Internal” *alles*

The availability or absence of ‘internal *alles*’ creates an interesting tension between the percolation approach and the Q-approach. The percolation approach predicts internal *alles* to be freely available, while the Q-approach predicts it never to be available. In this section, I show that neither is quite accurate – internal *alles* is sometimes available, but not “freely” – and that a Q-approach is more compatible with the facts. In other words, I will argue that internal *alles* is “special”. I set the bar with *wh*-interrogatives. I restrict the contexts to selected interrogatives to rule out echo *wh*-questions or *declarative-syntax questions* (DSQs; Babaljik and Wurmbrand, 2015).

Consider the sentences (115)–(116). The matrix sentence and the discourse context – for instance a fight started by a jealous person –, is intended to control for prosodic factors that may disfavor adjacent or internal *alles* in embedded Spec,C (see again sections 2.4 and 2.5). This kind of context makes it very

natural to assign a prosody in which the *wh*-possessor is stressed.⁴⁹ *Alles* internal to the possessor is less acceptable than distal *alles*, which is perfect. The degradedness increases when the possessor is inside a PP. Distal *alles* in (116a) is again just as perfect; the P-layer does not change anything there.

(115) Sag mir jetzt endlich, ‘Tell me, finally’

- a. [CP [DP [DP *wem*] seine Freunde] [TP du **alles** eingeladen hast]]
 who.DAT his.ACC.PL friends you.NOM ALL invited have.2SG
- b. ?[CP [DP [DP *wem* **alles**] seine Freunde] [TP du eingeladen hast]]
 who.DAT ALL his.ACC.PL friends you.NOM invited have.2SG
 ‘Tell me, finally, whose friend you invited./Will you finally tell me whose friends you invited?!’

(116) Sag mir jetzt endlich, ‘Tell me, finally’

- a. [CP [PP mit [DP [DP *wem*] seinen Freunden]] [TP du **alles** ins
 with who.DAT his.DAT.PL friends you.NOM ALL in.the
 Kino bist]]
 movie.theater be.2SG
- b. ??[CP [PP mit [DP [DP *wem* **alles**] seinen Freunden]] [TP du ins
 with who.DAT ALL his.DAT.PL friends you.NOM in.the
 Kino bist]]
 movie.theater be.2SG
 ‘Tell me, finally, with whose friend you went to the movies./Will you finally tell me with
 whose friends you went to the movies?!’

In-situ *wh*-phrases in multiple-*wh* questions pattern the same.⁵⁰

- (117) a. Wer findet [DP [DP *wem* (**?alles**)] sein(e) Auto(s)] scheiße?
 who.NOM finds who.DAT ALL his(PL) car(PL) shit
 ‘Who finds whose cars shitty?’

⁴⁹ If we distinguish between main accent (all-caps) and accent (small-caps), (115a–b) naturally have the following prosody, all falling except optionally a brief rise on the main accent to add desperation.

- (i) SAG mir jetzt ENDlich,
 a. WEM seine FREUNde du ALles EINgeladen hast
 b. WEM alles seine FREUNde du EINgeladen hast

⁵⁰ Unfortunately, comparing the status of internal *alles* to distal *alles* is difficult here given the ABG and the restrictions on scrambling argued for in section 5.3. It should be possible to construct relevant examples, but they will necessarily contain other properties that make the comparison near impossible.

- b. Wer musste [PP mit [DP [DP *wem* (???)*alles*]] seinen Autos]] Brot
 who.NOM had.to with who.DAT ALL his.DAT.PL cars bread
 ausliefern?
 deliver
 ‘Who had to deliver bread with whose cars?’

I conclude that there is a conspiracy of factors at play with internal *alles* in syntactically interrogative contexts. Specifically, I propose that in these contexts *alles* can only merge with the larger constituent. The Q-approach delivers exactly this, so that I adopt it from here on: Q must combine with the larger constituent, and *alles* combines with the Q-level. Tentatively, the marginal availability of internal *alles* in these contexts must be a morpho-phonological process that is sensitive to both levels of embedding and linear distance.

In contrast, I conclude that there is nothing syntactically wrong with internal *alles* in the context of echo *wh*-questions, or DSQs. Adopting the Q-approach, the operator of echo *wh*-questions must be a different kind of animal, let’s call it E-Op, and syntactically interrogative Q Q-Op. E-Op can combine with smaller constituents than Q-Op; Sub-association is impossible because of the mechanics of the separation procedure. The question then is, what drives the distinction between Q-Op and E-Op? What makes it possible for E-Op to combine with smaller constituents, the possessor in particular? A tentative answer suggests itself further from the PPG. The PPG excluded complex associates where the *wh*-phrases is contained in the complement of DP. These do not lead to *wh*-pied-piping in the sense that the mother constituent cannot move to (selected) interrogative Spec,C (118a/b). *Alles*, distal or adjacent, is not compatible with these associates. In contrast, *alles* can occur internal to these associate with echo-questions (118c) and DSQs (118d).

- (118) a. *Ich frage mich, [CP [DP die Freunde [PP von *wem* {*alles*}]] [C’ C_[+wh] du
 I ask myself the.PL.ACC friends of who ALL you.NOM
 {*alles*} fragen solltest]]
 ALL ask should.2SG
 Intended: ‘I wonder whose friends you should ask.’
- b. ??[CP [DP die Freunde [PP von *wem* *alles*]] [C’ solltest du fragen]]?
 the.PL.ACC friends of who ALL should.2SG you.NOM ask
 ‘The friends of who-all should you ask?’
- c. [CP [DP die Freunde [PP von *WEM* *alles*]] [C’ solltest du fragen]]?
 the.PL.ACC friends of who should.2SG you.NOM ALL ask
 ‘The friends of WHO all should you ask?’

- d. [CP [DP die Mörder [PP von *wem alles*]] [C' wurden 1951 nach einem langen
the.PL.NOM murderers of who ALL were 1951 after a long
Prozess zum Tode verurteilt]]?
trial to.the death sentenced
'The murderers of who-all were sentenced to death in 1951 after a long trial?'

Why can Q not combine with these *wh*-phrase-containing DPs in a way that allows fronting? I conclude that the answer is in the relation between pied-piping and secondary *wh*-fronting (see, e.g., [Heck, 2004, 2009](#)).

6.5.3.1 Sketch of an analysis

Solving this tension goes beyond what I am able to do here. However, I sketch a tentative path forward. Specifically, if we assume that there is an operator inside the *wh*-phrase that needs to move to Q before Q(P) can move to Spec,C, we may be able to solve the tension. [Cable \(2007\)](#) suggests in passing that some Qs, for instance English Q, may be lexically specified for a Force-feature that needs to be checked by interrogative C. Assume that Q is actually two separate items: an element that is always DP-internal ('Op'), and a Q that is responsible for pied-piping ('Q'). Now, if Op is what bears the Force-feature, it must move (in)to (the vicinity of) Q because Q is what mediates the relation with interrogative C.⁵¹ Op-movement is thus responsible for secondary *wh*-fronting. Where Op-movement (and thus secondary *wh*-fronting) is impossible, Q cannot mediate the relation and the derivation cannot succeed. Comp-internal *wh*-phrases are thus limited to DSQs/echo-questions where the mediation is not required, at least in the sense that it is not sensitive to locality restrictions. Indeed, DSQs/echo-questions are notoriously island-insensitive.

We may technically implement these ideas within Phase Theory, assuming that DP is a phase. Crucially, PP must not be a phase in German (indeed, they allow extraction (cf. [Abels, 2003](#))), because PPs do not force secondary *wh*-fronting.⁵²

Alles, and presumably QPs as a natural class, depend on the class of operators that contains Q-Op and E-Op, but crucially not Op.⁵³

⁵¹ See [Saito \(2017\)](#) for a related proposal for *wh*-particles in Japanese, where the operator has indeterminate quantificational force, and needs to get its force specified by being in a local relation with the particle.

⁵² "P-stranding" with R-PPs is thus not compatible with a secondary *wh*-fronting analysis; see for instance [Noonan \(2016\)](#).

⁵³ Plausibly, E-Op can associate with almost any size constituent, like heads, but *alles* can only combine with the outcome if it is phrasal.

6.5.4 Constituent-final *alles* and the complexity restriction

We are finally in a position to address the restrictions on constituent-final *alles* with complex associates. We briefly discussed them in 2.4, and made extensive use of them in sections 5.3 and 5.4.1. The restriction was first noted in passing by Reis (1992a: fn23) but has not been in the focus in the literature since. She points out that

In the case of complex antecedent *welch*- and *wessen*- phrases, the right-adjacent position of I-*alles* is also highly marked, if not unacceptable. The reasons for this are, however, clearly systematic: particles cliticizing to a wh-phrase want to cliticize to the wh-element directly (cf. the difference in markedness between *was alles für Leute* and *?was für Leute alles*), which in *welch*- and *wessen*- phrases is syntactically impossible.

The descriptive generalization I defend in the following sections is the CR in (119):

(119) *Complexity Restriction on ‘constituent alles’ (CR):*

Alles in surface constituent position is always dispreferred to *alles* in distant position, unless its associate is pronominal.

I discuss whether the restriction is syntactic in nature or not. I conclude that there is no specific syntactic principle in effect that prevents *alles* from occurring in constituent-final position. Rather, there is a conspiracy of syntactic and prosodic factors in creating the restriction.

6.5.4.1 Pronominal vs. non-pronominal associates

For all speakers I have consulted, except one, *alles* in constituent-final position of *welch*-phrases, *wessen*-possessives and DAT-possessives is clearly dispreferred in comparison to *alles* in distant position with those associates, or in adjacent position to a simplex associate. The contrast is thus for the *a*-examples relative to the *b*-examples, and relative to *c*-examples. The magnitude of the effect varies. Marga Reis (quote above) indicates that *a*-type sentences are “highly marked, if not unacceptable”. I personally find them pretty much unacceptable; at the very least, the prosodic gymnastics required to get something ac-

ceptable makes me skeptical of the result. One speaker reliably finds no serious contrast. I discuss the significance of the variation in section 6.5.4.5. For now, I indicate the reliability of the contrast as ‘?’.

- (120) a. [*Welche Torten* ?***alles**] haben die für die Hochzeit bestellt?
 what.ACC cakes ALL have.3PL they.NOM for the wedding ordered
- b. [*Welche Torten*] haben die **alles** für die Hochzeit bestellt?
 what.ACC cakes have.3PL they.NOM ALL for the wedding ordered
 ‘What cakes did they order for the wedding?’
- c. [*Was* {**alles**}] haben die {**alles**} für die Hochzeit bestellt?
 what.ACC ALL have.3PL they.NOM ALL for the wedding ordered
- (121) a. [*Wessen Freunden* ?***alles**] würdet ihr beim Umzug helfen?
 whose friends.DAT ALL would.2PL you.PL.NOM by.the move help
- b. [*Wessen Freunden*] würdet ihr **alles** beim Umzug helfen?
 whose friends.DAT would.2PL you.PL.NOM ALL by.the move help
 ‘The friends of who-all would you guys help move?’
- c. [*Wem* {**alles**}] würdet ihr {**alles**} beim Umzug helfen?
 who.DAT ALL would.2PL you.PL.NOM ALL by.the move help
- (122) a. [*Wem seine Freunde* ?***alles**] soll ich einladen?
 who.DAT his.ACC.PL friends ALL shall.1SG I.NOM invite
- b. [*Wem seine Freunde*] soll ich **alles** einladen?
 who.DAT his.ACC.PL friends shall.1SG I.NOM ALL invite
 ‘The friends of who-all shall I invite?’
- c. [*Wem* {**alles**}] soll ich {**alles**} einladen?
 who.ACC ALL shall.1SG I.NOM ALL invite

6.5.4.2 Apparent irrelevance of the P-layer

CR appears to transcend the P-layer with prepositional associates. The same pattern holds, such that combinations of the P-layer seem to add no additional degradedness.

- (123) a. [PP *In welche Saucen* {?***alles**}] [_{C'} soll ich den Vada {**alles**}
 in which.ACC.PL sauces ALL should.1SG I.NOM the.ACC vada ALL
 eintunken]?
 dip.in
- b. [PP *In was* {**alles**}] [_{C'} soll ich den Vada {**alles**} eintunken]?
 in what.ACC ALL should.1SG I.NOM the.ACC vada ALL dip.in

‘In what (sauces) all does one need to dip the vada in?’

- (124) a. [PP *Mit wem seinen Eltern* {?*alles}] [_C hat sie sich {alles} getroffen]?
 with who.DAT his.DAT.PL parents ALL has she.NOM SELF ALL met
- b. [PP *Mit wem* {alles}] [_C hat sie sich {alles} getroffen]?
 with who.DAT ALL has she.NOM SELF ALL met

This is interesting because the P-layer added to the degradedness of internal *alles* ((115) vs. (116); (117)).

6.5.4.3 Surface constituency

CR is about surface constituency. In (125), one and the same string (*welche Freunde alles*) is acceptable in (125b) but clearly worse in (125a). The difference between (125a) and (125b) is that the string is in a verb-second clause in (125a), while it is in a verb-final clause in (125b). Thus, while a portion of the string must occupy Spec,C in both sentences, in (125a) the entire string does, because it occupies the “pre-field” position. The pre-field position only hosts one constituent such that the string must be construed as one surface constituent. In contrast, (125b) can be assigned a stranding derivation, as indicated in the example.

- (125) a. ?*[*Welchen (Freunden) alles*]₁ würde der Peter *t*₁ helfen?
 which.DAT.PL friends ALL would the.NOM Peter help
 ‘What friends all would Peter help?’
- b. [*Welchen (Freunden)*]₁ [*t*₁ *alles*]₂ der PEter *t*₂ helfen würde, bleibt unklar.
 which.DAT.PL friends ALL the.NOM Peter help would remains unclear
 ‘What friends all Peter would help, remains unclear.’

Wh-“in-situ” facts suggest the same conclusion. Consider the following multiple-*wh* questions. Only one *wh*-phrase fronts and the other(s) remain within TP. In (126a), *alles* is perfectly fine in-situ with the pronominal associate. However, in (126b), *alles* is worse.

- (126) a. [Wer alles] hat dem Lehrer [*was* alles] gezeigt?!
 who.NOM ALL has the.DAT teacher what.ACC ALL shown
 ‘Who-all showed what-all to the teacher?’
- b. [Wer alles] hat dem Lehrer [*wem seine Hausaufgaben* ?*alles] gezeigt?!
 who.NOM ALL has the.DAT teacher who.DAT his.ACC.PL homework.PL ALL shown
 ‘Who-all showed who-all’s homework to the teacher?’

Again, in contrast to internal *alles* ((117)), a PP-layer does not lead to any additional degradedness.⁵⁴

- (127) [Wer alles] hat im Garten [PP mit [wem seinen Spielsachen ?*alles]]
who.NOM ALL has in.the garden with who.DAT his.ACC.PL homework.PL ALL
gespielt?!
played
‘Who-all played with who-all’s toys in the garden?’

6.5.4.4 Is the Complexity Restriction syntactic?

The contrasts above already suggested that the source of the restriction may be syntactic given that it makes reference to constituency. Similarly, the *was für*-construction may also suggest that the source of CR is syntactic. Reis (1992a), e.g. in the quote above, reports that *alles* can occur constituent-finally with this construction, even if internal *alles* is preferred. (Judgement as reported by Reis.)

- (128) [was {alles} für Leute {?alles}] kommen {alles} dafür in Frage?
what ALL for people.NOM ALL come.3PL ALL that.for in question
‘What-all kinds of people should be considered for that?’

As a first pass, this is also what I found with my consultants. The *was für*-construction is special as it is a separable constituent (Abels, 2003; Blümel, 2012; Corver, 1991; Leu, 2008; Pafel, 1996a,b):

- (129) Was kommen dafür für Leute in Frage?
what come.3PL that.for for people.NOM in question
‘What sort of people should be considered for that?’

Thus, the relative availability of final *alles*, and indeed internal *alles*, may depend on the internal structure of the *was für*-construction. Perhaps, *alles* can more freely appear in the two surface-constituent positions because it can associate with either sub-constituent. There is already reason to doubt that *alles* can directly associate with FOR-NP given that it is, plausibly, not an operator phrase of the relevant kind. As for internal *alles*, initial findings suggest that the same condition on sub-extraction applies to the *was für*-construction.

In a strictly *wh*-interrogative context, internal *alles* becomes degraded. Based on the conclusion reached

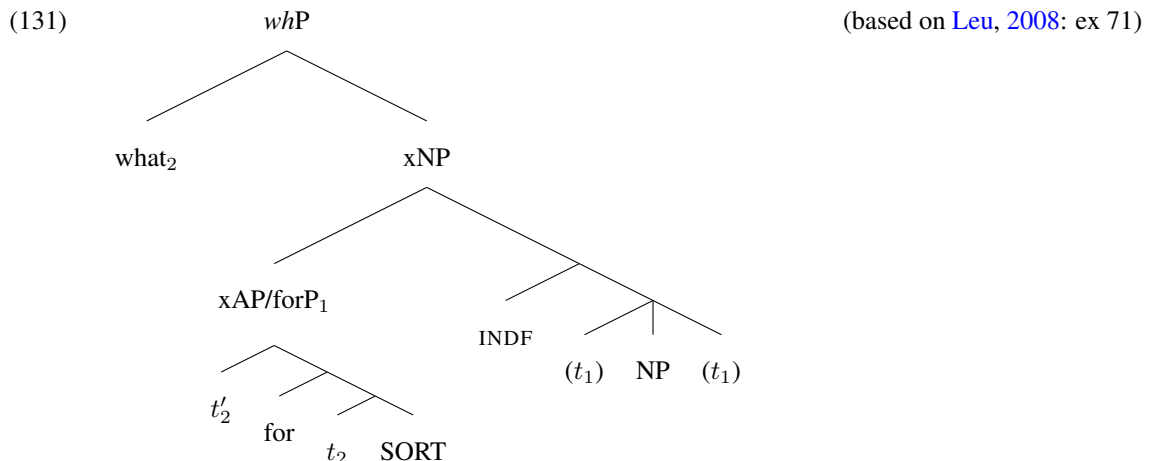
⁵⁴ In fact, if anything, for me the sentence improves. However, it is necessary to control for a stranding derivation in (127) where the PP associate \bar{A} -scrambles. Whether or not *im Garten* ‘in the garden’ is necessarily low enough in the clause to prevent such a parse is not easy to settle. See again section 5.3.2.

in section 6.5.3, this makes sense because we expect *alles* to associate with the full pied-piped constituent.

Interestingly, final *alles* might even get better.

- (130) Sag mir jetzt endlich, [_{CP} [_{DP} *was* {??*alles*} *für Leute* {(?)*alles*}] [_{TP} *du* {*alles*}
tell me now finally what ALL for people.ACC ALL you.NOM ALL
eingeladen hast]].
invited have.2SG
'Tell me, finally, what-all sorts of people you invited.'

DP-internal movement is also not able to explain the exceptional availability of final *alles* with the *was für*-construction. A special property of the construction is that the lexical noun behaves like the head of the entire nominal, being governed for Case from outside the mother DP, and controlling agreement when it is the subject. That suggests that N does not form a constituent with the preposition *für*, and that rather WH+P form a constituent. At the same time, there is evidence that *für*+NP form a constituent given that they can move or be coordinated. Leu (2008) proposes that both are true because there is a stage in the derivation where *was* and *für* form a constituent which modifies the 'head noun', and that these front, followed by additional *wh*-movement of just *was*. Assuming that the *was-für* constituent is right-adjoined,⁵⁵ we might capture the well-formedness of final *alles* as an instance of DP-internal *alles* stranding in the base-position of *was-für*, i.e. in t_1 .



I will not go further into the details, but following this logic leads to the prediction that *alles* can also be stranded between *für* and NP, in the position of t_2 , which is certainly word-salad in any context.

⁵⁵ In the structure that Leu discusses, it shows to the left, presumably because modifiers are typically left-branching in Germanic.

- (132) *Was {für (*alles) (ne) Leute} hast du {für (*alles) (ne) Leute}
 what for ALL INDF people.ACC have.2SG you.NOM for ALL INDF people.ACC
 eingeladen?
 invited

The idea that this construction provides a basis for viewing CR as a syntactic restriction is losing footing. In addition, judgments vary quite a bit, and not in a way that supports a syntactic analysis of CR, I believe. Marie-Luise Schwarzer (p.c.) informed me that, for her, final *alles* is in fact almost impossible, and that when *für-NP* is split, *alles* must precede *für-NP*.⁵⁶ This suggests that the sentence received a parse with *alles* narrowly associated with *was*—a question without an interrogative C. In fact, my test sentence that she commented on did not control for the force.⁵⁷

Another way in which the judgments vary is between comprehension and production. For a number of speakers, when I read out the sentences with internal, final, and distal *alles* in sequence, they accepted all of them, often preferring distal *alles*. When I asked them to repeat the sentence to confirm with me that they found the sentence acceptable and then to think out loud what it meant,⁵⁸ they often misplaced *alles*. Thus, they sometimes repeated back distal *alles* when the target sentence had internal *alles*, and often repeated back a sentence with either distal or internal *alles* when the target sentence had final *alles*. While a linking hypothesis is needed to make interesting inferences, here, these considerations show that production has an impact on the well-formedness of *alles*-placement. The prosodification of speech appears to be a key factor for the placement of *alles*. For “purely syntactic” effects such as most island effects, or cross-clausal weak crossover effects, to grab something out of the syntax hat, one can try as much as one wants, but the prosody will just not help (or particularly hinder you, either). Rather, I conclude that the internal structure of the *was für*-construction has an impact on the distribution of *alles* inside the surface constituent, but that the impact is not strictly syntactic. It appears that these contrasts indicate that the syntax has an impact on

⁵⁶ I will not address the respective word order of *alles* with respect to *für-NP* in split position. The judgments vary. Until the conditions for the variation are better understood, it seemed like a futile enterprise to chase down a generalization bottom-up.

⁵⁷ Interestingly, *alles* is not really degraded if *was* is split, even when in a selected interrogative context. That suggests that there is no sub-association even though *was* is split. This result is compatible with a remnant-movement analysis of *was-für* split, as proposed by Abels (2003). On a remnant-movement analysis, *was* is actually always the full associate. Thus, *alles* never sub-associates even though on the surface it looks like it does.

(i) Sag mir jetzt endlich, [CP [DP *was* {(?alles)}] [TP du {(?alles)} *für Leute* {(?alles)} *eingeladen hast*]].
 tell me now finally what ALL you.NOM ALL for people.ACC ALL invited have.2SG
 ‘Tell me, finally, what-all sorts of people you invited.’

⁵⁸ This routine was there to satisfy the baseline that the speakers grasped the thought, and to get a feel for how they articulated the sentences.

intonational phrasing, and that intonational phrasing has a direct impact on *alles*.

6.5.4.5 Speaker variation

Speaker variation is important more generally. One speaker in particular has reliably found no real contrast between final *alles* and distal *alles* given appropriate intonation in each case. As far as I can tell, this speaker has no note-worthy differences in their syntax of *alles*, its interpretation, or distribution of distal *alles* given an associate. Yet, we find each other on opposite sides of the spectrum of magnitude of CR's effect. If CR is syntactic, it follows that this speaker's and my nominal syntax differ in an important regard. Given that we both have the same judgments concerning interpretation of *alles* with *welch*-phrases, specifically that it must be answered with KINDS, it seems unlikely that our syntax of *welch*-phrases could be so different. Indeed, another difference between this speaker and me is regarding partitives, to which I turn in the next section. Before moving on, though, and spinning this line of reasoning further, the range of variation appears too wide to receive a syntactic explanation in such a narrow phenomenological space. It again seems more plausible to conclude that the variation is due to prosody, given that not just syntax, but also discourse context, information structure, lexical content, one's personal mood and willingness to collaborate with the "elicitation theater" or trying a sentence multiple times, crispness of thought before initiating motor-planning, and so on, all have an impact on prosody in the context of elicitation, in person or in text.

6.5.4.6 Interaction with partitive NP

The 'permissive speaker' and me also differ in interesting ways in regard to NP-ellipsis. For the permissive speaker, sentences like the four in (133) were acceptable and pretty much on par. (The NP-ellipsis in (133b) would be easily licensed by an antecedent sentence such as *Die haben einige Torten für die Hochzeitsfeier bestellt* 'they order several cakes for their wedding'.)

- (133) a. %*Welche Torten alles* haben die für ihre Hochzeit bestellt?
which.ACC.PL cakes *Alles* have.3PL they.NOM for their wedding ordered
'What cakes have they ordered for their wedding?'

- b. %*Welche* \emptyset **alles** haben die bestellt?
 which.ACC.PL *Alles* have.3PL they.NOM ordered
 ‘What cakes have they ordered for their wedding?’
- c. %*Wen* von den Linguisten **alles** sollte ich besser nicht einladen?
 who.ACC of the linguists ALL should.1SG I.NOM better not invite
 ‘Who-all of the linguists had I better not invite?’
- d. *Wen* von denen **alles** sollte ich besser nicht einladen?
 who.ACC of those ALL should.1SG I.NOM better not invite
 ‘Who-all of them had I better not invite?’

In contrast, I find (133a) pretty degraded, (133b) slightly better but still pretty degraded; (133c) is again rather degraded, but (133d) is perfect. The absence of a lexical N to the left of *alles* improves my judgments, and an internally complex associate like the partitive in (133a) can be perfectly compatible with final *alles*.

6.5.4.7 Comparison with another QP

In contrast to *alles*, the particle *genau* (‘exactly’) typically bears stress, on the second syllable (*geNAU*). It is thus interesting to note that I find *genau* acceptable in final position with complex associates even though I am a speaker that is rather non-permissive with *alles*.

- (134) a. [*Welchen Leuten* {**genau**}] wolltest du {**genau**} helfen?
 which.DAT.PL people exactly wanted.2SG you.NOM exactly help
 ‘Which people, exactly, did you want to help?’
- b. [*Was für Torten* {**genau**}] wolltest du {**genau**} bestellen?
 what for cakes.ACC exactly wanted.2SG you.NOM exactly order
 ‘What sort of cakes, exactly, did you want to order?’

A word of caution is in order with this comparison. While I treated a number of QPs as belonging to the same class as *alles* (cf. [Beck and Rullmann, 1999](#); [Pafel, 1991](#); [Reich, 1997](#); [Reis, 1992a](#); [Zimmermann, 2007](#)), I have not discussed their syntax extensively. Thus, to what extent exactly, these particles all form one syntactic natural class is still an open question. If we take as a benchmark the ability to be stranded in the matrix clause of long-distance *wh*-movement, as well as the inability to be stranded by A-movement as diagnosed by weak crossover facts, *genau* does seem to hit the mark.⁵⁹

⁵⁹ The adverbial *damals* ‘back then’ in (135) is to prevent the parsing of *genau* with the subject to gather a reading like ‘exactly the teacher/the teacher of all people’. The lower *genau* is marked as yielding the wrong reading: it is only acceptable with the, somewhat marked, adverbial reading ‘in a precise manner’. Low *genau* is available with a deictic use of *sein*.

(135) *Genau* ‘exactly’

- a. (Ja aber) *wem* {**genau**} hat die Lara {**genau**} gemeint, [_{CP} dass wir
yes but who.DAT has the.NOM Lara reckoned that we.NOM
{**genau**} helfen sollen]?
help should.1PL
‘(Yea but) who exactly did Lara say that we should help?’
- b. *Wen_i* hat {**genau**}, damals, [*sein_i* Lehrer] {**#genau**} (immer) geschlagen?
who.ACC has thence his teacher always hit
‘Who, exactly, was/used to be hit by their teacher back then?’

6.5.4.8 No difference between *wh*-ECHO and *wh*-INT for final *alles*

In section 6.5.3, I argued that the type of operator (echo vs. syntactically interrogative) affected the availability of internal *alles*. As far as I can tell from elicitations and my personal introspection, the facts reported in the previous sections are parallel for echo *wh*-questions and *wh*-interrogatives. The exception is the *was für*-construction, for which the initial result was that final *alles* may even improve in selected interrogative Spec,C. That is the opposite direction of the effect of operator type on internal *alles*.

6.5.4.9 Summary and conclusion

In this section I have provided a detailed description of the restrictions on constituent final *alles*. The results can be summarized as follows:

(136) *Complexity Restriction on ‘constituent alles’ (CR)*:

Alles in surface constituent position is dispreferred for most speakers to *alles* in distant position, unless its associate’s nominal is pronominal.

I reviewed a number of apparent arguments that suggest that the effect is syntactic. In particular, (a) CR cares about whether the associate contains a pronoun or not, (b) the effect is about constituency and not about plain linear adjacency, (c) the *was für*-construction, whose internal syntax is different as a separable constituent, allows final *alles* more easily.

However, I concluded CR is not driven by syntactic principles per se, and that it rather is primarily a prosodic effect. The main reasons are that

- (a) the restriction is blind to whether the nominal is inside a PP or not, but at least in interrogative contexts
I showed that *alles* must be combined with the entire PP;
- (b) while the availability of internal *alles* is affected by sentence force (interrogative vs. echo/declarative syntax), the effect does not carry over to final *alles*;
- (c) there is speaker variation regarding the magnitude of the CR's effect, such that, where the internal syntax of associates, and the syntax of *alles* are not clearly different between speakers, another property of *alles* or associates must be responsible;
- (d) the QP *genau* 'exactly', which at first pass has the same syntax, but different prosodic prominence, can appear constituent-finally even for a non-permissive speaker like me;
- (e) the presence vs. absence of a lexically projecting NP immediately to the left of *alles* impacts the availability of final *alles*.

Given that syntactic structure is at least indirectly affecting final *alles*, I suggest that CR is an effect of the syntax-prosody mapping. Providing a full prosodic analysis goes beyond my expertise. However, I hope that this discussion has demonstrated that we need not further complicate the syntax of *alles*. I hope that the contrasts and generalization outlined here lead to fruitful research into the prosodic properties of these particles, in particular *alles*. From where I stand, the major challenge of any prosodic account is to preserve generality between internal/final/distal *alles*. That is, if there is a requirement for *alles* to incorporate into an intonational phrase, this property had better govern any instance of *alles*. I have already made a first attempt to show that this is true in section 2.5.

As an initial sketch, it seems that the presence of a lexical noun, a lexically projected NP makes a difference as to how the DP is prosodified. For instance, if in syntactic parlance, a unit made up of D plus a lexically projected NP constituted a prosodic phase, then *alles* right-adjacent to that would be at the left edge of its prosodic phase. If in addition, it is also at the right edge of its prosodic phase because *C'* starts a new prosodic phase, *alles* may not be able to "lean" on anything even though it needs to. NP-ellipsis would constitute a genuine instance of deletion, or non-pronunciation, in this logic. In contrast, it seems that when the material to the left of *alles* is pronominal, the "closing" of the prosodic phase is deferred (a

kind of phase-extension in syntactic parlance). If the deferral is extended high enough up into the structure to include *alles*, then it can happily “lean” on other material. Two questions arise in this logic.

First, under what circumstances can *alles* be minimally accented? Occasionally, it seems that *alles* can be minimally accented even when it appears to be at the left edge of its intonational phrase, in particular at the VP edge. Why then, does this possibility not apply inside the surface constituent with the associate? Perhaps this is due to the fact that VP-focus leads to accenting something on the verb’s left side in German, so that ‘left’ and ‘right’ are actually incorrect and should be substituted primarily by hierarchical notions as briefly mentioned for the pronominal “phase extension”.

Second, why is internal *alles* in selected interrogative contexts not worse? For such cases, it seems that some PF-Lowering rule must be possible. The fact that it is a PF-rule would explain why it does not affect meaning. There is some additional evidence that suggests the existence of such a mechanism. Recall that *alles* can co-occur with the following restrictions and particles ((137) is a subset of (57)):

(137) *List of co-occurring expressions:*

- a. *von*-restriction
- b. *locative*-restriction; *?hier*-restriction
- c. *?adjectival*-restriction

In 2.6 I already noted that there is variation as to the preferred order of *alles* and X in (137). Three out of four speakers preferred the order in (138a) over the order in (138b).

- (138)
- a. WH > ALLES > X
 - b. WH > X > ALLES

That is at least initially surprising for the partitive restrictions. Partitives are typically low in the nominal structure (cf. Falco and Zamparelli, 2019), a conclusion that I also reached based on the comparison of *wh*-interrogatives/echo-*wh*-phrases and *wh*-indefinites (section 6.3.2). In addition, I argued that the partitive restrictions don’t scope with respect to *alles* when they appear in the reversed order (section 6.3.2.2). It thus seems like these are candidates for a PF-lowering operation (but see ??). Still, postulating the existence of

a Lowering operation for *alles* may raise more questions than it answers. I conclude by leaving this as a challenge to the reader.

6.6 Summary and conclusion

In this chapter I reviewed the properties making up the CLG repeated in (139), from which I concluded that a *stranding* analysis of *alles* follows as a corollary.

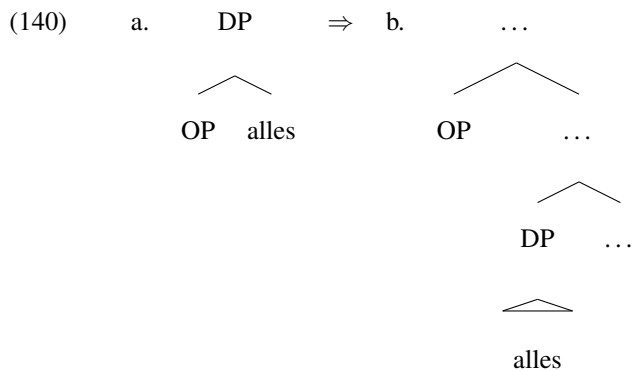
?? *Chain Link Generalization for invariant alles (CLG):*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

Specifically, if *alles* is always first-Merged in a constituent with its associate,

(139) [DP OP *alles*]

it follows that *alles* in distant position is ‘stranded’ from its associate.



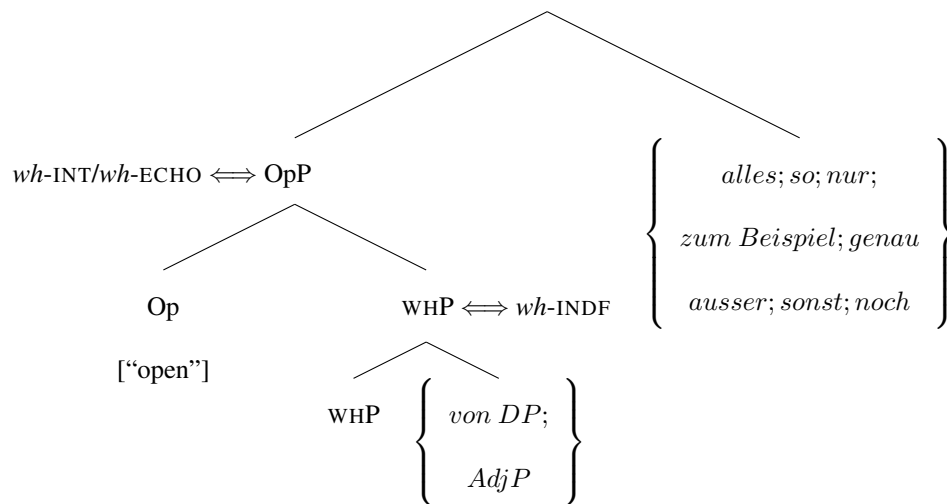
This analysis immediately explains why *alles* is **parasitic** on an associate, because it is, essentially, part of its structural description. It explains the fact (i) that *alles* **selects** its associate (sections 2.2 and 2.4), (ii) that any one *alles* appears to be **dependent** on one particular associate (section 2.2.2), and (iii) that there is only *alles* per associate (section 2.7), (iv) the **locality** between distal *alles* and a chain link of its associate.

In the remainder of the chapter I addressed two questions:

- (141) a. What is the structure of the source?
b. What are the mechanics of the separation procedure?

I addressed the Source question in two parts in section 6.3. First, what is the *structural relation* between *alles* and its associate? Second, what is the *internal structure of the associate*? I started answering the latter by addressing Reis’s generalization. Focusing just on *wh*-proforms, I noted that *wh*-ness is not a sufficient condition for qualifying as a licit associate for *alles*, and asked what excludes *wh*-indefinites from the set of associates? I concluded on the basis of distributional, interpretive and prosodic facts that *wh*-indefinites are structurally smaller than *wh*-interrogatives or echo *wh*-phrases; specifically, I proposed that the latter have an operator layer that sets them apart from *wh*-indefinites ((142) combines (10) and (13)):

(142)



With this structure in mind, in section 6.4 I addressed the interplay of the separation procedure and the structural relation between *alles* and its associate, setting the following as *explananda*, and (143) as general hypotheses for stranding. Given that the distribution of distal *alles* is a subset of its associate’s distribution, given a derivation, the two options exclude the possibility that *alles* can be moved. Table 6.1 summarizes the combinations of source and procedure.

(55) *Explananda of the separation procedure:*

- a. The \bar{A} -Generalization (ABG):

	Complementation [_{allP} alles OpP]	Adjunction [OpP OpP alles]
Sub-extraction	[_{CP} OpP [_{C'} ... [_{allP} OpP [_{all'} alles OpP]]]	[_{CP} OpP [_{C'} ... [_{OpP} OpP alles]
Complementary deletion	[_{CP} [_{allP} alles OpP] [_{C'} ... [_{allP} alles OpP]]]	[_{CP} [_{OpP} OpP alles] [_{C'} ... [_{OpP} OpP alles]

Table 6.1: Stranding procedure matrix

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

- b. Barriers for movement:

The associate can be a subject, an object, or an adverbial.

- c. Intermediate stranding:

Separation is possible in intermediate positions, i.e. after movement and before the final landing site.

In section 6.5 I addressed the implications of the fact that *alles* can associate with internally complex phrases. I showed that two generalizations apply to how *alles* can associate with complex associates:

(94) *Pied-piping generalization (PPG):*

If an XP can occur in selected interrogative Spec,C, then it is a licit associate for distal *alles*.

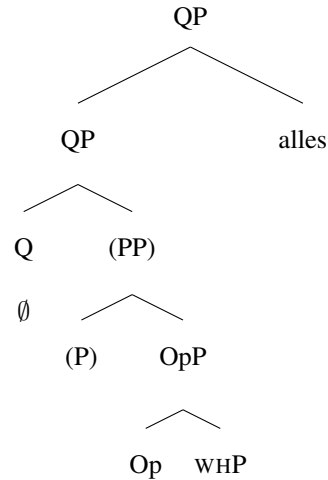
(105) *Ban on sub-association for distal alles:*

In a structure [_{XP} YP ZP], where both XP and YP are in-principle licit associates of *alles*, distal *alles* may not be narrowly interpreted for YP to the exclusion of XP.

In particular, I argued that (142) and (141) put a new lens on adjacent *alles*, and that “internal *alles*” and “final *alles*” differ in important regards. While final *alles* and distal *alles* always associate with the full associate, of the size that can pied-pipe to selected interrogative Spec,C, internal *alles* is only fully well-formed in contexts with declarative syntax. I concluded that *alles* uniformly associates with an operator-level. In interrogative contexts, I tentatively proposed that this level is broadly compatible with Cable’s (2007) ‘Q-morpheme’ layer. In declarative-syntax contexts, in particular echo *wh*-questions, the operator

must be different and can combine with constituents smaller than QP. In order to combine the conclusions from section 6.3 and 6.5, I sketched out a proposal in which there are two operator levels in interrogative contexts:

(143)



The Q-level is intended to capture the distinction between *wh*-INTs and *wh*-ECHOs, while the Op-level is intended to capture the distinction between *wh*-INTs/*wh*-ECHOs and *wh*-INDFs. I proposed that Op must be in a local relation with Q to capture secondary *wh*-fronting effects, where DP is a local domain, but PP in German is not.

This sketch leaves many questions open. In particular,

- i. Is Q Cable's Q?
- ii. Is the operator-level of *wh*-ECHOs a Q in Cable's sense? If it is, why can it be selected by functional heads, contrary to interrogative Q. If it isn't, how do the two categories form a natural class for licensing *alles* while Op does not?

Similarly, if there is a QP-layer on German *wh*-INTs, how are the explananda of the separation procedure met? We can summarize the consequences as follows:

- (a) If *alles* modifies directly Q, complementary deletion is the only viable separation procedure.
- (b) If *alles* modifies QP, the separation procedure can again be complementary deletion, while if it is sub-extraction, the solutions to the \bar{A} -generalization (??;section 5.2) lose effect. The A-over-A deduction

is impossible because Q-movement is the computational goal, but *alles* is sister to, and dominated by, a Q-category; the improper movement deduction relies on complementation, but the QP analysis relies on the notion that QPs cannot be selected by functional categories. Perhaps the latter is not crucial given that QPs can be subjects, where the functional category ν introduces the external argument. Indeed, I suggested a tentative solution in passing, where Q is part of the extended nominal projection, and is higher than (P)>(Op)>(D).⁶⁰

Finally, in section 6.5.4, I showed that constituent-final *alles* is subject to the following effect:

(119) *Complexity Restriction on ‘constituent alles’ (CR):*

Alles in surface constituent position is always dispreferred to *alles* in distant position, unless its associate is pronominal.

I argued that while syntax does contribute to CR, it does so in a limited way. The syntactic dependency between final *alles* and its associate does not impact acceptability as is the case for internal *alles*. Phrase structure is the only syntactic contribution to the effect. I argued that the effect is to be understood as a syntax-prosody mapping so that CR does not impact the previously established conclusions about the syntax of *alles*.

⁶⁰ This assumption may also solve the problem of “echo-Q” being a Q-category. On this view, echo-Q is a wild-card that can enter the functional sequence anywhere, akin to frequency-adverbial (cf. Frey and Pittner, 1998). The distribution of echo-associated *alles* remains correct so long as *alles* can only modify echo-Q when echo-Q combines with a phrasal category, which plausibly follows from a version of the Uniformity Condition on chains (Chomsky, 1995) (or whatever forces parallelism in coordinate structures) adapted to adjunction, assuming that *alles* is a phrasal category.

- (i) *Uniformity Condition on adjunction:*
Adjunction structures are uniform with respect to their phrase-structural status.

- a. $[X^0 X^0 Y^0]$
- b. $[XP XP YP]$
- c. $*[X^0 X^0 YP]$
- d. $*[XP XP Y^0]$

Chapter 7: Conclusion

7.1 Findings for invariant *alles*

This thesis investigated the syntax of “invariant *alles*” in German.

- (1) a. *Wen* hat die Mare **alles** zu ihrem 80. eingeladen?
who.ACC has the.NOM Mare ALL to her 80th invited
‘Who-all did Mare invited to her 80th birthday?’
- b. Die Christine, den Andreas, die Eva-Maria, den Christoph, ...
‘Christine, Andreas, Eva-Maria, Christoph, ...’

The primary focus of this dissertation was on the **syntactic distribution** of *alles*. On the one hand, *alles* enjoys a wide distribution in the sentence. In (2a) *alles* occurs adjacent and in one constituent with *wh*-phrase it is interpreted with – its ‘associate’. In (2b–d) it occurs in a variety of positions of the clause.

- (2) a. [*Wen* **alles**] hat die Mare zu ihrem 80. eingeladen?
who.ACC *Alles* has the.NOM Mare to her 80th invited
‘Who-all did she invite?’
- b. *Wen* hat **alles** die Mare zu ihrem 80. eingeladen?
- c. *Wen* hat die Mare **alles** zu ihrem 80. eingeladen?
- d. *Wen* hat die Mare zu ihrem 80. **alles** eingeladen?

On the other hand, the distribution of *alles* is not free.

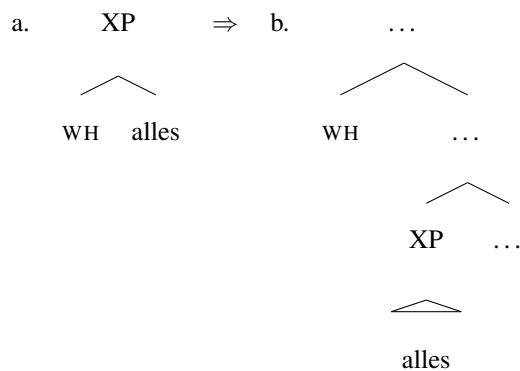
- (3) a. *[*Die drei*] hat sie **alles** eingeladen.
those three.ACC has she.NOM ALL invited
Intended: ‘Those three, she invited them all.’

- b. **Wer* hat (et)was **alles** gegessen?
 who.NOM has something ALL eaten
Intended: ‘Who-all ate something?’
- c. ?**Was* wollte **alles** ihm gestern keiner geben?
 what.ACC want.PST.3SG ALL him.DAT yesterday noone.NOM give
Intended: ‘What-all did no-one want to give him?’

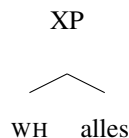
I addressed three questions. What determines the **distribution** of *alles* in the clause? How are sentences where *alles* forms a constituent with its associate **related** to sentences where *alles* occurs at a distance? What **licenses** the presence of *alles* in a sentence?

The conclusion of this dissertation is that *alles* and its associate form a first-Merge constituent, and that *alles* is *stranded* from this constituent with a process that involves movement—either directly via sub-extraction, or as a purely interpretive procedure, complementary pronunciation of the chain at the Phonological Form–Sensory Motor interface for externalization.

(4) *Distal alles is derived via stranding:*



(5) *The only way to introduce alles into the derivation:*



These results are broadly compatible with the positions in [Giusti \(1991\)](#); [Pafel \(1991, 1996b\)](#); [Reis \(1992a\)](#); [Zimmermann \(2007\)](#), while they contradict the positions in [Beck \(1996\)](#); [Heck and Himmelreich \(2017\)](#).

The main empirical argument for the conclusion came from the syntactic distribution of *alles*. I argued that it is most accurately characterized by the generalization in (6):

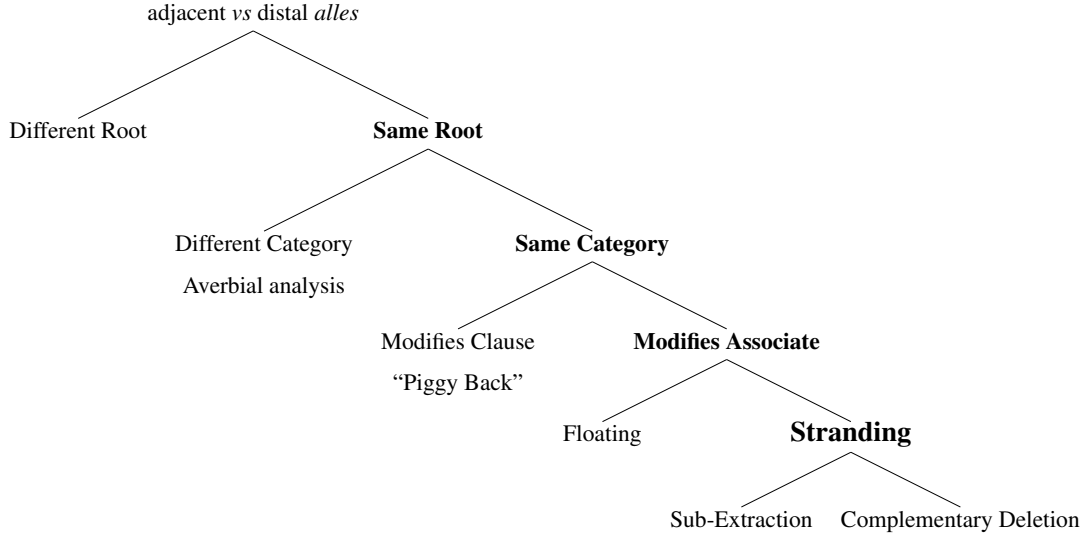


Figure 7.1: Options of analysis entertained

(6) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation D involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

Metaphorically, I promoted the notion that *alles* “lives on its associate’s \bar{A} -chain”.

I argued for this conclusion from the bottom up, entertaining in turn the hypotheses depicted in fig. 7.1. I argued against the left branches of the decision tree, one hypothesis at the time, and reached the conclusion that distal *alles* and adjacent *alles* are related by **stranding**, leaving open the question through which procedure. The advantage of this analysis over concrete, or hypothetical alternatives is one of empirical coverage, but also of simplicity. The stranding analysis entails the generalizations that lead to the rejection of the left branches up the decision tree.

Specifically, and most basically, in **chapter 2**, I argued that distal *alles* and adjacent *alles* have the same lexical content. The two instances of *alles* make the same meaning contribution, and they are licensed by the same kinds of associates. Within the class of *wh*-interrogative associates, the two instances of *alles* can occur with the same range of associates, and they can co-occur with the same range of *wh*-modifiers (broadly speaking). I argued that, while it appears that adjacent *alles* is subject to more severe prosodic restrictions than distal *alles*, the two instances obey the same kind of prosodic restrictions, and the differences are due to the prosodic differences of their environments. Finally, I showed that adjacent *alles*

and distal *alles* cannot co-occur with each other.

In **chapter 3**, I addressed the idea that distal *alles* is different from adjacent *alles* in the way in which it can affect Logical Form. I focused in particular on intervention effects between distal *alles* and (a) the universal quantifier *jeder* ('every/each'), (b) focus operators, and (c) existentially interpreted indefinites. I argued that the effect is not induced directly by distal *alles*, but rather, always directly by the associate. I showed that the associate independently induces the same effects when it is overtly in the position in which distal *alles* suffers intervention effects. I proposed that *alles* requires its associate to be in a very local configuration with it, at the point in the derivation that is overtly marked by *alles*. I supported this conclusion by showing that the same patterns extend to effects that distal *alles* has on word order preferences of verbs ('canonical word order'). The conclusion already suggests that *alles* and its associate form a constituent at the relevant point in the derivation, but, strictly speaking, it would also be compatible with the conclusion that *alles* must be minimally c-commanded by its associate.

In **chapter 4**, I considered in more detail the distribution of distal *alles*. The main conclusion of the chapter is that distal *alles* is not an adverbial, or an other clausal category. I primarily reached this conclusion by arguing for the generalization in (7):

(7) *Subset Generalization for distal alles (SSG):*

Given a derivation *D* involving distal *alles* and a licit associate, *alles* may appear in any position its associate has occupied at some point in the derivation, and in no other position.

The SSG has two parts. Generally, the set of positions in which distal *alles* can occur is a subset of the positions in which its associate can occur. More specifically, the statement only makes sense when it is understood relative to the particular associate of *alles* in a given sentence. In agreement with the conclusion from chapter 3 about locality, distal *alles* thus closely tracks the derivation of its associate. In addition, the SSG means that distal *alles* does not have "a distribution of its own". If distal *alles* was a direct member of the clause, we would expect that its syntactic category would determine its distribution. However, its distribution is entirely determined by (a) the category of its associate, (b) the base position of its associate, and (c) the derivation that its associate can and does undergo.

The SSG is supported the fact that *alles* can occur in the base position of its associate, and in intermediate positions that its associate can reach via movement. I showed this both for “scrambling” and for successive-cyclic movement in long-distance *wh*-movement. The facts apply both to argument associates, and to adverbial associates like *wo* (‘where’). At the end of the chapter, I also argued more explicitly against an adverbial analysis of *alles*.

In **chapter 5**, I revised the SSG in (7) in favor of the more restrictive generalization in (8):

(8) *Chain Link Generalization for invariant alles (CLG):*

Given a derivation *D* involving invariant *alles* and a licit associate, *alles* may appear in any position which hosts an \bar{A} -chain link of its associate, and in no other position.

The revision was necessary because I showed that *alles* can only occur in positions from which its associate has \bar{A} -moved, stating the following generalization:

(9) *\bar{A} -generalization (ABG):*

Distal *alles* can only occur in positions that host an \bar{A} -chain link of the associate.

In other words, I argued that *alles* cannot be stranded by A-movement. The arguments are based on derivations in which A-movement is necessary. Where that is the case, *alles* cannot occur in the tail of such A-movement. The configurations are: scrambling to an A-binding position in (anti-)Weak Crossover configurations, scrambling to obviate Superiority, movement to license abstract accusative Case, and subject-to-subject raising. I further showed that *alles* is indeed licensed by \bar{A} -movement rather than just, say, “*wh*-interrogative” movement. *Alles* can be stranded by CP-topicalization, and relativization, though it might not be licensed in parasitic gaps and comparatives, and is not licensed inside the infinitival of *tough*-movement. The chapter finally examined scrambling in closer detail and showed that *alles* is licensed by adjunct-scrambling but not freely by argument scrambling.

In **chapter 6**, I further explored consequences of the conclusion that *alles* is stranded from a source it shares with its associate. I argued that *alles* is not floated, i.e. moved before it is stranded. Floating analyses (Dougherty, 1970; Kayne, 1975) rested partly on the observation that the quantifier could be moved out of

its associate; the Subset Generalization, however, gives no reason to believe that *alles* can be moved. I then explored three issues, going back and forth between them: (i) what property of a “licit associate” licenses *alles*?, (ii) what is the separation procedure—is it sub-extraction or complementary deletion?, (iii) what do “complex associates” teach us about the syntax of *alles*?

(i) I discussed the two aspects that are at play in the licensing relation. First, the associate must have a particular property, and second, *alles* and the associate must be in structural configuration that allows *alles* to *select* its associate. For the first aspect, I proposed to pin the licensing to a particular piece of structure in the associate. By comparing the syntactic behavior of *wh*-indefinites, which do not license *alles*, with *wh*-interrogatives and echo *wh*-phrases, which both do, I proposed that the former have a subset of the structure of the latter. As for the second aspect, I concluded that *alles* can either take the associate as its complement, or it can modify it.

(ii) I outlined two primary stranding procedures, sub-extraction of the associate, and complementary deletion, and set three empirical goals that the interplay of these procedures with the internal structure of the source [WH *alles*] must be able to meet: First, it must be able to explain the \bar{A} -generalization. Second, it must be able to explain why *alles* can be stranded by what are, or can otherwise be, barriers for extraction (subject and adjuncts). Third, it must be able to account for the possibility of stranding in intermediate movement steps. While barriers for sub-extracts are clearly a problem for a sub-extraction option, a complementary deletion approach struggles to find a natural way to derive the \bar{A} -generalization.

(iii) I observed and formulated three generalizations that apply to *alles* when it comes to “complex associates”. Complex associates are either DPs or PPs. Their defining property is that their head nominal projection is branching, i.e. non-pronominal. The first two generalization are syntactic, while the latter, I argued, is primarily prosodic. I showed that there is a close relation between pied-piping and *alles*-stranding with complex associates. First, *alles* can associate with any size constituent that can *wh*-move to selected *wh*-interrogative Spec,Cs:

(10) *Pied-piping generalization (PPG):*

If an XP can occur in selected interrogative Spec,C, then it is a licit associate for distal *alles*.

Second, I argued that when distal *alles* associates with a complex *wh*-phrase that has a *wh*-phrase embedded inside it *alles* can only be interpreted with respect to the full *wh*-phrase.

(11) *Ban on sub-association for distal alles:*

In a structure [_{XP} YP ZP], where both XP and YP are in-principle licit associates of *alles*, distal *alles* may not be narrowly interpreted for YP to the exclusion of XP.

I showed that (11) is particularly interesting for *wh*-phrase possessors given that they are typically assumed to be the contributing factor to the *wh*-ness of the complex *wh*-phrase. I argued that both (11) and (10) follow from a stranding analysis and may lend support for a sub-extraction analysis. Lastly, I discussed a restriction that affects adjacent *alles* with complex associates. Speakers generally do not allow *alles* to occur constituent-finally when the associate is “complex” in the above sense. I evaluated merits of analyzing the restriction as purely syntactic, and argued against that conclusion. Rather, I proposed that the restriction is due to an interplay between syntax and prosody.

7.2 Other findings

The second main result of this dissertation is that *alles* can be used a tool to investigate the finer details of the underlying A- and \bar{A} -derivation of its associates, and the nature of A- vs. \bar{A} -movement chains.

In **chapter 4**, I argued that ν P is a phase in German given that *alles* can occur there in the path of long-distance *wh*-movement. Assuming that phase-hood of a category is not something that the child learner can extrapolate from its limited primary data during acquisition, the implication is that ν P is a phase universally. In the same chapter, I reach a similar conclusion based on the so-called *wh*-scope marking construction (or partial *wh*-movement). I argue that given that some speakers allow *alles* to be both adjacent or distant in the matrix clause of these long-distance questions, a movement analysis seems to be the only way forward. If the dependency in the construction is movement, then there is additional evidence for the phase-hood of ν P.

In **chapter 5**, I concluded that scrambling is not a unitary phenomenon in German, and that it should be understood as two separate types of movement for arguments: low movement to ν P and perhaps

TP which is always A-movement, and movement to a TP-peripheral position which associate with topicality in some sense, and is always \bar{A} -movement. This conclusion has consequences for theories of scrambling, Reconstruction, the A/ \bar{A} -distinction, clause-boundedness in German, and potential implications for Superiority; I addressed these issues in the chapter. The chapter also offered support for scrambling-based analysis of obviation of Superiority and Weak Crossover in German, assuming that scrambling is movement.

Finally, the chapter drew the connection with work on other \bar{A} -stranding in other languages. In particular, it appears that *alles*-stranding is compatible with the conjecture made in [Fitzpatrick \(2006\)](#), which we may state as follows:

(12) *Fitzpatrick's Conjecture (FC):*

The distribution of *non-exhaustive quantifiers* is universally restricted to their associate's \bar{A} -chain.

The work of [Fitzpatrick \(2006\)](#); [Henry \(2012\)](#); [Johnson \(2016\)](#); [McCloskey \(2000, 2020\)](#) is starting to put together a number of languages which appear to obey Fitzpatrick's conjecture: West Ulster varieties of English, Japanese, Korean, Russian, Kentucky varieties of English, varieties of German. [McCloskey \(2020\)](#) further discusses Finnish, Swedish. Whether the latter two also obey the \bar{A} -generalization or not, we are starting to have a critical mass of languages where stranding is only possible via \bar{A} -movement.

In **chapter 6**, I further explored consequences of the conclusion that *alles* is stranded from a source it shares with its associate. A central question that comes out of this chapter, and dissertation in general, is how chains are interpreted by the interfaces. Two challenging domains in that regard are the \bar{A} -generalization, and how it may connect to a complementary deletion analysis, and intervention effects. The chapter also connects in important ways with the literature on question particles in Japanese, and with 'Q' of [Cable \(2007\)](#).

7.3 Questions about Universal Grammar, learning, and variation

In this final section, I want to address a question that has remained largely implicit throughout the dissertation: What does *wh*-quantifier float in German teach us about Universal Grammar (UG)? Put another way, the question is about what hypotheses a child learner entertains for *wh*-quantifier float – what is part of

UG –, and therefore how it might distinguish between those hypotheses available to it based on experience.

As a quick preview, I will touch on the following issues:

- (a) Is an adverbial analysis for floating quantifiers available alongside a movement analysis?
- (b) If yes, is it only available in the absence of a syntactic dependency between the associate and the floating quantifier?
- (c) Consequences of the \bar{A} -generalization on *alles* on the grammar of (movement-based) floating quantifiers.

Most fundamentally, this dissertation asked two questions in relation to *wh*-quantifier float of *alles* in sentence pairs like (13).

- (13) a. [Wen **alles**] hat [die Mare] [zu ihrem 80.] eingeladen?
who.ACC *Alles* has the.NOM Mare to her 80th invited
'Who-all did Mare invited to her 80th birthday?'
- b. Wen hat [die Mare] **alles** [zu ihrem 80.] eingeladen?
who.ACC has the.NOM Mare ALL to her 80th invited

- 1. Are adjacent *alles* in (13a) and distal *alles* in (13b) one and the same category?
- 2. Is distal *alles* in a syntactic dependency with its associate?

In answering these two questions, I entertained two families of analysis: a **movement analysis**, and an **adverbial analysis**. The movement analysis answers both questions affirmatively. In contrast, the adverbial analysis holds that distal *alles* is a different category, an adverbial one, leaving open whether adverbial *alles* is in a dependency with the associate or not.

In this dissertation, I argued that the movement analysis is correct, and that the adverbial analysis is incorrect. Given that the adverbial analysis is not possible for *alles* floating, this dissertation raises the question whether the adverbial analysis is *ever* correct for constructions that pose the same questions in 1–2. The most prominent case is *quantifier float* (QF) like in the English pair in (14).

- (14) a. [**All** [*the kitties*]] are napping in the sun.

- b. [*The kitties*] are **all** napping in the sun.

QF has continued to pose the questions in 1–2 over the last 50+ years. Here, I want to ignore the empirical details that have led to favoring one analysis over another for a particular language or phenomenon. I want to instead focus on the fact that the empirical details have led to the movement analysis in the case of *alles*, and consider the implications: if the adverbial analysis is incorrect for *alles*, is it *ever* a possible analysis? The strongest answer to this question is to deny the existence of the adverbial analysis entirely. However, a valid push-back against this conclusion (see for instance Bobaljik (1995)), is that an adverbial analysis can at best be wrong for a particular phenomenon in a particular language, but it is not superfluous—adverbial analyses are required independently. A clear case in point are adverbs of quantification such as *mostly*, and presumably “completive *all*” (see Bobaljik (1995, 2003)). Two examples with *mostly* are given in (15).

- (15) a. *Libertarians* are **mostly** just jerks.
b. *What kind of flour* do you **mostly** use for your fresh pasta?

In both examples in (15), *mostly* appears to quantify over the italicized associate, in some sense. In (15a) we can understand the sentence to mean that most libertarians are plainly jerks; in (15b) we can understand the question as asking to provide an answer that lists the (most relevant) majority of true answers to the question of what kind of flour the addressee uses when they make fresh pasta. The point with *mostly* is that we clearly know that *mostly* is an adverb. Whatever the details of an adverbial analysis may be such that it has the effect of (apparently) interpreting the adverb and the “associate” together, that kind of analysis will be made available by Universal Grammar (UG). This analysis can thus not be made “superfluous” by arguments in favor of a movement analysis of *alles* in German. The consequence is that a child learner entertains this adverbial analysis as a hypothesis in its acquisition process for at least *some* phenomena, and we expect this kind of phenomenon to surface in languages of the world. If this kind of analysis is entertained by the child learner, the burning question is whether it is ever entertained by a learner of German for *alles*, and whether this analysis is ever adopted for *alles*.

What is particular about this kind of adverbial analysis is that the quantificational adverb and the associate are not in a *syntactic* dependency. The two expressions appear to be interpreted together because

of how the adverb modifies the event. We may thus postulate the following maxim:

(16) *Learning maxim for floating quantificational expression:*

If a floating quantificational expression Q is in a syntactic dependency with its associate A, infer that the two expressions form a deep constituent and are separated by movement; assign the same category as the adjacent version if there is an adjacent–distal dyad. If there is no syntactic dependency between Q and A, assign an adequate adverbial category to Q.

This approach raises an immediate question: what counts as positive, or indirect negative evidence for there being a syntactic dependency between an X and a Y? While this is not a trivial question, the good news is that this is a general question that a child learner must be able to answer for themselves, independently. One kind of evidence may come from distributional evidence. In the case of *alles*, the particle can only occur with a core range of associates; of the licit associates, only a small subset is likely to be part of the child learner’s primary linguistic data (PLD). *Wh*-interrogatives such as (17a) and *wh*-exclamatives such (17b) are likely part of the PLD. Examples like (17c), however, will not be, given that the associate is not compatible with *alles*.

- (17) a. Was habt ihr heute **alles** gemacht?
 what.ACC have.2PL you.NOM.PL today ALL done
 ‘What all did you do today?’
- b. Ja was der **alles** schon kann!
 yes what.ACC he.NOM ALL already can.3SG
 ‘Wow, the things that he can do already!’
- c. *[Die drei] hat sie **alles** eingeladen.
 those three.ACC has she.NOM ALL invited
 Intended: ‘Those three, she invited them all.’

If the learner can gather co-occurrence information about two expressions, and in particular co-occurrence information about one expression with a class of syntactic categories or properties, then some process of recognizing that (17c) is not available in spite of (17a–b) might lead to the conclusion that *alles* depends on a certain kind of XP. This would be a kind of indirect negative evidence. If furthermore this kind of conclusion automatically leads to postulating a syntactic dependency (for instance following the

maxim of inference proposed by [Larson \(2013\)](#)), then the learner will infer that those instances of *alles* are derived by movement from a common constituent. Note that there are numerous pitfalls here. A potential problem comes from the parallel existence of inflecting *all-*. If inferring a syntactic dependency depends on inferring (17c) as indirect negative evidence, then a complicating factor is that (17c) contrasts with the well-formed (18).

- (18) [Die drei] hat sie **all-e** eingeladen.
 those three.ACC has she.NOM all-ACC.PL invited
 ‘Those three, she invited them all.’

If *alles* and inflecting *all-* were treated as the same category, perhaps the presence of a dependency can be inferred from the correlations detected purely based on the dependence of form of *alles* vs. inflecting *all-* on the kind of associate.¹ I will return to this intricacy in a moment when I turn to the issue of the \bar{A} -generalization. Before I do that, I address a more pernicious question concerning the potential co-existence of the adverbial analysis and the movement analysis.

Throughout chapters 3 and 4 I tried to be as agnostic as possible as to what dependency there may be between distal *alles* and the associate. The consequence was that it became a rather intricate matter to provide evidence that the associate occupies, at some point in the derivation, exactly the position marked by distal *alles*. What this complexity highlights is an issue that may be damning for a learner. Suppose that adverbial analyses and movement analyses of floating quantifiers are both options of UG. However, rather than assuming that the adverbial analysis is only available in the absence of a syntactic dependency, suppose that UG also makes available adverbial analyses that additionally establish some syntactic dependency between the floating adverb and its associate. For instance, the adverbial may require the associate to bind it, to locally bind it, or to Agree with it.² These options entail progressively smaller locality domains

¹ The correlation of form is only true in the core cases with associates whose head noun is a *wh*-pronoun. As [Reis \(1992a\)](#) already notes, inflecting *all-* is possible with complex *wh*-phrases, as in (i). This data may not be part of a child learners PLD and thus not actually complicate the picture. Note also that for many speakers I consulted, these sentences cause rather insecure judgments.

(i) ?Wem seine Kinder waren heute *all-e* nicht in der Schule?
 who.DAT his.NOM.PL children were today all-NOM.PL not in the school
 ‘For which *x*, *x*’s children were all not at school today’

² Except for plain binding, all options are represented in the literature. I will not attempt to provide an overview of the literature here. See [Bobaljik \(2003\)](#) for a fairly recent overview.

in which the associate and the so-hypothesized floating adverbial must co-occur in at some point in the derivation.

(19) *Locality restrictions on adverbial floating quantifier (AFQ) and associate (A):*

a. Binding:

A and AFQ can be arbitrarily far away at any point in the derivation.

b. Local binding:

A and AFQ are in the same binding domain (e.g. TP) at some point in the derivation.

c. Agree:

A and AFQ are phase-mates at some point in the derivation (if Agree is governed by the Phase Impenetrability Condition; [Chomsky \(2000, 2001\)](#)).

If adverbial analyses can come paired with a syntactic dependency like the ones in (19), a learner will entertain all of these hypotheses, and it therefore must distinguish between them based on linguistic experience. More critically, it must distinguish between any of these adverbial analyses and the movement analysis. I believe that the intricacies of chapters 3 and 4 showed that the ability of a learner to distinguish between such hypotheses based on experience will rely on some rather exotic and improbable data. The fact that even some speakers of German assigned the movement analysis, which results in the strictest locality – constituency –, shows quite clearly that there is a strong inductive bias at play here. It seems fair to conclude that the picture in (19) is generally false; these are not valid adverbial analyses of quantifier float and are not part of UG. Of course, to be entirely sure, we would need to see whether the sample of “German” speakers that I have worked with, including myself, is not just one speaker type among many. In other words, we need to ask more seriously the question whether there is speaker variation in relation to the distribution of distal *alles*.³ The more analyses we believe are in principle available, and the fewer the core paradigms that distinguish between the hypotheses, the more likely it is that the result of this dissertation is but an artifact of a small sample. But if the conclusion is right, the big question emerges of why Grammar would make

³ Recall in this regard the one speaker for who there was no restitution blocking by distal *alles*. This is the most important point of speaker variation I have encountered in my research. I did not elicit this speaker for other contrasts so that the question is whether the effect was due to their analysis of *alles* or some other point of variation. See again footnote 10 in section 3.3.

available a movement analysis as a way to analyze a floating construction with a syntactic dependency, but not an adverbial analysis with the addition of, say, Agree. Of course the *easiest way* to *explain* the absence of alternatives is to deny the existence of the alternatives altogether. That would mean that there is only one way to form a syntactic dependency, namely Merge, and its correlate Move. That conclusion would require a serious revision of many empirical domains. The general question remains and I leave this discussion here. Investigating whether there is any real variation in the syntax of *alles* in German, and what the range of variation is, thus becomes a particularly interesting playground in the study of UG.

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