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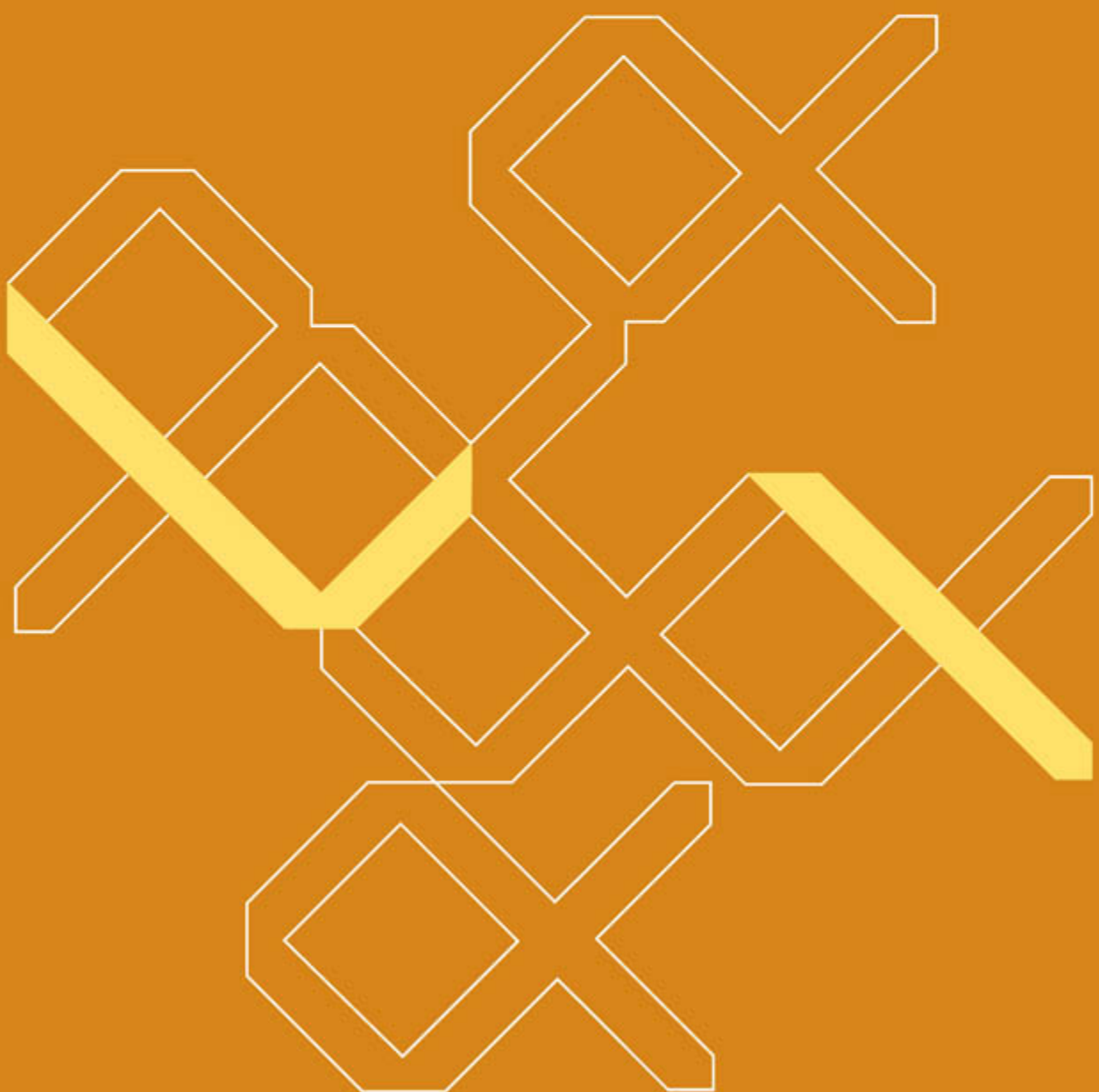
Probes and Their Horizons

Stefan Keine



Probes and Their Horizons

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Contents

Series Foreword

We are pleased to present the eighty-first volume in the series *Linguistic Inquiry Monographs.* These monographs present new and original research beyond the scope of the article. We hope they will benefit our field by bringing to it perspectives that will stimulate further research and insight.

Originally published in limited edition, the *Linguistic Inquiry Monographs* are now more widely available. This change is due to the great interest engendered by the series and by the needs of a growing readership. The editors thank the readers for their support and welcome suggestions about future directions for the series.

Samuel Jay Keyser
for the Editorial Board

Preface

The objective of this monograph is to develop a comprehensive theory of what I call *selective opacity:* syntactic configurations in which one and the same syntactic domain (typically a clause) is transparent to some operations, but opaque to others. One traditional example of selective opacity is finite clauses in English, which are transparent to $\bar{A}$-extraction, but opaque to A-extraction. There is by now a significant body of literature that has shown that this contrast is but one instance of a much more pervasive and nuanced class of phenomena, in a number of respects. First, syntactic domains may be selectively opaque in a way that goes beyond the binary A/$\bar{A}$-distinction. In other words, the same domain may be transparent to one $\bar{A}$-operation, but opaque to another $\bar{A}$-operation, raising important questions about the fine structure of syntactic dependencies.

Second, while selective-opacity effects are traditionally analyzed in terms of constraints on an individual element's movement paths (such as the traditional Ban on Improper Movement), these effects notably also arise in configurations that involve subextraction (smuggling and remnant movement). To varying degrees, the traditional Ban on Improper Movement does not extend to such cases because the element that undergoes the $\bar{A}$-movement step is distinct from the element that is A-moved. The traditional line of analysis therefore misses a generalization.

Third, I argue in this monograph that selective opacity is not limited to movement dependencies, but that it arises in the same way for syntactic dependencies that do not involve movement. I take this to suggest that a comprehensive theory of selective-opacity effects should not be stated in terms of movement per se, but rather encompass movement and in-situ dependencies alike. The classical ban on A-extraction out of a finite clause is hence just the tip of the iceberg.

Fourth, treating selective opacity as a unified and systematic phenomenon reveals important generalizations that would remain hidden on a more piecemeal approach: Selective-opacity effects are not distributed randomly, which is a finding that calls for an explanation.

This monograph proposes that selective-opacity effects shed important light on the constraints that govern the behavior of probes. I suggest that probes have characteristic *horizons,* which terminate their search. The central novelty of horizons is that they may differ between probes. This proposal has important ramifications for our understanding of locality in natural language. First, it suggests that at least some apparent constraints on movement should be rethought more abstractly as constraints on the operation Agree, which is involved in establishing movement dependencies, but not exclusively so. Second, the analysis I propose embraces the view that at least some locality effects are genuinely relative: one and the same domain can be transparent to some operations but opaque to others. Third, I argue that there is a systematic relationship between the locality profile of a probe and its syntactic position. Fourth, there are no direct interactions between operations or designated constraints on possible sequences of movement types (such as the traditional Ban on Improper Movement); rather, these apparent interactions emerge as epiphenomena of domain opacity. Fifth, the investigation also holds important implications for other concepts of locality, in particular the nature and distribution of phases. I argue that horizons coexist with CP phases as complementary constraints on syntactic dependencies, but that vP is not phasal.

This work has greatly benefited from the input of many people, for which I am very grateful. I owe an enormous debt of gratitude to Rajesh Bhatt and Kyle Johnson, who volunteered an extraordinary amount of time and energy to reading, commenting on, and discussing the ideas presented here. For insightful comments and inspiring discussions, I am also indebted to Klaus Abels, Jonathan Bobaljik, Željko Bošković, Sandy Chung, Jessica Coon, Veneeta Dayal, Donka Farkas, Lyn Frazier, Doreen Georgi, Claire Halpert, Fabian Heck, Anke Himmelreich, Norbert Hornstein, Khalil Iskarous, Ayesha Kidwai, Anoop Mahajan, Emily Manetta, Jim McCloskey, Gereon Müller, Roumi Pancheva, Barbara Partee, David Pesetsky, Ethan Poole, Omer Preminger, Martin Salzmann, Junko Shimoyama, Andrew Simpson, Lisa Travis, Coppe van Urk, Michael Wagner, Edwin Williams, Susi Wurmbrand, and María Luisa Zubizarreta. Portions of this work, or its precursors, were presented at FASAL 3 (University of Southern California); GLOW 36 (Lund); the University of Connecticut; Leipzig University; the University of Massachusetts Amherst; the University of Southern California; McGill; and the University of California, Santa Cruz. I thank the audiences at these venues for their comments and questions. For extremely detailed and helpful comments on an earlier draft, I owe special thanks to two reviewers for the MIT Press.

Special thanks are due to all the people who generously shared their judgments with me: Sakshi Bhatia, Bhamati Dash, Jyoti Iyer, Ayesha Kidwai, and especially

Rajesh Bhatt for Hindi-Urdu; Saurov Syed for Bangla; Jon Ander Mendia for Spanish; Ilaria Frana for Italian; Ekaterina Vostrikova for Russian; and Lyn Frazier and Ethan Poole for English.

This book would not have been possible without the work of Klaus Abels, Gereon Müller, Wolfgang Sternefeld, and Edwin Williams. They showed that the traditional ban on A-movement out of a finite clause is just one piece of a larger puzzle, and it is this discovery that sparked the work reported here.

The research reported here stems from my dissertation (Keine 2016); some of the materials are adapted in Keine (2019). I would like to thank the reviewers of that article for their insightful comments and feedback.

For their efficient work toward getting this book to publication, I would like to thank the teams at MIT Press and Westchester Publishing. Bhamati Dash deserves special thanks for carefully proofreading the Hindi-Urdu examples.

Last but not least, very special thanks to Ethan, whose contributions to my life I cannot adequately acknowledge.

Stefan Keine
August, 2019

Abbreviations

ABS	absolutive
ACC	accusative
ASP	aspect
ASS	associative
AUX	auxiliary
CF	classifier
CL	clitic
COMP	complementizer
DAT	dative
ERG	ergative
EVID	evidential
FOC	focus
FUT	future
FV	final vowel
F	feminine
GEN	genitive
INF	infinitive
INSTR	instrumental
IPFV	imperfective
LOC	locative
M	masculine
NMLZ	nominalizer
NOM	nominative
NPI	negative polarity item
NS	nonsubject voice
OBJ	object

OBL	oblique
PASS	passive
PASTPART	past participle
PERS	persistive
PFV	perfective
PL	plural
PRES	present
PROG	progressive
PRT	participle
PST	past
SA	subject agreement
SG	singular
SM	subject marker
SUBJ	subjunctive
TOP	topic

1 Selective Opacity

1.1 The Phenomenon

The focus of this monograph is configurations in which a syntactic domain is transparent to some syntactic operations while at the same time opaque to others. For convenience, I will refer to such configurations as *selective opacity* (1). The underlying intuition is that in these cases, a given syntactic domain (typically a clause) is not completely transparent to or completely opaque to all operations. Rather, its opacity is relative to the type of operation involved.

(1) *Selective opacity*
A syntactic domain Δ is selectively opaque to an operation α if Δ is opaque to α, but transparent to some other operation β.

Historically, selective-opacity effects have been investigated primarily in the domain of movement, that is, in configurations where a given domain is transparent to some movement types, but not others.

(2) *Selective opacity in movement dependencies*
A syntactic domain Δ is selectively opaque to α-movement if Δ prohibits α-movement but allows β-movement out of it, where α and β are different types of movement.

In other words, the hallmark property of selective opacity configurations is that there is a *locality mismatch/difference* between operations: different operations exhibit different locality profiles.[1]

1. There are a number of movement asymmetries that bear a similarity to selective opacity. One is weak islands, which typically allow argument extraction but block adjunct extraction or DP gaps but not PP gaps (see Szabolcsi 2006 for an overview). In these cases, it is thus the categorial or semantic status of the moving element, or the argument/adjunct status of the gap, that underlies the opacity contrast. I will use the term "selective opacity" to refer to instances where it is the type of

The most well-known instance of selective opacity is the ban on hyperraising in languages like English.[2] Finite clauses in English are transparent to $\bar{A}$-movement (3a), but at the same time they are opaque to A-movement (3b).

(3) a. Who$_i$ do you think [$_{CP}$ t_i likes natto]?

b. *Sue$_i$/Who$_i$ seems [$_{CP}$ t_i likes natto](?)

There is thus a locality mismatch between A- and $\bar{A}$-movement. Using the terminology just introduced, I will say that finite clauses are selectively opaque to A-movement, but not $\bar{A}$-movement.

The prohibition against A-movement out of a finite clause does not simply reduce to a ban on multiple case assignment to a single DP. The restriction persists even if the source of case in either the launching site (4) or the landing site (5) is eliminated:

(4) *No case assignment in launching site*

a. *John$_i$ [seems that it is certain [t_i to like ice cream]]
[Chomsky 1981:58]

b. *John$_i$ seems [that it was told t_i [that Mary is a genius]]
[Lasnik and Saito 1992:192]

(5) *No case assignment in landing site*

a. *Mary's belief [John$_i$ to be likely [t_i will win]]
[Lasnik and Boeckx 2006:118]

b. *It is certain [Rhoda$_i$ to be likely [t_i is intelligent]] [Nevins 2005:292]

The locality contrast between A- and $\bar{A}$-movement in (3) has been investigated in great detail in the literature, and a variety of accounts have been explored. The standard account, based on Chomsky (1973, 1977, 1981) and May (1979), involves a conspiracy of two constraints: (i) a constraint like subjacency or phase

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the movement itself or, roughly equivalently, the landing site of the movement that underlies the extractability contrast.

2. It is customary to distinguish between "hyperraising" and "superraising" (e.g., Ura 1994). The term "hyperraising" refers to movement of a subject of a finite clause to the subject position of a higher finite clause, as in (i.a). "Superraising" is usually reserved for movement of a subject past the subject of another clause into an A-position in a higher clause, as in (i.b).

(i) a. *She$_i$ seems [that t_i likes natto]

b. *She$_i$ seems [that it was told t_i [that Alex likes natto]]

I will be primarily concerned with hyperraising, but at least for English, the account proposed here derives both (i.a) and (i.b) in the same way. For some additional remarks on superraising patterns like (i.b), see section 6.3 of chapter 6.

impenetrability that requires movement to be successive-cyclic and to proceed through the edge of a finite clause, an $\bar{A}$-position, and (ii) a prohibition against moving from an $\bar{A}$- to an A-position, commonly called the *Ban on Improper Movement*.

Significantly, selective opacity is not limited to differences between A- and $\bar{A}$-movement; it is considerably more pervasive and fine-grained (see, for example, Williams 1974, 2003, 2011, 2013; Sternefeld 1992; Müller and Sternefeld 1993; Müller 1995, 2014a,b; Abels 2007, 2009, 2012a,b; Neeleman and Van de Koot 2010; Wurmbrand 2014a). For example, nonfinite clauses in English are transparent to A-movement (movement of *John* in (6b)), but opaque to extraposition (movement of *that Fred is crazy* in (6c), taken from Baltin 1978:144).[3]

(6) a. Everybody believes [John to be certain [that Fred is crazy]]

b. John$_i$ is believed [t_i to be certain [that Fred is crazy]] (by everybody).

c. *[John$_i$ is believed [t_i to be certain t_j] by everybody [that Fred is crazy]$_j$]

There are thus at least two layers of selective opacity in English as $\bar{A}$-movement, A-movement, and extraposition all differ with respect to their locality properties. Finite clauses only allow $\bar{A}$-movement out of them, whereas nonfinite clauses allow $\bar{A}$- and A-extraction, but not extraposition. Clearly, the traditional Ban on Improper Movement does not extend to the selective-opacity pattern in (6). The clause-boundedness of extraposition is therefore usually attributed to a separate constraint, Ross's (1967) *Right Roof Constraint*.

Because selective opacity has received comparatively little systematic attention outside of the ban on hyperraising (however, see the references just cited), it is instructive to consider a number of illustrative examples from a variety of constructions and languages to showcase the diversity as well as the pervasiveness of selective-opacity effects. Some of the examples here will be taken up again in greater detail in the course of this monograph. For the time being, the following list primarily serves the purpose of illustrating the phenomenon and highlighting its scope and diversity.

As just noted, selective-opacity effects are not limited to differences between A- and $\bar{A}$-dependencies, but also arise between different types of $\bar{A}$-extractions. A second example that illustrates this point is finite clauses in German. As shown in (7), finite V-final clauses allow *wh*-movement out of them, but they

3. Van Riemsdijk and Williams (1986:30) explicitly relate the problem of the upward boundedness of extraposition to the problem of hyperraising as, in both cases, the challenge is to block a successive-cyclic derivation.

are opaque to relativization for many speakers (Salzmann 2006, 2017; Bayer and Salzmann 2013; Müller 2014b) and to scrambling (Fanselow 1990; Müller and Sternefeld 1993).

(7) *Finite V-final clauses in German*

a. *Wh-movement*
Wen$_i$ hat er gesagt [dass Maria t_i gesehen hat]?
who.ACC has he said that Maria seen has
'Who did he say that Maria saw?'

b. *Relativization*
?*eine Frau [die$_i$ er gesagt hat [dass Maria t_i gesehen
a woman who.ACC he said has that Maria seen
hat]]
has
Intended: 'a woman who he said that Maria saw'

c. *Scrambling*
*Er hat [diese Frau]$_i$ gesagt [dass Maria t_i gesehen hat]
he has this woman.ACC said that Maria seen has
Intended: 'He said that Maria saw this woman.'

A third example of selective opacity among different types of Ā-movement comes from V2 clauses in German. Here, embedded V2 clauses are transparent to *wh*-movement that lands in a higher V2 clause, but they disallow *wh*-movement out of them that lands in a higher V-final clause (Haider 1984; Reis 1985, 1996; Sternefeld 1989; Staudacher 1990; Müller and Sternefeld 1993; Müller 1995, 2010a).

(8) *V2 clauses in German*

a. *Wh-movement into V2 clause*
[$_{CP_{V2}}$ Wen$_i$ meint er [$_{CP_{V2}}$ hat Maria t_i gesehen]]?
who thinks he has Maria seen
'Who does he think that Maria saw?'

b. *Wh-movement into V-final clause*
*Ich weiß nicht [$_{CP_{V\text{-}final}}$ wen$_i$ er meint [$_{CP_{V2}}$ hat Maria t_i
I know not who he thinks has Maria
gesehen]]
seen
Intended: 'I don't know who he thinks that Maria saw.'

A fourth example is Russian, where nonfinite clauses disallow A-movement out of them (see, e.g., Stepanov 2007), but are transparent to topicalization/scrambling. As (9b) and (10) illustrate, subject-to-subject raising out of a nonfinite clause is impossible.[4]

(9) *Russian: No A-movement out of nonfinite clause*

a. Kažetsja [čto èti studenty znajut tri jazyka]
seem.3SG that these students know.3PL three languages
'It seems that these students know three languages.'

b. *[Èti studenty]$_i$ kažutsja [t_i učit' tri jazyka]
these students seem.3PL learn.INF three languages
Intended: 'These students seem to be learning three languages.'

(10) *Ivan$_i$ sčitaetsja [t_i byt' bol'nym]
Ivan is-considered to-be sick.INSTR
Intended: 'Ivan is considered to be sick.' [Stepanov 2007:84]

By contrast, the example in (11b) is derived from (11a) by scrambling/topicalization of *kitajskij jazyk* 'Chinese' out of the embedded clause, and the result is grammatical. (11c) involves A-movement (*tough*-movement), diagnosed by agreement with the adjective, and is ungrammatical, in line with (9) and (10).[5]

(11) *Russian nonfinite clauses*

a. Trudno [učit' kitajskij jazyk]
difficult learn.INF Chinese language.M
'It is hard to learn Chinese.'

b. *Topicalization/scrambling*
[Kitajskij jazyk]$_i$ trudno [učit' t_i]
Chinese language.M difficult learn.INF

c. *Tough-movement*
*[Kitajskij jazyk]$_i$ trudnyj [učit' t_i]
Chinese language.M difficult.M.SG learn.INF
Intended: 'Chinese is hard to learn.'

A fifth example of selective opacity is the well-known locality difference between clitic climbing and phrasal movement. In Spanish, for instance, finite

4. Russian examples and judgments not attributed otherwise are due to Ekaterina Vostrikova (p.c.).

5. Finite clauses in Russian exhibit the same asymmetry. See (27b) for an example of impossible A-movement out of a finite clause and (302) for grammatical scrambling out of a finite clause.

clauses are transparent to *wh*-movement and topicalization out of them (12a), but opaque to clitic climbing (12b).[6] In (12b), the curly-brace notation indicates complementary distribution between *le* in the higher clause (where it leads to ungrammaticality) and *le* in the lower clause.

(12) *Spanish finite clauses*

a. *Ā-movement*
A Pedro$_i$ piensa Juan [que María ha visto t_i]
A Pedro thinks Juan that María AUX.3SG see.PRT
'Pedro, Juan thinks that María saw.'

b. *Clitic climbing impossible*
Juan {*le} piensa [que María {le} ha
Juan CL.DAT.3SG thinks that María CL.DAT.3SG AUX.3SG
visto a Pedro]
see.PRT A Pedro
Intended: 'Juan thinks that María saw Pedro.'

See Wurmbrand (2014a:289) for a similar contrast in Slovenian.

A sixth illustrative instance of selective opacity comes from widely observed differences in the locality of scrambling and movements that target a left-peripheral position. As Wurmbrand (2015) discusses, Polish has three types of infinitival complementation: (i) infinitives in which the complementizer *żeby* is obligatory, (ii) infinitives in which *żeby* is impossible, and (iii) infinitives in which the complementizer is optional. Different verbs select for different types of infinitives. The presence or absence of the complementizer correlates with the possibility of scrambling out of the infinitive. If the complementizer is obligatory, cross-clausal scrambling is blocked (13a). If the complementizer is impossible, such scrambling is licit (13b). Finally, if the complementizer is optional, cross-clausal scrambling is possible only if the complementizer is absent (13c).

(13) *Polish scrambling*

a. Jan {*pieniądze / *je } nalegał *(żeby) {pieniądze / je }
Jan money them insisted so.that money them
zostawić.
leave.INF
'Jan insisted on leaving the money/them.'

6. Spanish examples and judgments are due to Jon Ander Mendia (p.c.).

b. Jan {książkę} / {ją} zdołał (*żeby) {ja} przeczytać {książkę}.
Jan book it managed so.that it read.INF book
'Jan managed to read a/the book/it.'

c. i. Jan postanowił (żeby) {ja} przeczytać {książkę}.
Jan decided so.that it read.INF book
Jan decided to read a/the book/it.'

ii. Jan {książkę / ja} postanowił (*żeby) przeczytać.
Jan book it decided so.that read.INF
'Jan decided to read a/the book/it.' [Wurmbrand 2015:229–230]

Crucially, the presence of *żeby* does not restrict the possibility of topicalization out of an embedded clause, as (14) demonstrates, where topicalization of *żabę* 'frog' out of the lower clause and over the complementizer is grammatical.

(14) *Polish topicalization*
Żabę, to Jan chciałby żeby tylko Maria pocałowała.
frog.ACC TOP Jan want.SUBJ so.that only Maria.NOM kissed
'The frog, John would like only Mary to kiss.' [Wurmbrand 2015:230]

This pattern constitutes another instance of selective opacity because clauses containing *żeby* are opaque to scrambling, but transparent to topicalization. Analogous restrictions are observed in various other languages, including Slovenian, also reported in Wurmbrand (2015).

Kikuyu provides a seventh example of selective opacity in that topicalization and *wh*-movement differ in their locality properties. As discussed by Schwarz (2007), topicalization in the language is clause-bounded. From the baseline in (15a), clause-internal topicalization of the locative adjunct *mbɛrɛ ya nyomba* 'in front of the house' is possible, as in (15b). Topicalization that leaves the embedded clause, by contrast, is impossible, as (15c) demonstrates.

(15) *Kikuyu topicalization*

a. abdul ne-uɣ-ir-ɛ ate nyina ne-ɔɔn-ir-ɛ i-βuku
Abdul FOC-say-ASP-FV that mother FOC-see-ASP-FV 5-book
mbɛrɛ ya nyomba
in-front 9.ASS 9.house

b. abdul ne-uɣ-ir-ɛ ate *mbɛrɛ ya nyomba* nyina
Abdul FOC-say-ASP-FV that in-front 9.ASS 9.house mother
ne-ɔɔn-ir-ɛ i-βuku
FOC-see-ASP-FV 5-book

c. #*mbɛrɛ* *ya* *nyomba* abdul ne-uɣ-ir-ɛ ate nyina
in-front 9.ASS 9.house Abdul FOC-say-ASP-FV that mother
ne-ɔɔn-ir-ɛ i-βuku
FOC-see-ASP-FV 5-book
'Abdul said his mother saw the book in front of the house.'
[Schwarz 2007:153]

In contrast to topicalization, *wh*-movement may cross clause boundaries, as shown in (16), which involves *wh*-extraction out of the lower clause.

(16) *Kikuyu wh-movement*
ne-ko ngoɣe a-uɣ-irɛ ate kamau ne-ɔ-ɔn-irɛ kanakɛ
FOC-where Ngoge SM-say-ASP that Kamau FOC-SM-see-ASP Kanake
'Where did Ngoge say that Kamau saw Kanake?' [Schwarz 2007:154]

The eighth and final illustration of selective opacity is provided by intriguing locality differences between different types of movement that target the left periphery in Italian, as documented extensively by Abels (2012a). For example, fronting of an adverb (a process called "adverb preposing" by Rizzi 2004 and "modifier fronting" by Abels 2012a) may not cross a finite clause boundary, as (17a) shows (unless the adverb is a topic or focus, see footnote 7), while topicalization, focus fronting, and relativization are not similarly constrained, as illustrated in (17b) for topicalization.[7]

(17) *Italian*

a. *No cross-clausal adverb fronting*
Rapidamente, (*Gianni dice che) hanno risolto il problema.
'Rapidly, (Gianni says that) they solved the problem.'

b. *Cross-clausal topicalization*
Il problema, (Gianni dice che) lo hanno risolto rapidamente.
'The problem, (Gianni says that) they solved it rapidly.'
[Rizzi 2004:249n10]

7. All else equal, the contrast between (17a) and (17b) could be taken not as a difference between movement types but as an argument–adjunct asymmetry. However, Rizzi (2004) shows that once a preposed adverb is mentioned in the preceding discourse and therefore a topic, it may leave a clause:

(i) a. C'e qualche problema che hanno risolto rapidamente?
'Is there a problem that they solved rapidly?'

b. Rapidamente, Gianni dice che hanno risolto il primo problema, ma non gli altri.
'Rapidly, Gianni says that they solved the first problem, but not the others.'
[Rizzi 2004:249n10]

Within the group of topicalization, focus movement, and relativization, additional locality mismatches can be observed. Abels (2012a) provides evidence that *wh*-islands are transparent to relativization (18a) and topicalization (18b) (due to Ilaria Frana, p.c.), but that they are opaque to focus movement (18c).

(18) *Italian wh-islands*

a. *Relativization possible*
Tuo fratello, *a cui* mi domando *che storie*
your brother to whom I wonder which stories
abbiano raccontato, era molto preoccupato.
they told was very troubled [Rizzi 1982:50]

b. *Topicalization possible*
?*A Gianni*, non so *come* pensi che gli dovremmo
to Gianni I don't know how you think that to him we should
parlare.
talk

c. *Focus movement impossible*
*QUESTO mi domando *a chi* hanno detto.
this I wonder to whom they have said
[Abels 2012a:241]

The various examples just discussed are summarized in (19). What I hope this brief survey has demonstrated is that locality mismatches between movement types and selective opacity is a widespread phenomenon that arises in a considerable range of constructions and languages and thus warrants systematic theoretical attention.

Analytically, selective-opacity effects frequently receive treatments that are specifically tailored toward particular instances. For example, as noted above, the classical account of the prohibition against hyperraising in English involves (i) a requirement for cross-clausal movement to move through the edge of the clause, an $\bar{A}$-position and (ii) a ban on movement from an $\bar{A}$- to an A-position (Chomsky 1973, 1977, 1981; May 1979). An account along these lines does not obviously extend to the various other instances of selective opacity like the ones just reviewed. Similarly, the stricter locality of extraposition in English (recall (6c)) is standardly attributed to a designated constraint that restricts the locality of rightward movement but not leftward movement. This restriction evidently does not extend to the other instances of selective opacity in (19).

The vantage point I adopt in this monograph is that selective opacity is a *uniform* phenomenon in the sense that the various locality mismatches just

(19) *Examples of selective opacity*

Domain	*transparent to …*	*opaque to …*
English		
nonfinite clauses	A-movement, Ā-movement	extraposition
finite clauses	Ā-movement	A-movement, extraposition
German		
V-final finite clauses	*wh*-movement	relativization, scrambling
V2 clauses	*wh*-movement into V2 clause	*wh*-movement into V-final clause
Russian		
nonfinite clauses	topicalization/scrambling	A-movement
Spanish		
finite clauses	topicalization	clitic climbing
Polish		
nonfinite *żeby* clauses	topicalization	scrambling
Kikuyu		
finite clauses	*wh*-movement	topicalization
Italian		
finite clauses	focus movement, topicalization, relativization	adverb preposing
wh-islands	relativization, topicalization	focus movement

mentioned are all manifestations of the same underlying phenomenon and hence of a central and fundamental aspect of syntactic locality. As such, I will take selective opacity at face value—syntactic domains are not necessarily completely transparent to all operations or completely opaque to all operations. Rather, locality may be nonbinary, with one and the same domain being transparent to some operations but opaque to others. My goal will hence be to develop a unified theory of selective-opacity effects, a goal that has, to varying degrees, also been pursued by works such as Williams (1974, 2003, 2011, 2013), Sternefeld (1992), Müller and Sternefeld (1993), Müller (1995, 2014a,b), Grewendorf (2003, 2015), Abels (2007, 2009, 2012a,b), and Neeleman and Van de Koot (2010).

1.2 Meta-generalizations of Selective Opacity

What is gained by treating selective opacity as a uniform phenomenon? The first reason to explore this line of inquiry is the standard methodological point that a unified account of a range of apparently unrelated phenomena is preferred

over a piecemeal account that attributes every instance of selective opacity to a separate constraint. This move allows us to face head-on the pervasive fact that syntactic domains can be selectively opaque. Second, treating selective-opacity effects as a class of phenomena allows us to meaningfully ask the question of what this class has to tell us about the nature of syntactic locality.

The third and most surprising reason to take selective-opacity effects to be a natural class is the fact that intriguing empirical generalizations emerge once selective opacity is treated as a phenomenon that manifests itself in a wide array of configurations. Specifically, the previous literature on selective opacity has unearthed intriguing meta-generalizations of selective opacity, which become apparent only once locality mismatches in a wide range of constructions and languages are considered. Viewing selective opacity as a natural class thus has an empirical payoff as well, in that it allows us to identify patterns that remain hidden on a piecemeal approach. I will motivate these meta-generalizations in this section. They will be corroborated by in-depth case studies of selective opacity of Hindi-Urdu in chapter 2 and German in chapter 4. I use the term "meta-generalizations" to highlight the fact that these patterns emerge across constructions and languages. In this sense, they are generalizations over selective-opacity patterns. In other words, to the extent that they are correct, they specify constraints on possible selective-opacity generalizations. These meta-generalizations are of crucial importance because they demonstrate that locality mismatches are not distributed randomly, but instead follow overarching patterns, which any account of selective opacity has to capture in one way or another.

1.2.1 The Height–Locality Connection

The first meta-generalization is what I will call the *Height–Locality Connection* (HLC). I will use the term *height* to refer to the structural height of the landing site of a movement type in the clausal spine. The term *locality* refers to the locality restrictions on that movement type. One of the key discoveries in the recent literature on selective opacity is that the two appear to be related to each other: the higher the landing site of a movement type in the clausal spine, the more domains are transparent to this movement type. Conversely, movement types that target a structurally low position are typically subject to stricter locality constraints than movements targeting high positions. This connection has been argued for in varying forms by Sternefeld (1992), Williams (2003, 2011, 2013); Abels (2007, 2009, 2012a), Müller (2014a,b), and Wurmbrand (2014a, 2015), and the case studies of selective opacity in this monograph will provide further support for it.

(20) *Height–Locality Connection* (HLC)
Movement types differ in their landing sites. The higher the landing site of a movement type is in the clausal structure, the more kinds of structures are transparent to this movement type.

(20) may be illustrated with the familiar A/Ā-movement distinction in English. It is uncontroversial that A- and Ā-movement target different landing sites in English and specifically that A-movement targets a position that is structurally lower than Ā-movement ([Spec,TP] vs. [Spec,CP], respectively). Importantly, this difference in the height of the landing site correlates with their respective locality profiles. Finite clauses are opaque to A-movement, but they are transparent to Ā-movement out of them; see (3). Nonfinite clauses, on the other hand, are transparent to both. Thus, the movement type that targets a structurally high position (i.e., Ā-movement) can leave more types of clauses (finite and nonfinite clauses) than movement that lands in a low position (i.e., A-movement). Put differently, the movement type that lands low is subject to stricter locality constraints than the movement type that lands high. According to (20), this correlation is not a coincidence, but a systematic and general property of selective-opacity effects, in need of explanation.

More instances of (20) are easy to find. We saw on the basis of (7) that finite clauses in German allow *wh*-movement out of them but not scrambling. Again, this locality difference correlates with the relative height of the respective landing sites of *wh*-movement and scrambling: *wh*-movement evidently lands in a higher position than scrambling. The connection between the relative height of the landing site of a movement type and its locality profile again conforms to (20): the movement type that lands in a high position (i.e., *wh*-movement) is able to leave finite clauses, which are opaque to the movement type that lands in a low position (i.e., scrambling). The locality differences between clitic climbing and phrasal movement in Romance languages also corresponds to (20) because clitic climbing transparently targets a position lower than the landing site of movement to the left periphery.

Abels (2012a) argues in detail for a connection between height and locality in line with the HLC on the basis of the Italian left periphery. As we saw in (18), relativization and topicalization may leave a *wh*-island, whereas focus movement may not. This locality difference again correlates with a difference in the height of the landing site of these movement types. As (21) demonstrates, a relative pronoun has to precede a focused element in the same clause; the inverse order is ungrammatical. Relativization thus targets a position higher than focus movement.

(21) *Italian: relativization lands higher than focus movement*

a. Ecco un uomo *a cui* IL PREMIO NOBEL dovrebbero dare
here is a man to whom the Nobel Prize they should give
(non il premio X).
not prize X

b. *Ecco un uomo IL PREMIO NOBEL *a cui* dovrebbero dare
here is a man the Nobel Prize to whom they should give
(non il premio X).
not prize X [Rizzi 1997:298]

Like relativization, topicalization can also land in a position higher than that targeted by focus movement, though in this case the ordering is flexible.[8]

(22) *Italian: Topicalization can land higher than focus movement*
Credo che *a Gianni* QUESTO gli dovremmo dire.
I believe that to Gianni this we should say to him
[Abels 2012a:237]

Thus, the movement type that may (in the case of topicalization) or must (in the case of relativization) land in a structurally high position is able to escape more kinds of structures/clauses than a movement type that lands in a lower position (focus movement), even if all of these movements land in the left periphery. This correlates with the locality facts: relativization and topicalization can leave *wh*-islands, but focus movement cannot (18). It is this connection between a movement type's landing site and its locality properties that the HLC (20) expresses.

A similar illustration of the HLC is provided by a comparison of focus movement and adverb fronting in Italian. As Abels (2012a:237–238) shows, focused elements have to appear to the left of a fronted adverb. Focus fronting thus targets a position higher than adverb fronting. This height difference again correlates with a locality difference. Adverb fronting is clause-bounded (Rizzi 2004:249n10; Abels 2012a:236–238), as we saw in (17), but focus fronting is not. In other words, finite clauses are opaque to adverb fronting but not to focus movement. Once again, then, the movement type that targets a position

8. Rizzi (1997) proposes that there are multiple landing sites for topicalization in Italian. (22) demonstrates that topicalization can land higher than focus movement. By (20), this difference in the height of the two movement types correlates with topicalization being potentially less local than focus movement.

relatively low compared to another movement type is also subject to stricter locality conditions.

Wurmbrand (2015) provides a further, crosslinguistic exemplification of the HLC. Treating scrambling and clitic climbing of manifestations of the same abstract operation SCR/CC, Wurmbrand (2015) argues that SCR/CC targets a higher position in German than it does in Italian (specifically, that SCR/CC targets the CP domain in German, but the TP domain in Italian). She also argues that SCR/CC is more restricted in its locality in Italian than it is in German in that nonfinite clauses that contain a future specification are transparent to SCR/CC in German, but not in Italian (also see (26) below). The HLC again connects these two properties: a lower landing site correlates with a more constrained locality profile.

Additional examples that of the HLC include German pronoun fronting, Icelandic object shift, and English extraposition. Müller (2014a,b) points out that each of these movement types targets a low position and is not able to cross a CP, unlike movement types that target a structurally high position. Abels (2007, 2009) notes a connection between height and locality for various movement types in German.

Chapters 2 and 4 of the present study explore in detail selective-opacity effects in Hindi-Urdu (henceforth Hindi) and German, respectively, and I will argue that these case studies further support the HLC. These considerations strongly suggest that the HLC expresses a pervasive empirical generalization over selective-opacity effects.[9] The discovery that a movement type's locality profile is related to the height of the landing site of that movement type provides strong evidence that locality differences between operations are far from arbitrary or random. Rather, once selective opacity is treated as a systematic phenomenon that arises across a variety of constructions and languages, meta-generalizations like the HLC become evident. The systematicity that such generalizations reveal calls for an approach that treats selective-opacity effects as a uniform phenomenon because only such an account lends itself to the overarching generalizations that arise across constructions and languages. The analytical challenge that we are faced with, then, is not only to devise a theory that allows for locality differences between operations. At the same time, such a theory should also impose limits on possible locality differences. In particular, it ought to relate differences in locality to differences in the height of the landing site of the operation.

9. Though see Deal (2017) for an apparent counterexample to the HLC from covert hyperraising to object in Nez Perce.

It is worth noting at the outset that the recent literature on selective opacity has engaged in a debate about the precise link between height and locality. Sternefeld (1992) and Williams (2003, 2011, 2013), for example, present accounts on which the two are correlated and locality is a direct function of a movement type's landing site. Abels (2012a) presents a theory, which, at least in its strongest form, would reduce height to locality, hence also result in a correlation between the two. Müller (2014a,b), on the other hand, argues that height and locality are connected, but not in the form of a strict correlation (also see Wurmbrand 2014a, 2015). The Hindi and German case studies in chapters 2 and 4 will support the latter view. I argue that while there is a clear empirical link between height and locality in that the height of the landing site imposes strict limitations on a movement type's locality profile, it nevertheless does not uniquely determine it. For these reasons, I will refer to the empirical generalization in (20) as the Height–Locality *Connection*, rather than the Height–Locality *Correlation.*

1.2.2 Upward Entailment

A second important meta-generalization across selective-opacity effects is *Upward Entailment* in (23). Upward entailment states a generalization across embedded clauses of various sizes. As a background, I will adopt here the standard view that embedded clauses may comprise different amounts of functional structure (e.g., nonfinite TP clauses vs. finite CP clauses in English). Clauses of different sizes may differ in their locality properties. Against this general background, Upward Entailment states that there is an entailment relation between structurally smaller and structurally larger clauses: if a clause of a given size is opaque to some movement type, then structurally larger clauses (i.e., clauses whose structure contains a proper superset of projections) are also opaque to this movement type.

(23) *Upward Entailment*
If a clause of a certain structural size is opaque to an operation, then clauses that are structurally larger are also opaque to this operation.

To illustrate, in English, TP clauses are opaque to extraposition, as shown in (24), repeated from (6c), where extraposition of *that Fred is crazy* leads to ungrammaticality. Based on this fact, Upward Entailment states that CP clauses, in virtue of being structurally larger than TP clauses, are also opaque to extraposition, as in (25).

(24) *TP clauses are opaque to extraposition in English*
*[John$_i$ is believed [$_{TP}$ t_i to be certain t_j] by everybody [that Fred is crazy]$_j$]

(25) *CP clauses are opaque to extraposition as well*
*[It is believed [$_{CP}$ that John is certain t_j] by everybody [that Fred is crazy]$_j$]

One might wonder whether the ungrammaticality of (25) is not simply due to the fact that extraposition must cross a TP inside the CP, hence for the same reason that (24) is impossible. I will show shortly that it is technically possible to devise systems in which TP clauses are opaque, but CP clauses are not. Upward Entailment is therefore not a theoretical necessity.

In a crosslinguistic investigation of restructuring, Wurmbrand (2014a, 2015) reports an important generalization that provides clear additional support for Upward Entailment. Distinguishing between (i) nonfinite –TNS clauses, which lack tense, (ii) nonfinite +FUT clauses, which contain a future specification, and (iii) CP clauses, Wurmbrand observes that languages differ in what kinds of complement clauses they allow SCR/CC out of. Assuming with Wurmbrand (2014a, 2015) that –TNS clauses are structurally smallest, +FUT are intermediate, and CP clauses are largest, the resulting empirical picture is provided in (26).

(26) *Availability of clitic climbing/scrambling across clause types* (Wurmbrand 2014a:277)

	–TNS	+FUT	CP
Brazilian Portuguese, English, French	✗	✗	✗
European Portuguese, Italian, Spanish, Romanian	✓	✗	✗
Chamorro, German, Kannada, Czech	✓	✓	✗
Japanese, Korean, Slovenian	✓	✓	✓

(✓: transparent; ✗: opaque)

While the languages in (26) differ in where they set the cutoff point for SCR/CC, there is a clear generalization: If a type of clause is opaque to SCR/CC, then structurally larger clauses are also opaque. Upward Entailment encodes this generalization.

Another illustrative example of Upward Entailment is provided by Russian. As we saw in (9)–(11), nonfinite clauses are opaque to A-movement out of them, again illustrated by (27a). This opacity to A-movement is shared by finite clauses, as shown in (27b). The structure is grammatical only in the absence of A-movement, as in (27c). See Stepanov (2007) for analogous examples using

sčitat'cja 'to be considered.' On the view that finite clauses are structurally larger than nonfinite clauses in Russian, this entailment instantiates Upward Entailment.

(27) *Russian*

a. *[Èti studenty]$_i$ kažutsja [$_{\text{nonfinite}}$ t_i znat' tri jazyka]
these students seem.3PL know.INF three languages

b. *[Èti studenty]$_i$ kažutsja [$_{\text{finite}}$ (čto) t_i znajut tri jazyka]
these students seem.3PL that know.3PL three languages

c. Kažetsja [$_{\text{finite}}$ čto èti studenty znajut tri jazyka]
seem.3SG that these students know.3PL three languages
'It seems that these students know three languages.'

The detailed case studies of Hindi and German in chapters 2 and 4 will provide converging evidence for the validity of Upward Entailment as an empirical generalization.

What Upward Entailment rules out is a configuration where, for example, finite (CP) clauses are transparent to an operation, but nonfinite (TP) clauses are opaque. While this seems overwhelmingly correct, the literature contains a few phenomena that might appear to instantiate such a scenario (Halpert 2019). But there is some indication that in these cases, the structure of the nonfinite clauses is *not* a proper subpart of the structure of finite clauses. Because Upward Entailment only applies to clause types whose structures stand in a proper subset relationship, it does not restrict cases in which one of the clauses is nominalized.[10] I therefore assume that Upward Entailment is a valid generalization.

To further illustrate the challenge posed by Upward Entailment, it is instructive to consider how configurations that violate it could arise from standard principles

10. One example is Zulu, where finite clauses allow A-movement out of them, but nonfinite clauses do not (Halpert 2015, 2016, 2019). Halpert (2015, 2019) notes that nonfinite clauses in Zulu display nominal properties: First, they bear overt noun class morphology. Second, Halpert shows that nonfinite clauses can satisfy T's EPP feature in Zulu, like nominal but unlike finite clauses. This raises the possibility that nonfinite clauses in Zulu contain an additional nominalizing projection that is absent in finite clauses. If so, finite and nonfinite clauses do not stand in a structural subset relationship in Zulu, and Upward Entailment does not regulate their relative locality profiles. The locality contrast that Halpert (2016, 2019) observes is then in line with Upward Entailment.

Another apparent counterexample to Upward Entailment is English small clauses, brought to my attention by a reviewer. These do not allow A-movement out of them, whereas a TP counterpart does, as shown in (i), from Halpert (2019:155).

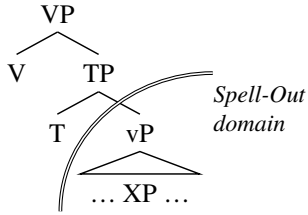
of syntactic locality. For the sake of concreteness, I will present two illustrative examples of how such configurations could arise. The main point here is a proof of concept. As such, the focus is not on these specific analyses, but on the general question of what kind of situations need to be blocked to derive Upward Entailment. The first example is based on Bošković's (2014) proposal that the highest projection in an extended projection defines a phase. While Bošković (2014) does not consider TPs and CPs in detail, his proposal can be used to illustrate how a situation violating Upward Entailment could come about. For the sake of illustration, assume that (complete) opacity is implemented as the impossibility of a phase head to take a specifier (hence, the absence of an edge feature). To give a concrete example, suppose that T cannot take a specifier, but that C can. This state of affairs would produce a violation of Upward Entailment. If the embedded clause is a TP, the TP will constitute a phase in virtue of being the highest projection in its extended projection. Because it cannot take a specifier, no extraction out of a TP clause is possible, as shown in (28a). By contrast, if the embedded clause is a CP, it is the CP (rather than the TP) that forms the highest projection in the extended projection and hence constitutes the phase. Because CP by assumption can take a specifier, elements may move to its edge and remain accessible from the outside. This makes CP clauses transparent to extraction, as (28b) illustrates. The result is one where a structurally smaller TP clause is opaque to extraction, but a structurally larger CP clause is transparent. In a nutshell, this situation arises because the addition of a CP projection makes available an escape hatch and thereby allows extraction that a TP clause blocks. The result would be a violation of Upward Entailment.

(i) a. We saw [John eat pizza]
b. *John$_i$ was seen [t_i eat pizza]
c. John$_i$ was seen [$_{TP}$ t_i to eat pizza]

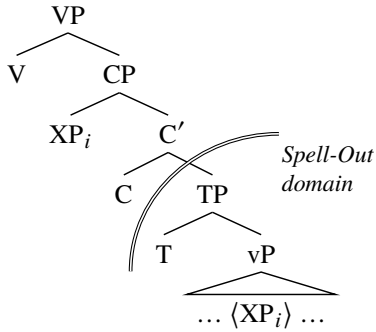
Here it again seems as if a structurally smaller clause is opaque while a structurally larger clause is transparent. Halpert (2019) discusses a number of analyses of the pattern in (i). Hornstein et al. (2008) attribute (i.b) to a failure of case assignment to the embedded clause. On this account, small clauses may in fact be transparent for A-movement. If so, then (i) is compatible with Upward Entailment. Another analysis sketched by Halpert (2019), which she attributes to a reviewer, is based on Higginbotham's (1983) argument that VP complements of perception verbs require existential quantification over events and that the small clause in (i.b) contains a nominalizing projection that gives rise to this existential quantification. This account renders (i) compatible with Upward Entailment in a way that is analogous to the suggestion for Zulu above: due to the presence of a nominalizing projection, small clauses are not structural subsets of TP or CP clauses, and their relationship hence does not fall under Upward Entailment. I will thus put configurations like (i) aside in what follows.

(28) *Hypothetical violation of Upward Entailment: example 1*

a. *TP clauses → opaque*

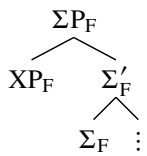


b. *CP clauses → transparent*



The second illustrative example of how violations of Upward Entailment could be produced is based on a recent proposal by Wurmbrand (2014a, 2015), which addresses a specific instance of selective opacity, namely the locality difference between topicalization and scrambling in cases such as (13)–(14). As shown there, nonfinite clauses containing the complementizer *żeby* are opaque to scrambling in Polish, but transparent to topicalization. Wurmbrand (2014a, 2015) proposes an account of this asymmetry based on the A-over-A Principle. She suggests that scrambling is featurally licensed in a projection ΣP, where scrambling targets [Spec,ΣP]. Because a scrambled constituent XP in [Spec,ΣP] shares with ΣP the feature F that gave rise to scrambling, the A-over-A Principle prevents further scrambling of XP out of ΣP because ΣP constitutes a closer goal to any higher probe. This is schematized in (29).

(29)



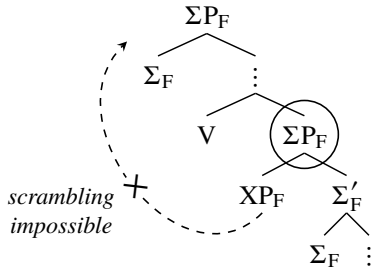
If an embedded clause contains a ΣP, it is therefore opaque to scrambling. Wurmbrand (2014a, 2015) furthermore assumes that topicalization is triggered

by a generic EPP/edge feature, which is invisible for the further computation (or that it is not triggered by a feature at all). As a consequence, topicalization does not create an A-over-A configuration like (29), and a topicalized element is free to undergo further movement. A second conceivable consequence of the assumption that topicalization does not operate on the feature F is that ΣP_F does not intervene for subsequent topicalization of XP in (29), hence that topicalization can access XP_F across ΣP_F. While Wurmbrand (2014a, 2015) does not acknowledge such a derivation, let us adopt it as a possibility for the sake of the argument.

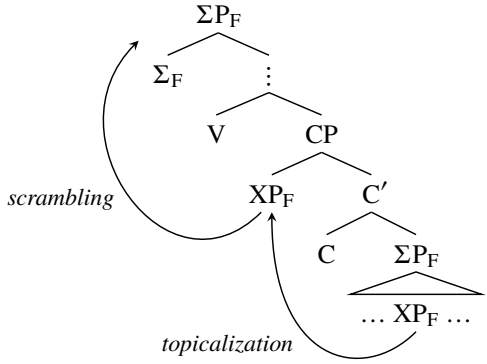
This version of Wurmbrand's (2014a, 2015) account would, in principle, allow for systems that violate Upward Entailment. To see this, suppose that topicalization targets [Spec,CP] and that ΣP is located lower than that, a possibility that Wurmbrand (2014a, 2015) acknowledges. Suppose also that a clause can be either a full-fledged CP or a pruned ΣP. If the clause is a ΣP, as in (30a), it is opaque to scrambling, due to the A-over-A Principle. By contrast, if it is a CP, as in (30b), the following derivation becomes available. First, XP is topicalized to [Spec,CP] of the embedded clause, either directly or cyclically through [Spec,ΣP]. Topicalization out of ΣP is possible in this case because it does not involve the feature F. In [Spec,CP], XP is no longer encapsulated in a projection bearing F, so XP is now accessible to ΣP in the higher clause, which allows scrambling into the matrix clause. The result is that CP clauses are transparent to scrambling, while structurally smaller ΣP clauses are not.

(30) *Hypothetical violation of Upward Entailment: example 2*

a. *ΣP clause → scrambling impossible*



b. *CP clause → scrambling possible*



Both hypothetical examples just discussed would give rise to a violation of Upward Entailment because a structurally small clause is opaque to a movement type that a structurally larger clause is transparent to. Of course, both violations of Upward Entailment can be avoided if further assumptions are made. As mentioned above, my intention here is not to evaluate Bošković's (2014) and Wurmbrand's (2014a, 2015) proposals, but to give a proof of concept. What I hope to have shown is that Upward Entailment is by no means conceptually necessary or trivial: Upward Entailment can be violated if the addition of clause structure makes available an escape hatch that allows an item to escape a configuration that otherwise forms a barrier to it. To the extent that Upward Entailment is indeed a valid empirical generalization, as I argue, situations in which additional clause structures provides additional escape hatches must be ruled out.

Upward Entailment provides additional justification for a unified approach to selective-opacity effects because Upward Entailment arises as a generalization only once selective opacity is viewed as a uniform phenomenon. Moreover, like the HLC, Upward Entailment attests to the fact that locality mismatches are not distributed randomly but instead follow specific patterns. Capturing these patterns is the key challenge and benchmark for an account of selective opacity.

1.3 The Analytical Challenge of Selective Opacity

Selective-opacity effects hold considerable theoretical interest because they fall outside the purview of standard principles of syntactic locality like subjacency (Chomsky 1973, 1977, 1986) or phase impenetrability (Chomsky 2000, 2001), for general reasons. Despite differences in the scope and theoretical underpinning behind these principles, they have in common that they are *strictly binary* in nature. They specify, in one way or another, that certain syntactic domains are

impenetrable from the outside and that, as a result, all syntactic operations across such domains are impossible. While there has been considerable debate on what the relevant domain boundaries are (e.g., the size and distribution of phases), the very nature of these constraints is fundamentally *unselective:* if a given domain is opaque to some operation due to subjacency or phasehood, it is also invariably opaque to all other operations because the locality domains defined by these constraints do not discriminate between different types of movement.

To illustrate this point, consider as an example the contrast between scrambling and *wh*-movement out of a finite clause in German. We saw in (7), partially repeated in (31), that finite clauses allow *wh*-movement out of them (31a), but are opaque to scrambling (31b).

(31) a. Wen$_i$ hat er gesagt [dass Maria t_i gesehen hat]?
who.ACC has he said that Maria seen has
'Who did he say that Maria saw?'

b. *Er hat [diese Frau]$_i$ gesagt [dass Maria t_i gesehen hat]
he has this woman.ACC said that Maria seen has
Intended: 'He said that Maria saw this woman.'

On the standard assumption that CP is a phase, extraction out of the embedded clause has to proceed successive-cyclically through the embedded [Spec,CP]. But because phases in and of themselves merely require that extraction be successive-cyclic, they do not prevent an element in [Spec,CP] from undergoing subsequent scrambling into the matrix clause, as in (32), at least unless further stipulations are added.

(32) *Er hat [diese Frau]$_i$ gesagt [$_{CP}$ t_i dass Maria t_i gesehen
he has this woman.ACC said that Maria seen
hat]
has

To express the locality difference between *wh*-movement and scrambling, it is necessary to state that an element in the embedded [Spec,CP] can undergo *wh*-movement into the higher clause (31a), but that it cannot undergo scrambling (31b). What is thus called for is a principle that differentiates between movement types. Phases by themselves do not provide the means to make such a statement, because phases only make the blanket statement that elements in [Spec,CP] are visible and TP-internal elements are not, without sensitivity to the type of movement involved.

I hasten to add that this conclusion does not, of course, constitute evidence against phases. In fact, I argue in chapters 4 and 5 that CP phases do indeed play

a crucial analytical role as well, and I will develop an account that incorporates CP phases. What the considerations above suggest is that selective opacity makes necessary a locality principle that is quite distinct in nature from standard conditions like phase impenetrability or its predecessor subjacency in that it must be sensitive to the type of movement involved. This monograph is an attempt to motivate and develop such a principle in detail, to lay out its implications, and to explore its relationship to more standard locality principles.

1.4 Horizons

One aspect of much of the previous literature on selective-opacity effects is that these effects have been primarily studied in the domain of movement dependencies, that is, as locality asymmetries between types of movement (see Sternefeld 1992; Müller and Sternefeld 1993; Müller 1995, 2014a,b; Abels 2007, 2009, 2012a,b; Neeleman and Van de Koot 2010; Wurmbrand 2014a, 2015). Consequently, most of these accounts are couched in terms of constraints on movement dependencies (e.g., the ban on movement from an $\bar{A}$- to an A-position). Based on evidence from Hindi, I argue in chapter 2 that selective opacity is more general as a phenomenon and not restricted to movement dependencies. In particular, I show that selective opacity also arises in the domain of *in-situ dependencies,* which do not involve movement, specifically φ-agreement and *wh*-licensing. This finding suggests that the principles that underlie selective opacity are not restricted to movement dependencies; they instead apply to syntactic operations more generally, with selective opacity in the domain of movement being a special case of these more abstract principles. As such, while the literature just cited has argued that selective opacity is a pervasive phenomenon that extends beyond the A/$\bar{A}$-distinction, this monograph generalizes the phenomenon in another dimension: selective opacity is not confined to movement type asymmetries; it also governs in-situ dependencies.

I develop an account that is based on this conclusion in chapter 3. In order to accommodate the finding that selective-opacity effects are observable in the domains of movement and nonmovement operations alike, I propose that selective opacity is the result of a constraint on the operation *Agree.* Adopting the standard view that movement is parasitic on the successful establishment of an Agree relation (Chomsky 2000, 2001, 2004), a constraint on Agree is abstract enough to restrict movement as well as nonmovement operations. This move toward a more abstract characterization of selective-opacity effects thereby yields the desired unification of movement and in-situ dependencies.

To develop this general analytical direction, I will introduce and motivate a novel concept of locality: *horizons.* The core intuition is that probes have

characteristic horizons that delimit how far they can search. Everything beyond a probe's horizon is outside the portion of the structure that search by this probe can traverse. Analogously to real-world horizons, syntactic horizons designate the outer limit of what is visible to a probe. Crucially, horizons may, by assumption, differ between probes, just like real-world horizons are not absolute but relative to the observer. What constitutes the horizon for one probe may not be the horizon for another probe in another location.

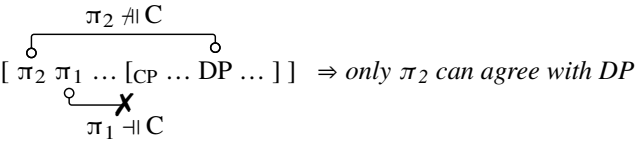
To develop this intuition, I propose that category features (like D, T, or C) are what potentially defines a horizon for a probe, as defined in (33). I will use the symbol "⊣" to designate horizons.

(33) *Horizons*
If a probe [∗F∗] has some category feature δ as its horizon (notated as "[∗F∗] ⊣ δ"), then [∗F∗]-initiated search terminates at a δ-bearing node X. As a consequence, all elements properly dominated by X are outside [∗F∗]'s search space.

Let us consider an illustrative example. Suppose that a probe π_1 has C as its horizon ("$\pi_1 \dashv$ C"). In this case, any node that bears this category feature terminates search by π_1. Consequently, π_1 can search through syntactic structure that lies between π_1 and a CP node it c-commands, but search by π_1 cannot proceed beyond a CP node. Any material dominated by that CP node is then inaccessible to π_1, including an element in [Spec,CP]. This rules out Agree relations between π_1 and material inside a CP, and it renders this CP opaque to the process triggered by π_1. If π_1 gives rise to movement, CPs will be opaque to such movement. If π_1 is an agreement probe, CPs will be opaque for agreement, and so on.

The central property of horizons is that they are not absolute but relative to the probe. CPs might not be a horizon for some other probe π_2 ("$\pi_2 \not\dashv$ C"), in which case π_2's search space is not delimited by a CP node. Syntactic processes triggered by π_2 can hence cross a CP. The result is a locality mismatch between π_1 and π_2, and thus selective opacity.

(34) *Schematic illustration of horizons:*



⇒ *only π_2 can agree with DP*

The defining property of selective opacity is that the opacity or transparency of a given domain is relative to the *type* of the movement or the operation involved. Horizons capture this property because the transparency of a domain

is determined relative to a probe. On the standard assumption that different movement types are triggered through Agree with specific probes located on specific heads (e.g., *wh*-movement is triggered by a probe [∗wh∗] on C, A-movement in English is triggered by an EPP-probe on T, etc.), locality differences between movement types is one manifestation of horizons.

The concept of horizons differs substantially from standard principles of locality and from previous approaches to selective opacity. I will briefly lay out the central differences here; they are discussed in greater detail in the remainder of this monograph.

First, in contrast to subjacency or phase impenetrability, the locality domains defined by horizons are relative to the probe, and a given domain may at the same time be transparent to some probes and opaque to others.

Second, unlike phases, locality domains that arise from horizons are complete. In standard phase theory (Chomsky 2000, 2001), phases do *not* constitute opaque domains because their edge remains accessible to the outside. It is only the complement of the phase head that is rendered inaccessible. As a result, phases enforce successive-cyclic movement, but unless they are supplemented with an independent constraint, they do not render a domain opaque for extraction (see, e.g., Abels 2012b:117–119 and Boeckx 2012:60–61 for discussion). Horizons, on the other hand, do not attribute any special role to the edge of a domain. If, for example, CP is a horizon for a probe, then all material inside CP, including material at its edge, are inaccessible to the probe, as shown in (35).

(35) [π … [$_{CP}$ XP [$_{C'}$ C^0 [… YP …]]]]
π ⊣∥ C

Third, horizons do not reduce to a general requirement for a probe to agree with the closest accessible goal because nodes that constitute horizons for a probe are not necessarily themselves licit goals for that probe. In other words, a node can block search by a probe into it, due to being a horizon to that probe, without itself being a potential goal for the probe. In this respect, horizons differ from constraints like the *Minimal Link Condition* (Chomsky 1995b) or *Closest* (N. Richards 1999) insofar as these constraints require a probe to agree with the closest goal that can satisfy the probe. The empirical reason for this property of horizons is that domains may be selectively opaque to an operation even if they cannot themselves undergo this operation, as I show in section 3.2.4 in chapter 3.

Fourth, in contrast to most previous approaches to selective opacity, the horizons account attributes selective opacity to a constraint on Agree and syntactic probes, rather than to movement dependencies themselves. The advantage of

this perspective is that the overarching account encompasses selective-opacity effects that arise for nonmovement dependencies. While the previous literature has argued that differences between the locality of A- and $\bar{A}$-movement are specific instances of locality mismatches between movement types more generally, the core analytical claim of this monograph is that even general locality mismatches between movement types are specific instances of a more general pattern that comprises both movement and nonmovement operations. As a result, the most familiar example of selective opacity, hyperraising in English, emerges as merely the tip of the iceberg.

Fifth, in contrast to other approaches to selective opacity, horizons do not impose direct constraints on possible sequences of movement types. While a number of approaches to selective opacity with quite distinct theoretical underpinnings and empirical effects have been explored in the literature (see chapter 6), most of them pursue the basic logic of Chomsky's (1973, 1977, 1981) Ban on Improper Movement. On this line of approach, a domain is selectively opaque if extraction out of it must proceed through its edge and the movement to this edge imposes restrictions on subsequent movement steps (e.g., no A-movement from an $\bar{A}$-position). These approaches thus impose a designated ban on movement from one type of position ($\bar{A}$-position) to another type (A-position), or, equivalently, a restriction on possible sequences of movement steps that an element may undergo. Despite significant innovations in the subsequent literature on selective opacity, the core line of approach has largely remained the same, with most accounts imposing restrictions on possible sequences of operations (e.g., Müller and Sternefeld 1993; Müller 1995, 2014a,b; Abels 2007, 2009; Neeleman and Van de Koot 2010; see also Williams 2003, 2011, 2013 for an exception).

By contrast, horizons directly state that a given syntactic domain (usually a clause) is transparent to some probes but not to others. Crucially, if, for example, a CP node is a horizon for a probe, any element dominated by that CP will be out of reach for that probe, regardless of that element's movement history, whether it occupies an A- or an $\bar{A}$-position, its internal features, and so on. This shift in perspective has the important consequence that the ban on movement from an $\bar{A}$- to an A-position is no longer required as a theoretical primitive. Rather, it is derived because $\bar{A}$-movement of a DP entails the presence of a CP above that DP. This CP then renders the DP invisible to outside A-probes (at least in English). Unlike traditional accounts, the moving element itself and the position is occupies are irrelevant on the horizons account, which is couched solely in terms of probes and their horizons.

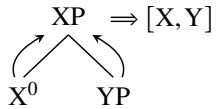
A direct consequence of this aspect of the horizons account is that it allows us to dispense with specific reference to $\bar{A}$-positions or their interactions with

A-movement in this domain. On the view that emerges, the interactions between different movement types that have been part and parcel of traditional accounts of selective opacity emerge as epiphenomena. Horizons thus constitute a substantial departure from the traditional approach to selective opacity: while the previous literature has largely treated domain opacity as a result of constraints on possible sequences of operations, horizons treat constraints on operations and derivations as the result of representational constraints on domain opacity.

In addition to this substantial shift in perspective, the move from constraints on possible sequences of operations to domain opacity has important empirical ramifications as well. In particular, Sakai (1994), Grewendorf (2003, 2015), Williams (2003), Abels (2007, 2009), and Neeleman and Van de Koot (2010) argue that apparent interactions between movement types are also observable if the elements that undergo the two movement types are distinct, in particular in *smuggling derivations* and *remnant-movement derivations.* As discussed in detail in section 3.4.3 of chapter 3 and in section 4.6 of chapter 4, these interactions are strikingly similar to traditional selective-opacity effects such as those reviewed in section 1.1, strongly suggesting a unified account. Yet they prove difficult to handle on traditional accounts that impose restrictions on possible sequences of individual constituents: Because such constraints only regulate the movement steps of a single element, they do not straightforwardly extend to configurations in which interactions arise between movement steps of distinct elements. I show that the shift to domains that is inherent in the horizons account overcomes this limitation and offers a unified account of selective opacity that extends to smuggling and remnant-movement derivations.

Finally, horizons also offer a new approach to the meta-generalizations over selective-opacity effects discussed in section 1.2 (also see chapters 2 and 4)—the HLC and Upward Entailment. I propose in chapter 3 that both meta-generalizations arise from the interaction of horizons with general properties of extended projections (Grimshaw 1991, 2000). I suggest that within an extended projection, the projection of category features is *bilateral* in the sense that if a head X^0 is merged to a phrasal node YP that is part of the same extended projection, the resulting constituent bears the category features of both X^0 and YP, as schematized in (36). For example, when v merges with VP, the resulting constituent bears the complex category label [v, V].

(36) *Bilateral labeling within extended projections*



Because horizons (33) refer to category features, this projection of category features within an extended projection immediately derives Upward Entailment because the addition of a projection to a clause that is opaque to a given probe can never render this clause transparent to this probe.

An account of the HLC is less direct but also follows this set of assumptions. In a nutshell, I argue in section 3.5.1 of chapter 3 that certain pairings of a probe's location and its horizon give rise to probes whose search space is terminated by its sister. Such probes are therefore unable to trigger long-distance operations like movement or agreement. I show that for a probe to be able to give rise to movement or agreement, its syntactic location (i.e., its height) and its horizon setting (i.e., its locality) must stand in a specific relation to each other. This has the effect that all attested long-distance dependencies exhibit a link between height and locality, deriving a version of the HLC. The goal of the horizons account is hence not only to account for locality mismatches, but also to provide principled limits on them. These limits then make empirical predictions about possible and impossible selective-opacity patterns and offer an account of the meta-generalizations of selective opacity.

1.5 Consequences for the Distribution of Selective Opacity

Virtually all accounts of (instances of) selective opacity aim to derive that a given opacity pattern is necessary given some other aspect of the system. For example, the standard objective of theories of hyperraising in English is to derive that A-movement out of a finite clause is necessarily impossible. A notorious problem for such an approach is the fact that there are a number of languages in which A-movement out of a finite clause is attested, such as several Bantu languages (Carstens 2010, 2011; Diercks 2012; Halpert 2015, 2019), Greek (Alexiadou and Anagnostopoulou 2002), Brazilian Portuguese (Nunes 2008), Romanian (Grosu and Horvath 1984), and several other languages documented by Ura (1994). Various important attempts have been undertaken in the literature to correlate the (im)possibility of hyperraising in a language with some independent property of this language. Despite significant insights, it seems fair to say that no such independent property has been identified. For example, Ura (1994) claims that, typologically, if a language allows the multiple subject construction, then that language will also allow hyperraising to take place. One prediction that Ura's (1994) account gives rise to is that if a language does not allow hyperraising, it should also not allow A-scrambling of the object over the subject, as only one A-position is available. As Ura (1994:106–107) himself notes, Hindi constitutes a counterexample to this entailment because Hindi does not allow hyperraising, but it allows A-scrambling of the object over the subject. Ura (1994) claims

that such movement in Hindi is akin to passivization, and in particular that the subject loses its subjecthood in these constructions, because it surfaces in an inherent case and cannot control verb agreement. That is, he claims that object A-scrambling lets the subject lose its A-properties. However, this is not the case. Object A-scrambling does not in any way affect the case or agreement properties of the subject in Hindi, as detailed in chapter 2 and the literature cited there. Hindi therefore casts doubts on the entailment proposed by Ura (1994).

A second entailment argued for by Ura (1994) is that if a language allows hyperraising, it also allows null subjects. Interestingly, Nevins (2005:298) points out that Brazilian Portuguese has hyperraising without having null subjects. It seems, therefore, that this entailment is empirically problematic as well.

Furthermore, much work since Chomsky (2000, 2001) has explored the view that the distribution of hyperraising follows from case properties. I argue in Keine (2018) that Hindi casts serious doubts on this connection.

Finally, based on evidence from Bantu, Carstens (2010, 2011) explores the view that the existence of uninterpretable gender and clause-level gender agreement in a language allows for hyperraising, the connection between the two being that such gender keeps a DP active for A-processes. However, Hindi indicates that the entailment relationship between the two factors does not hold in the general case because Hindi clearly has uninterpretable gender and clause-level gender agreement but no hyperraising.

The intention here is not to belittle these important efforts. This discussion is intended to emphasize that despite significant progress in our understanding of hyperraising, the literature has so far not been able to identify a reliable analytical correlate of hyperraising that would allow us to deduce whether a language allows hyperraising or not. Matters get only worse once we move beyond the A/$\bar{\text{A}}$-distinction. As observed in (7), finite clauses in German allow *wh*-movement out of them, but block relativization. Moreover, V2 clauses are transparent to *wh*-movement that lands inside a higher V2 clause, but opaque to *wh*-movement that targets a higher V-final clause. In these cases, it is even less clear what an independent correlate of the locality asymmetries between these movement types could be.

Rather than attempting to identify a novel predictor of a movement type's locality profile, this monograph explores a very different line of approach. I will adopt the perspective that the locality properties of a probe are arbitrary as far as the theoretical axioms are concerned. That is, the choice of horizon for a probe is not deterministic, but free, with no designated stipulation on possible horizon settings. For example, two probes on the same head may differ in their horizon settings (see section 2.6.2 of chapter 2 for discussion). On this view, locality differences of movement types across languages, such as the possibility

of hyperraising, cannot be predicted from some other aspect of these languages because it is a parametric choice. One choice of horizons yields a language that allows hyperraising; another yields a system that does not. This freedom extends to movement type asymmetries within a language. Thus, in German, the locality contrast between *wh*-movement and relativization reduces to a variation in the choice of horizon. This view affords a straightforward account of crosslinguistic variation in horizons, which I discuss in section 3.6 of chapter 3.

We saw above that selective opacity is not distributed randomly but is instead subject to overarching generalizations, like Upward Entailment and the HLC. A key question that the horizon account attempts to answer is how a system that has arbitrary horizons can give rise to overarching empirical patterns of this type. As discussed in the preceding section, I will argue that these patterns are the result of interactions between arbitrary horizons and independent properties of syntactic structures, in particular extended projections. The analytical picture that results is the following: As far as the theoretical axioms of the account are concerned, horizon settings are arbitrary. But because certain settings will result in probes that cannot trigger long-distance dependencies, meta-generalizations of selective opacity arise indirectly. Consequently, despite the fact that horizons do not impose any designated connection between height and locality, such a connection nevertheless emerges in the output of the system. As noted above, this aspect of the proposal gives rise to clear empirical predictions about possible and impossible selective-opacity systems.

The result of this approach is that a probe's location restricts the space of horizon settings for this probe, but it nonetheless does not uniquely determine horizon settings. Within the set of the remaining options, the choice is subject to crosslinguistic variation. The resulting theoretical picture is an unorthodox one: syntactic domains exhibit selective opacity *precisely because* horizon settings are not subject to designated stipulations, but rather are free to vary across probes. Overarching patterns in the extent of the attested variation emerge from the interplay of free horizons and extended projections. The resulting theory offers a principled view on the empirically attested variability in this domain, but at the same time imposes systematic restrictions on this variability and thus predictions about possible and impossible patterns.

This general approach to selective opacity also implies that I will treat interpretive properties of movement types as analytically unrelated to that movement type's locality profile. For example, it is well-known that A- and $\bar{\text{A}}$-movement in English do not only differ in their locality, but also in their ability to obviate weak crossover, to feed anaphor binding,and to amnesty Condition C effects. I will treat these properties as analytically divorced from the locality properties of these movement types. This a standard approach, in line with virtually all

previous accounts of selective opacity (see Williams 2003 for an exception). Thus, the traditional account of the impossiblity of hyperraising in English in terms of the Ban on Improper Movement does not analytically tie this constraint to interpretive properties of A-movement. Conversely, accounts of the differential interpretive features of A- and $\bar{A}$-movement do not entail any locality differences between A- and $\bar{A}$-movement (see, e.g., Sauerland 1998 and Ruys 2000 for weak crossover, and Lebeaux 2000 and Takahashi and Hulsey 2009 for Condition C amnesty). The analytical dissociation between locality and interpretive properties of movement types is supported by a clear lack of evidence that the two cluster together crosslinguistically. To give two examples, there is to my knowledge no evidence that, in German, *wh*-movement into a V2 clause differs from *wh*-movement into a V-final clause in their interpretative properties, but they evidently contrast in their locality (see (7)). Furthermore, A-movement differs across languages in whether or not it is able to leave a finite clause. As a result, I conclude from this absence of any implicational relationship between locality and interpretive properties that the two should be analytically separated.

1.6 Consequences for Phase Theory

In light of the generality of horizons as a constraint on syntactic locality, questions arise with respect to its relation to standard principles of locality, in particular phases. The distribution of phases is the subject of chapters 4 and 5. There I show that horizons do not replace the need for CP phases. Horizons determine whether a given movement dependency out of a lower clause is possible or not, but they do not condition the successive-cyclic path of movement dependencies that conform to horizons. As mentioned in section 1.3 and discussed in greater detail in section 3.2 of chapter 3, phases, on the other hand, give rise to successive cyclicity, but not complete domain opacity. Based on these observations, I propose in chapter 4 that phases coexist with horizons as complementary constraints on syntactic dependencies.

That said, I demonstrate in chapters 4 and 5 that not all conceptions of phases are equally compatible with this picture. That is, horizons have implications for the distribution of phases, a topic that has been of significant interest in the recent literature (see, e.g., Legate 2003, 2012; Müller 2010b; Abels 2012b; Bošković 2014; Van Urk and Richards 2015; den Dikken 2017; Grano and Lasnik 2018; Keine to appear). In particular, I conclude that there is ample motivation for the standard view that CPs are phases, including evidence from selective-opacity effects; vP phases, on the other hand, are not easily compatible with the horizons system. Interestingly, the analytical tension created by vP phases is not narrowly limited to horizons, but in fact holds for virtually all

accounts of selective opacity, for fairly general reasons. In response to this analytical challenge, I explore the view that there are no clause-internal phases (e.g., vP) and that CP is the only (clausal) phase. I argue that this hypothesis enables an account of selective opacity that leads to an overall simplification of the theoretical machinery employed. Based on φ-agreement and *wh*-licensing in Hindi, I then provide independent support for a CP–vP split along these lines, and I offer a reassessment of some arguments for vP phases. The theory of selective opacity proposed here thus holds far-reaching implications for the distribution of phase heads and hence for syntactic locality domains more generally.

1.7 Overview of the Monograph

The empirical groundwork that will lead us to the concept of horizons is presented in chapter 2, where I investigate in detail selective-opacity effects in Hindi. I argue that the overarching pattern encompasses movement and non-movement dependencies alike. This discovery suggests that selective opacity is not a property of movement dependencies, but more abstract. This shift in perspective forms the basis for the proposal in chapter 3. Furthermore, I show in detail that the two meta-generalizations of selective opacity discussed in section 1.2 above—Upward Entailment and the HLC—are borne out in Hindi, thus corroborating their validity.

With these empirical conclusions of chapter 2 in place, chapter 3 develops in detail the horizons account of selective opacity. I show that horizons offer a comprehensive account of selective-opacity effects, applying it to Hindi and a variety of other systems, some of which were discussed in sections 1.1 and 1.2. This chapter also develops an account of the meta-generalizations of selective opacity discussed above.

Chapter 4 investigates the relationship between horizons and CP phases based on an in-depth case study of selective opacity in German. I demonstrate that a comprehensive account of the relevant generalizations requires an interplay between horizons and CP phasehood, and it sheds light on the precise relationship and interactions that may hold between the two concepts.

Against this background, chapter 5 investigates the status of vP phases in the system. I argue that while selective opacity provides evidence for CP phases, it presents serious obstacles to the view that vPs are likewise phases. The conclusion of chapter 5 is that CPs and vPs differ significantly with respect to their locality, and that these asymmetries receive a systematic explanation if CPs are phasal, but vPs are not.

Having thus developed the account, applied it to a variety of instances of selective opacity, and placed it into a larger theoretical context, chapter 6 takes

a step back and compares horizons to previous treatments of selective opacity. Various other points of comparison are discussed, in particular regarding the empirical scope and generality of the various lines of account. In light of the wealth of accounts of selective opacity, a central goal of chapter 6 is to highlight the empirical and theoretical consequences of specific analytical choices and explore how the choices made by various accounts place them with respect to the various empirical issues of selective opacity.

Chapter 7 offers a brief conclusion and points out some domains that future work might explore.

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