Permeable islands

A contrastive study of Swedish and English adjunct clause extractions

Müller, Christiane

2019

[Link to publication](#)

Total number of authors:
1

Christiane Müller

Permeable islands

**A CONTRASTIVE STUDY OF SWEDISH AND ENGLISH
ADJUNCT CLAUSE EXTRACTIONS**

PERMEABLE ISLANDS

Permeable islands

A contrastive study of Swedish and English adjunct
clause extractions

Christiane Müller

LUND
UNIVERSITY

Media-Tryck is an environmentally
certified and ISO 14001:2015 certified
provider of printed material.
Read more about our environmental
work at www.mediatryck.lu.se

NORDIC SWAN ECOLABEL
Printed matter
3041 0903

MADE IN SWEDEN

Acknowledgements

This thesis revolves around constructions that are considered to be islands, in a metaphorical sense. Fortunately, no man is an island: During the work on this project, I have been lucky to have gotten support from many great people, without whose help this thesis would not have been completed, or might not even have started, or without whom I would have been considerably less happy during the process of completing it. To these people, I want to express my gratitude.

First and foremost, I wish to thank my supervisor Anna-Lena Wiklund. Anna-Lena has inspired me to investigate the subject of island extractions in the first place and has encouraged me to apply for a position as a Ph.D. student. As my supervisor, she has always made time for me, often more than I could have reasonably asked for, provided me with invaluable advice and guidance both in my thesis writing as well as in the world of research more generally, and not in the least also provided the necessary moral support throughout the entire time. I am very grateful for all I have learned from Anna-Lena, and I could not have asked for a better supervisor for my Ph.D. thesis.

I also want to thank my co-supervisors Marit Julien and Damon Tutunjian, who have tremendously helped me in the process of writing this thesis. Marit Julien has been a reliable source of both linguistic and practical advice, and has provided helpful comments and feedback on my texts, especially in the crucial, final phase. Damon Tutunjian has helped in particular with the design and statistical analysis of the experiments presented in Chapters 5–6, and I am indebted to him for his patience and all the time he has offered.

Many thanks to Kristin Melum Eide for agreeing to be my opponent during the mock defense of my thesis, and for providing me with important comments on my work.

I also want to express my appreciation to my colleagues at the Department for Nordic languages at the Centre for Languages and Literature in Lund, who have given me the opportunity to carry out my work in a stimulating and supportive environment. I am especially thankful to the participants of the Grammar Seminar series who never got tired of hearing me talk about islands, and who shared their insights and helpful questions with me. Thanks also to Anders Agebjörn, who has been an excellent office mate during my first year as a Ph.D. student, and who has provided me with numerous acceptability judgments. Victor Bogren Svensson has assisted with creating the Swedish materials in Experiment 1 and with translating

Contents

1 Introduction

One of the perhaps most interesting discoveries in theoretical linguistics is the observation that there are restrictions on long-distance dependencies in natural languages (Chomsky 1964; Ross 1967). For example in English, a dependency can usually be established between a *wh*-phrase at the beginning of a sentence and a position inside an object (1a), but typically not inside a subject (1b).

(1) a.   Who$_i$ did you see [pictures of $_i$]?
     b. *Who$_i$ did [pictures of $_i$] please you?
          (Huang 1982: 486)

Using a movement metaphor, we say that extraction is possible from object but not from subject domains. In our examples, the dependency between the extracted phrase and the gap that it leaves behind is indicated by coindexation. Syntactic environments that do not tolerate extraction well are referred to as syntactic *islands* (Ross 1967). Simplifying somewhat, subjects are therefore considered to be one type of island domain in English, as well as in many other languages, like Swedish, cf. (2a) vs. (2b).

(2) a.   Vem$_i$ hade du   hört   [en historia om $_i$]?
          who   had   you   heard   a   story   about

     b. *Vem$_i$ hade [en historia om $_i$]   överraskat   dig?
          who   had   a   story   about   surprised   you

The degraded acceptability resulting from extraction from island domains is usually referred to as an *island effect*. A central question in linguistic theory has been what the source of such island effects is, i.e. why extraction is possible e.g. in (1a) but not in (1b). Within generative syntactic theories, the standard assumption has been that island effects are universal and can be given a unified explanation in the form of syntactic island constraints. For example, the constraint banning extraction from subject constituents as in (1b) or (2b) has been referred to as the *Subject Condition* (Chomsky 1973: 250). Some studies have provided evidence suggesting that syntactic island constraint information is used by the parser to immediately block filler-gap association in island structures during online parsing,

suggesting that islands are impermeable for filler-gap integration (e.g. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015). However, a number of recent studies have also argued that multiple factors affect the acceptability of island extractions (e.g. Chaves 2013; Haegeman et al. 2014; Tanaka 2015), including extraction from subjects as exemplified above, calling into question the degree to which such dependencies are actually blocked, and raising questions about how various factors might affect processing. Furthermore, there is accumulating evidence that the set of factors relevant to the processing and acceptability of islands exhibits signs of variation between languages (e.g. Sprouse et al. 2016; Kush et al. 2018). While it has been noted that the observed variation is limited and systematic (Phillips 2013a), many cases are poorly understood and there is no principled account of the variability, see Phillips (2013a), Sprouse et al. (2016), and Kush et al. (2018) for recent discussion.

This thesis is specifically concerned with extraction from adjunct clauses, which is another structure that involves a long-distance dependency into an island domain (the adjunct). Adjunct clauses have traditionally been considered to be *strong islands*, banning all extraction, based on data such as (3) from English.

(3) *Who$_i$ did Mary cry [after John hit _$_i$]?
     (Huang 1982: 503)

The unacceptability of (3) has traditionally been captured by the *Adjunct Condition* (Cattell 1976; Huang 1982; Chomsky 1986), banning extraction from adjunct structures universally.

However, it has been argued that Swedish and the other Mainland Scandinavian (MSc.) languages are less constrained by the Adjunct Condition, since these languages appear to allow extraction from adjunct clauses, see (4). The sentence appears to violate the Adjunct Condition, yet is intuitively acceptable.

(4) Sportspegeln$_i$ somnar   jag [om/när jag ser   _$_i$].
     sports program.the   fall.asleep   I   if/when   I   watch
     'I fall asleep if/when I watch the sports program.'
     (Swedish; Anward 1982: 74)

One aim of the present thesis is to investigate this apparent variation between Swedish and English. To approach this issue I investigate factors that have been claimed to affect the acceptability of adjunct clause extraction sentences.

Recent observations on English suggest that the acceptability of such extraction may be affected by the grammatical function of the extracted element (Tanaka 2015), the degree of syntactic integration of the adjunct clause (Haegeman 2004), the degree of semantic coherence between the adjunct and the matrix clause event (Truswell 2007, 2011; Tanaka 2015), and the finiteness of the adjunct clause

(Manzini 1992; Truswell 2007, 2011). I show that the first three factors are relevant to sentences involving extraction from adjunct clauses in Swedish as well. Two of the factors suggested to be relevant in English, viz. coherence and finiteness, are investigated more closely in two acceptability judgment experiments on native speakers of Swedish (Experiment 1) and English (Experiment 2), respectively, using sentences with extraction from temporal adjunct clauses. Evidence is presented that the acceptability of extraction sentences increases in the presence of a coherent relation between the matrix and the adjunct clause in both Swedish and English, but that finiteness degrades sentences with extraction from coherent adjuncts only in English. Thus, finiteness does not seem to interfere with the acceptability of extraction sentences in Swedish the way it does in English, which I propose takes us one step further towards an account of the observed variation between English and the Mainland Scandinavian languages with regard to island sensitivity.

The conclusion that coherence and finiteness affect the acceptability of adjunct clause extraction sentences also allows me to question claims that filler-gap association is suspended in island domains (e.g. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015), i.e. that processes whereby the extracted material (the filler) is associated with the position of the gap are not active in syntactic islands. If coherence and in particular finiteness effects would also be present in online processing measures in regions internal to the adjunct clause, this would strengthen my hypothesis that integrative processes related to dependency formation are active in adjunct islands. I therefore ran a self-paced reading experiment on English native speakers (Experiment 3) using the materials of Experiment 2 with minor modifications. The results indeed speak in favor of integrative processes being active to some degree in adjunct clauses.

In brief, the aims of this thesis are:

- to identify and investigate factors that have an impact on the acceptability of adjunct island extraction in Swedish.
- to examine the role of two factors (coherence and finiteness) more closely in Swedish and English, with the goal to investigate the possibility of cross-linguistic variation with regard to their impact on the acceptability of sentences involving adjunct island extraction.
- to investigate how coherence and finiteness affect the online processing of adjunct clause extraction sentences in English, with the goal to look for online support in favor of the permeability of such structures.

To restrict the scope of this thesis, I focus on adjunct clause extraction in one of the MSc. languages, viz. Swedish. The literature on the topic suggests that all MSc. languages (Swedish, Norwegian, and Danish) behave very similarly with regard to adjunct islands. It is therefore likely that most of my conclusions for Swedish also apply for Norwegian and Danish; however, the possibility of

microvariation across the MSc. languages with regard to the phenomenon cannot be excluded.

The thesis is organized as follows. **Chapter 2** introduces the topic of island constraints and adjunct islands in particular. The types of adjunct clauses investigated in the thesis are introduced and confined. The chapter also provides an overview of different syntactic and non-syntactic accounts that have been provided to analyze adjunct island effects, and introduces different conditions that can be expected to affect the possibility of adjunct clause extraction. These conditions thus provide a tool for further investigation of the behavior of Swedish adjunct islands.

Chapter 3 provides a detailed picture of the situation in MSc. with regard to island constraints, and a review of different analyses suggested to account for the unexpected island violations in the MSc. languages. While little of the previous research has focused on the behavior of adjunct islands in MSc., there are some suggestions in the literature that the possibility of adjunct clause extraction in MSc. is subject to certain restrictions, since extraction is considerably more acceptable in some cases than in others. This raises the question what the conditions are that affect the felicity of adjunct clause extraction in MSc. languages such as Swedish.

Chapter 4 reports results from an acceptability judgment study showing that the acceptability of adjunct clause extraction sentences in Swedish is affected by several factors, including the degree of semantic coherence between matrix and adjunct clause, the degree of syntactic integration of the adjunct clause (both in terms of its external and internal syntax), and the grammatical function of the extracted element. The findings suggest that even though these factors may have an impact on the acceptability of sentences with extraction from adjunct clauses in both Swedish and English, Swedish still stands out in allowing extraction from at least a subset of finite adjunct clauses, which is reported to be impossible in English.

Chapter 5 further investigates the hypothesis that adjunct islands in Swedish and English behave the same with regard to the coherence factor, but vary with regard to the impact of finiteness on extraction sentences. To this end, two controlled acceptability judgment experiments are presented that test the impact of these factors on the acceptability of sentences involving extraction from *after*-adjunct clauses contrastively in Swedish and English. The results indicate that finiteness decreases the acceptability of sentences with coherent adjunct extraction in English, but not in Swedish, and thus support the possibility of cross-linguistic variation with regard to whether or not certain factors (here finiteness) matter for the acceptability of island violations. At the same time, coherence is shown to increase the acceptability of sentences with extraction from *after*-adjunct clauses in both Swedish and English; moreover, extraction in both languages never yielded acceptability ratings above mid-point. These findings are hence

compatible with the insight that cross-linguistic variation in island effects is limited and systematic.

The finding that the acceptability of sentences with adjunct clause extraction is affected by coherence relations and (in English) by finiteness suggests that integrative processes are to some degree active in islands, at least in adjunct islands of the type investigated here. This is unexpected under the hypothesis that islands are impermeable for filler-gap integration, but is congruent with a model in which filler-gap integration is also attempted in at least some island structures (the *permeability hypothesis*).

Chapter 6 tests the permeability hypothesis with an online experiment using self-paced reading on the English stimuli, by investigating how coherence and finiteness affect the processing of sentences involving extraction from *after*-adjunct clauses in English at the point of gap integration. The results indicate overall faster reading times for coherent adjuncts compared to non-coherent adjuncts; moreover, a coherence effect and in coherent adjuncts a finiteness-related slowdown is observed at regions associated with gap integration. The claim that syntactic islands are impermeable for integrative processes related to dependency formation thus does not carry over to adjunct clauses of the kind investigated here, as some degree of integration takes place inside them.

Chapter 7 summarizes the thesis and discusses further theoretical implications of the findings. The proposal that certain adjunct clauses in Swedish and English are *weak islands* is discussed, as well as how this could explain the online permeability of adjunct clauses suggested by the results of the self-paced reading experiment. The chapter moreover examines in how far the cross-linguistic validity of a constraint like the Adjunct Condition can be maintained in light of the results presented in this thesis, and what consequences can be drawn from my findings with regard to theories of adjunct islands.

2 Adjunct islands

This chapter introduces some important concepts and terms in the research on syntactic islands and adjunct clauses, and provides the necessary theoretical background on the topics discussed in the thesis. Section 2.1 introduces the concepts of A'-dependencies and island constraints, with a focus on adjunct islands. Section 2.2 introduces and confines the different types of adjunct clauses that will be investigated. Section 2.3 gives an overview of different accounts that have been suggested to analyze adjunct islands theoretically. The Swedish adjunct island extractions which are the subject of this thesis have implications for those approaches, since some of the proposals suggested to account for adjunct islands are more and others less suitable to accommodate the variation in extraction possibilities that is displayed by Swedish. The study of adjunct island extractions in Swedish, or in the MSc. languages more generally, may thus help to rule out certain analyses of adjunct islands in favor of others. Section 2.4 reviews different conditions that can be expected to affect the possibility of adjunct clause extraction, and which thus provide a tool for investigating the behavior of Swedish adjunct islands further. The chapter concludes with a summary in Section 2.5.

2.1 A'-dependencies and island constraints

Island effects emerge with a specific type of dependency termed *A'-dependency*, exemplified in (1).

(1)   What$_i$ did Harry think [that Bill bought _$_i$]?

In (1), the object of the embedded *that*-clause (*What*) appears in sentence-initial position and is thus dislocated from the position where it is thematically interpreted. In transformational theories of syntax, this displacement is analyzed as the result of movement of the dislocated phrase from its thematic position to the left periphery of the sentence. The dependency between the dislocated phrase, *what* in (1), also referred to as the *filler*, and the empty position that it leaves behind in the adjunct clause, the *gap* "_", is represented by coindexation of the filler and the gap.

The type of movement exemplified above is known as *A'-movement* ('A-bar movement'), referring to the term *A'-position* for the type of landing site for this movement, a non-argument position. A number of different constructions are covered by the term A'-dependency, among them *wh*-question formation, topic and focus fronting structures (often summarized under the term *topicalization*), relativization/cleft formation, comparatives, and adjectival *tough*-movement constructions. One fundamental property of A'-movement is that it can apply long-distance and appears to be unbounded, i.e. it can in principle apply across an indefinite number of clauses, as demonstrated in (2), which is why these dependencies are also referred to as *unbounded dependencies* or *long-distance dependencies*.

(2) a. What did Bill buy?
     b. What did you force Bill to buy?
     c. What did Harry say you had forced Bill to buy?
     d. What was it obvious that Harry said you had forced Bill to buy?
         (Ross 1967: 7)

However, while A'-dependencies appear to be unbounded in terms of the number of clauses that they may span, they have been shown to be restricted with regard to the syntactic environments that may contain the gap. Certain domains, termed *islands* by Ross (1967), appear to block the formation of A'-dependencies into them. These include complex noun phrases (complex NP islands) such as noun phrases embedding a relative clause (3a) or a complement clause (3b), coordinate structures (3c), subjects in Spec,TP (3d)[1], and adjunct islands (3e) (added to the list of islands by Huang 1982, see also Cattell 1976).

(3) a. *Complex NP islands (relative clauses)*
         *[Which book]$_i$ did John meet [a child who read _$_i$]?
         (Boeckx 2012: 5)

     b. *Complex NP islands (complement clauses)*
         *[Which man]$_i$ did you hear [the rumor that my dog bit _$_i$]?
         (Szabolcsi 2006: 483)

---

[1] (3d) exemplifies the ban on extraction from nominal subjects. I disregard sentential subjects here, since it is doubtful whether sentential subjects are 'real subjects' occurring in Spec,TP, the canonical position for subjects, or whether they are topic phrases that are base-generated in the left periphery and linked e.g. to an empty DP in the actual subject position, as argued e.g. by Koster (1978); Stowell (1981); Safir (1985); Postal (1998); Alrenga (2005); Takahashi (2010); and Lohndal (2014).

c. *Coordinate structure islands*
    *What$_i$ did you eat [ham and _$_i$]?
    (Boeckx 2012: 5)

d. *Subject islands*
    *Who$_i$ did [pictures of _$_i$] annoy Bill?
    (Boeckx 2012: 22)

e. *Adjunct islands*
    *Who$_i$ did Mary cry [after John hit _$_i$]?
    (Huang 1982: 503)

This thesis is concerned with adjunct islands, the construction exemplified in (3e). The corresponding island constraint assumed to be responsible for adjunct island effects is standardly referred to as the *Adjunct Condition* (Cattell 1976; Huang 1982; Chomsky 1986).

   Island effects in e.g. English are typically demonstrated with *wh*-question formation, as in (3), but other A'-dependencies usually display the same island effects, such as topicalization (4a), relativization (4b), and clefting (4c), here demonstrated for adjunct islands.

(4)   a. *[This girl]$_i$, John arrived [after Bill kissed _$_i$].
     b. *I saw [the girl]$_i$ that John arrived [after Bill kissed _$_i$].
     c. *It is [that girl]$_i$ that John arrived [after Bill kissed _$_i$].

Generally, two sub-types of islands are distinguished, termed *strong* and *weak islands*. While strong islands, such as all of the constructions in (3), are considered to ban all extraction, weak islands (such as embedded questions) are characterized as blocking extraction only of certain elements. The diagnostic to distinguish between strong and weak islands is standardly based on the argument/adjunct asymmetry in extraction from weak islands (Huang 1982; Chomsky 1986; Cinque 1990; Lasnik & Saito 1992; Szabolcsi 2006) (although the situation tends to be more complex): While strong islands disallow both extraction of adjuncts (or PPs) and of arguments (or DPs), weak islands tend to show island effects only in the case of adjunct extractions. For an overview of weak islands, see Szabolcsi (2006) and Szabolcsi & den Dikken (2002). Adjunct clauses are traditionally classified as strong islands, as they appear to disallow extraction of argument (5a) as well as of adjunct constituents (5b). In that, they contrast for instance with the *wh*-islands in (6), which seem to disallow extraction of adjuncts (6b) but not of arguments (6a) and are therefore typically classified as weak islands.

(5) a. *Who$_i$/Which girl$_i$ did John arrive [after Bill kissed _$_i$]?
    b. *How$_i$/In what way$_i$ did John arrive [after Bill kissed Mary _$_i$]?
       (Boeckx 2012: 16)

(6) a. [Which problem]$_i$ did John ask [how to phrase _$_i$]?
    b. *How$_i$ did John ask [which problem to phrase _$_i$]?
       'What is the manner such that John asked which problem to phrase in
       that manner'
       (Szabolcsi 2006: 494)

The island domains mentioned in (3) have been shown to induce island effects across a large variety of languages, which has led to the assumption that island constraints apply universally. In fact, since island constraints seem to apply universally and are considered to be too complex to be learnable solely from the input, they are considered to form one of the strongest arguments for universal constraints in grammar more generally. However, the purported universality of island constraints has been challenged by claims that Swedish and the other MSc. languages permit extraction from certain strong islands, such as relative clauses (7a) and adjunct clauses (7b).

(7) a. [De   blommorna]$_i$ känner jag [en man som säljer _$_i$].
       those   flowers   *know   I   a   man who   sells*
       'I know a man who sells those flowers.'
       (Allwood 1982: 24)

    b. Sportspegeln$_i$ somnar   jag [när jag ser   _$_i$].
       sports program.the fall.asleep I   when I   watch
       'I fall asleep when I watch the sports program.'
       (Anward 1982: 74)

Apparent island violations of the kind in (7a), involving extraction from relative clauses, have already been investigated carefully in syntax (Engdahl 1997; Heinat & Wiklund 2015; Lindahl 2017) and processing (Christensen & Nyvad 2014; Tutunjian et al. 2017; Wiklund et al. 2017). Extraction from adjunct clauses as in (7b), however, has not received a lot of attention. Apparent violations of adjunct island constraints are particularly interesting because adjunct islands have been claimed to be cross-linguistically the most stable island type, and the universality claims connected to island constraints have hence been especially strong for adjunct islands. For example, it is noted by Stepanov (2001, 2007), Richards (2001: 187), and Boeckx (2012, 2014) that the Adjunct Condition is cross-linguistically much more robust than the Subject Condition. In light of these observations, the purported possibility to extract from adjuncts in MSc. as in (7b)

is particularly remarkable. This thesis is concerned with this latter type of extraction, viz. extraction from adjunct clauses.

2.2 Adjunct clauses

The term *adjunct clause* refers to a group of subordinate clauses that typically share a number of characteristics: They are not selected by the verb or any other element in the matrix clause, lack a θ-role, are optional, can be iterated, do not affect the category of the phrase they are added to, and can be said to have a modifying function. The exact definition of an *adjunct* depends on the perspective employed and different definitions can refer to semantic or syntactic criteria (see e.g. Boeckx 2008 and Graf 2013); but most often the term is used as a syntactic label and refers to constituents that have a particular position in the tree (viz. they are *syntactically adjoined*), and is thus contrasted with complements and specifiers. The exact structural analysis of adjuncts depends on the framework and remains a matter of debate. In X-bar theory (Jackendoff 1977; Chomsky 1970, 1986), adjuncts are the sisters of phrasal (XP) nodes, as opposed to complements, which are sister of lexical heads, and specifiers, which are sisters of an X'-projection (Adger 2003: 88). While adjuncts can be of different categories and modify different constituents, in this thesis I am concerned with clausal adjuncts (traditionally often called *adverbial clauses*, referring to the function they fulfill in the clause). These are usually introduced by a subordinator or a preposition and generally serve to modify or describe the event or proposition described in the main clause.

2.2.1 Types of adjunct clauses

For descriptive purposes, adverbial clauses are often classified according to the semantic relation that they establish towards their host clause. Although the following list of adverbial clauses types (borrowed from Teleman et al. 1999) is not exhaustive, these types are all present in Swedish and English and will return in my discussions of adjunct islands in what follows.

Temporal clauses provide a temporal specification for the event described in the matrix clause and are typically introduced by temporal prepositions or subordinators such as *när* 'when', *innan* 'before', or *efter (det) att* 'after', cf. (8).

(8) a. Han dog [innan han fick boken färdig].
    he died before he got bok.the finished
    'He died before he finished the book.'
    (Swedish; Teleman et al. 1999: 594)

b. I started my meal [before Adam arrived].
(English; Quirk et al. 1985: 1081)

Causal clauses denote a cause or reason for the situation described in the main clause and are most often introduced by *eftersom* 'because' or *därför att* 'because' in Swedish, cf. (9).

(9) a. [Eftersom väskan var tung], blev jag fort trött.
    because bag.the was heavy got I soon tired
    'Because the bag was heavy, I soon got tired.'
    (Swedish; Teleman et al. 1999: 624)

    b. The flowers are growing so well [because I sprayed them].
    (English; Quirk et al. 1985: 1103)

Conditional clauses describe the circumstances under which the predication expressed in the matrix clause holds and are usually introduced by *om* 'if', cf. (10).

(10) a. Jag kan komma tidigare i morgon, [om det inte snöar].
    I can come earlier tomorrow if it not snows
    'I can come earlier tomorrow if it does not snow.'
    (Swedish; Teleman et al. 1999: 643)

    b. [If you put the baby down], she'll scream.
    (English; Quirk et al. 1985: 1088)

Purpose clauses or *rationale clauses* specify the intention with which the action in the matrix clause is performed. In Swedish, purpose clauses are most commonly introduced by *för att* (literally 'for that') and always involve the modal auxiliary *ska(ll)* (or its past tense form *skulle*) (11).

(11) a. Han betalade dem bra [för att de skulle arbeta hårdare].
    he paid them well for that they would work harder
    'He paid them well so that they would work harder.'
    (Swedish; Teleman et al. 1999: 636)

    b. They took a plane [so that they could get there early].
    (English; Quirk et al. 1985: 1070)

Result clauses describe an effect or a consequence of the event specified in the matrix clause and are commonly introduced by *så att* 'so that', e.g. (12).

(12) a. Det blåste [så att vi blev alldeles stelfrusna].
    it blowed so that we became completely frozen.stiff
    'The wind was blowing so that we were completely frozen stiff.'
    (Swedish; Teleman et al. 1999: 632)

   b. We payed him immediately, [so that he left contented].
    (English; Quirk et al. 1985: 1108)

Concessive clauses describe the denial of a hindrance for the event in the matrix clause, or express that the content of the matrix clause is unexpected in the light of the situation described in the concessive clause. They can be introduced for instance by *fastän* 'although' or *även om* 'even though' in Swedish (13).

(13) a. Sadeln är torr [fastän det har regnat hela dagen].
    bike seat.the is dry although it has rained all day.the
    'The bike seat is dry although it has been raining all day long.'
    (Swedish; Teleman et al. 1999: 640)

   b. [Although he had just joined the company], he was treated exactly like all the other employees.
    (English; Quirk et al. 1985: 1097)

For further examples and adverbial clause types in Swedish, see Teleman et al. (1999: 568–655). In Chapter 4 we will see that other types of classifications of these adverbial clauses are possible based on the degree of semantic coherence that holds between the adjunct clause and the host clause, or based on properties pertaining to their internal and external syntax – properties that appear to be relevant for the acceptability of extraction from these clauses.

2.2.2   Optional and selected adverbial clauses

Above I mentioned that adjunct clauses can be recognized by being non-selected constituents. However, some expressions that are traditionally called adverbial clauses behave like arguments in the sense that they appear to be selected. It is hence unclear whether these cases should be analyzed as adjuncts or not. In this section I will show that the question gains particular relevance in light of the fact that many MSc. extraction examples in the literature involve such 'selected adverbial clauses', as e.g. the obligatory conditional clause selected by the matrix predicate in (14a), or clauses whose status as an adjunct or an argument is unclear, which is the case in (14b), where the conditional clause is omissible, but nevertheless seems to realize a sort of theme role.

(14) a. Bilen*i* skulle jag uppskatta om du hämtade _*i* redan   i morgon.
          car.the would I   appreciate if   you picked.up   already tomorrow
          'I would appreciate if you picked up the car already tomorrow.'
          (Swedish; Teleman et al. 1999: 581, fn. 3)

      b. [Den här   duken]*i*   blir   jag arg   om du spiller på _*i*.
          the   here tablecloth become I   angry if   you spill   on
          'I get angry if you spill on that tablecloth.'
          (Swedish; Teleman et al. 1999: 424)

The classification of an adverbial clause as selected or non-selected (and, more generally, the distinction between arguments and adjuncts) is by no means trivial, since phrases can show properties of both and since there are no generally agreed-upon definitions of arguments and adjuncts (see e.g. Needham & Toivonen 2011 and Williams 2015 for discussion). One rather clear example of selected adverbial clauses is given in (15) (from Teleman et al. 1999: 579).

(15) Jag uppskattar när/om Malou uppträder.
      I   appreciate when/if Malou performs
      'I appreciate when/if Malou performs.'

That the adverbial clause introduced by *när* 'when' or *om* 'if' is selected by the matrix predicate in this case becomes obvious in view of (16), showing that the adverbial clause is obligatory and cannot be omitted. It can thus be argued to function as an argument in the superordinate clause (Teleman et al. 1999: 568–593).

(16) *Jag uppskattar.
      I   appreciate

The insight that adverbial clauses embedded under *uppskatta* 'appreciate' function as arguments could thus potentially explain the acceptability of extraction from the conditional clause in example (14a) above: Also here, the adverbial clause *om du hämtade bilen redan imorgon* 'if you picked up the car already tomorrow' realizes the theme role specified by the matrix predicate *uppskatta* 'appreciate' and cannot be omitted. Further examples of extraction from selected adverbial clauses (from Teleman et al. 1999: 424) are given below.

(17) a. [Den boken*i*] ska   jag ordna så att   du får _*i*
          this book   will   I   fix   so that you get
          meddetsamma.
          immediately

cf.: Jag ska ordna *(så att   du   får   den boken meddetsamma).
 I will fix so that you get this book immediately

'I will arrange that you get this book immediately.'

b. Benet*ᵢ* känns det i   varje fall   inte som om jag hade
 leg.the feels it in any   case not like if   I had
 brutit _*ᵢ*.
 broken

 cf.: Det känns i   varje fall   inte som *(om jag hade
   It feels in any   case not like if I had
   brutit benet).
   broken leg.the

 'In any case it does not feel like I broke a leg.'

c. Henne*ᵢ* verkar det inte som om du   känner _*ᵢ*.
 her seems it   not like if   you know

 cf.: Det verkar inte som *(om du känner henne).
   it seems not like if   you   know her

 'It does not seem like you know her.'

Could it be that all cases of apparent adjunct island violations involve argument clauses rather than adjunct clauses? This would make the possibility of extraction less surprising. For some cases, it is much more difficult to decide whether they instantiate extraction from selected or non-selected adverbial clauses. This concerns primarily extraction from adverbial clauses that are combined with adjectival psych-predicates of the sort *vara glad* 'be happy' or *vara arg* 'be angry', as in (14b) above, repeated here as (18a), or as in (18b).

(18) a. [Den här duken]*ᵢ* blir jag arg [om du spiller på _*ᵢ*].
   the here tablecloth become I angry if you spill on
   'I get angry if you spill on that tablecloth.'
   (Teleman et al. 1999: 424)

 b. [Den boken]*ᵢ* blev jag glad [när jag hade fått _*ᵢ*].
   this book became I glad when I had gotten
   'I got happy when I got this book.'
   (Lindstedt 1926: 8)

Intuitively, the adverbial clause in these cases realizes a sort of theme role in relation to the matrix predicate 'get angry'/'get happy', similar to the complement clauses that can be constructed with such predicates in sentences like *Jag är glad att jag fick den boken* 'I am happy that I got this book'. In contrast to the cases discussed so far, however, the matrix clause in these sentences still yields a grammatical sentence when the adverbial clause is omitted (19a–b), as opposed to e.g. adverbial clauses combined with *uppskatta* 'appreciate', shown in (16) above.

(19) a. Jag blir arg.
          I   get   angry

      b. Jag blev glad.
          I   got   happy

However, note that also arguments can be optional with certain types of predicates, such as *eat*. This verb can also be argued to involve a theme role but the theme argument can be omitted:

(20) He ate (an apple).

The relevant dependent in (19a–b) could be argued to be present in the structure, but silent. We are thus left with the question whether the dependent embedded under psych-predicates such as 'be happy' in e.g. (18b) is an adjunct or an optional argument. The distinction is difficult to make, since many tests that have been suggested to distinguish between (optional) arguments and adjuncts should be seen as diagnostic tendencies rather than defining criteria, and they cannot be applied in all cases. For example, on the more narrow definitions in the literature, implicit arguments are restricted to "syntactically active" constituents (Bhatt & Pancheva 2006b), that is, constituents that "participate in some grammatical dependency, semantic or syntactic, that otherwise only an overt dependent can enter" (Williams 2015: 96). However, the diagnostic tests to identify such syntactically active elements (ability to control PRO subjects, covariation with a quantifier, ability to be bound or controlled) are designed for constituents that are noun phrases and cannot be applied to clausal constituents like the ones discussed here. It may therefore be necessary to resort to other criteria to decide on the status of the adverbial clauses in (18). Williams (2015) introduces the term *unrealized roles* for participants that are necessarily entailed to be part of the event described by the predicate, but which can remain unpronounced. Unrealized (entailed) roles, in turn, are very common, but in order to qualify as an *implicit argument*, a role must be distinguished from mere entailment in some way, for instance psychologically or pragmatically, according to Williams. One way for a role to be more than a mere entailment is to be what Williams calls a *participant argument*. Participant

arguments can be described as participants that are entailed by a predicate and that are furthermore an explicit constituent of the *sketch* associated with that predicate (where a sketch is a privileged representation of those roles that are prototypically involved in the predicate, Williams 2015: 84–89). For example, the event described by the verb *carry* entails the roles of Carrier and Carried as well as Time and Place, since any carrying involves a carrier and a carried and necessarily happens at a time and place. However, the roles of Time and Place are not explicitly represented in the sketch of carryings, whereas Carrier and Carried are. In other words, it is hard to think of a carrying without thinking of the roles of Carrier and Carried, but not to do so without thinking of a Time and Place. Therefore, the participant roles for *carry* would include those of Carrier and Carried, but not Time and Place, even though all of these roles are entailed by *carry* (Williams 2015: 86). Of relevance for our discussion, Williams points out that constituents that are syntactically adjuncts, such as the optional phrase *from Mo* in (21), can be linked to a (potentially unrealized) role that is not just entailed by the predicate, but moreover qualifies as a participant argument by virtue of being prominent in the psychological representations we have of the event described by the predicate.

(21)   Lee stole a book (from Mo).

In this case, the victim role optionally realized by *from Mo* is not just entailed by *steal*, but beyond this, "the victim is prominent in our psychological representation of stealings, alongside the thief and the loot" (Williams 2015: 87). The potentially unrealized role expressed by *from Mo* in (21) is thus a participant role and therefore qualifies as an implicit argument according to the discussion above.

   Applied to the cases in (18), one could say that psych-predicates are associated with an experiencer and a theme/stimulus role, however the theme/stimulus role can be unrealized. The question then is whether the theme role associated with psych-predicates is a distinct constituent of the psychological representation associated with the relevant predicate or not. If the answer is yes, the constituent that realizes the theme role has under William's account the status of an implicit argument, since it has a participant role. Unfortunately, the literature on psych-predicates is undecided in that regard. Landau (1999) and Temme (2014) provide arguments that psych-adjectives denote a two place relation and entail both an experiencer and a theme role (also called the *stimulus* or the *Target of Emotion* / *Subject Matter*, see Pesetsky 1995), since for an experience to be possible, there has to be something which is experienced – hence, a theme or stimulus role is entailed by the semantics of the psych-adjective, and could moreover be argued to be a part of the sketch associated with the relevant experience. Dependents of psych-adjectives are according to this view arguments. However, both Landau (1999) and Temme (2014) acknowledge that not all psych-adjectives seem to

behave alike regarding their thematic relations. A few psych-predicates such as *sad* or *happy* can optionally appear with no notional subject matter argument, since they "can express pure or inherent feelings" (Temme 2014, quoting Jackendoff 2007: 224) without the need for a specific reason or stimulus. This insight lends support to an adjunct analysis of constituents embedded under *happy*. On the other hand, Landau (1999: 336, fn. 7) points out that these adjectives "accommodate a dyadic interpretation as well (*sad/happy about x*)" – i.e. the fact that *happy* does not necessarily entail a causing stimulus does not imply that it cannot optionally realize a stimulus with the status of an argument. Also Gillon (2006) analyzes clausal complements embedded under adjectives such as *glad*, *happy*, and *sad* as implicit arguments of those adjectives. Temme (2014) summarizes the ambiguous status of these constructions by ascribing the stimulus in adjectival psych-predicate structures "either argument or adjunct status".

Now consider the extractions below, (22a), (22c) and (22d) from conditional clauses, and (22b) from a temporal clause.

(22) a. [Den boken]$_i$ skulle Eva dö [om hon läste $\_i$].
　　 this book　　would Eva die if　she read
　　 'Eva would die if she read that book.'
　　 (Ekerot 2011: 96)

　 b. Sportspegeln$_i$　　　somnar　　jag [när　jag　ser　$\_i$].
　　 sports program.the　fall.asleep　I　when　I　watch
　　 'I fall asleep when I watch the sports program.'
　　 (Anward 1982: 74)

　 c. Det är [en fordran]$_i$ som han är dum [om han avstår　från $\_i$].
　　 this is　a　request　that he　is　stupid　if　he　refrains　from
　　 'He is stupid if he refrains from this request.'
　　 (Wellander 1948: 509)

　 d. [Såna skyltar]$_i$ kan inte polisen　haffa　oss [om　vi　inte
　　 such　signs　　can　not　police.the　catch　us　if　we　not
　　 lyder $\_i$].
　　 obey
　　 'The police cannot catch us if we do not obey such signs.'
　　 (Teleman et al. 1999: 424)

The adverbial clauses in all these examples are clearly non-selected. They can be freely omitted as shown in (23):

(23) a. Eva skulle dö.
         Eva would die
         'Eva would die.'

      b. Jag somnar.
         I   fall.asleep
         'I fall asleep.'

      c. Han är dum.
         he is stupid
         'He is stupid.'

      d. Polisen   kan inte haffa   oss.
         police.the can not   catch   us
         'The police cannot catch us.'

Moreover, while it can be argued that the adverbial clauses in (22) realize a causing stimulus for the event expressed by the matrix predicate, this stimulus is not entailed by the predicate in question, nor is it part of the sketch of this predicate (in contrast to what is the case for predicates like *uppskatta* 'appreciate' and possibly certain psych-predicates). That is, a predicate like for instance *dö* 'die' (23a), *somna* 'fall asleep' (23b), or *är dum* 'is stupid' (23c) does not entail the presence of a causing stimulus for dying, falling asleep, or being stupid. In terms of participant roles, the reason or cause is not part of the sketch of these predicates. Therefore, the adverbial clauses in (22) are clearly adjuncts, not arguments. This means that we cannot reduce all examples of extraction from adverbial adjunct clauses in the literature to extraction from argument clauses. The extractions in (22) thus genuinely seem to violate the Adjunct Condition and are in need of an explanation. In my empirical investigations in Chapters 4–6, only clear cases of adjuncts will be used, i.e. adverbial clauses that can be omitted, and that do not qualify as implicit arguments in the sense of being participant arguments. Before I go on to investigate these more unexpected extractions further, I will summarize how adjunct island effects have been accounted for, and what conditions can be expected to facilitate or impede extraction from (genuine) adjunct clauses.

2.3 Theoretical approaches to adjunct island effects

Since syntactic islands were first discovered (Chomsky 1964; Ross 1967; see Cattell 1976 and Huang 1982 for adjunct islands), many attempts have been made

to derive the island effects induced by them from more general locality theories and principles. This section gives an overview of different accounts that have been suggested to analyze and explain adjunct islands theoretically. Two general groups of accounts can be distinguished: Those that analyze island effects as arising from formal syntactic constraints, presented in 2.3.1–2.3.7, and those suggesting that island effect arise from non-grammatical factors such as processing difficulties or pragmatics (so-called reductionist accounts, presented in 2.3.8). In Chapter 3, I will present analyses that have attempted to extend these theories to also account for the exceptions to the Adjunct Condition we witness in Swedish and the other MSc. languages, and in Chapters 5 and 7, I will further examine how the Swedish adjunct island extractions which are the subject of this thesis can be accommodated under these accounts in light of the new data I provide.

2.3.1   The CED

Huang (1982) was the first to propose an account of the Adjunct Condition. He explained adjunct islands in terms of the *Condition on Extraction Domains* (CED), which prohibits extraction from domains that are not properly governed (roughly, non-complements). CED-based approaches thus group subjects and adjuncts together as being opaque for movement for the same reason: As opposed to complements, subjects and adjuncts are not properly governed by a lexical head and therefore do not allow extraction, cf. (24a) for extraction from subjects and (24b) for extraction from adjuncts.

(24)   a.   *Who$_i$ did [pictures of $\_i$] please you?
           (Huang 1982: 486)

       b.   *Who$_i$ did John come back [before I had a chance to talk to $\_i$]?
           (Huang 1982: 487)

While the notion of government relations which Huang's approach is based on was dispensed with during the shift from GB theory to the Minimalist Program (Chomsky 1993, 1995, 2000), many Minimalist approaches to adjunct islands have maintained the basic idea behind Huang's proposal that the islandhood of adjuncts can be derived from the structural distinction between complements and adjuncts (or between complements and non-complements more generally), such as the immediate Spell-Out proposal presented in the next section.

2.3.2 Immediate Spell-Out

One influential proposal is based on the idea that early Spell-Out of adjuncts is responsible for their island status. The idea is based on Uriagereka's (1999) theory of Multiple Spell-Out. According to Uriagereka (1999) and Nunes & Uriagereka (2000), adjuncts (as well as subjects) have to be spelled out in a separate derivational space before being connected to the rest of the derivation due to linearization requirements. However, Spell-Out turns the adjunct into a 'frozen' unit, something which is treated as a lexical item by the computational system. Therefore, the constituents of the adjunct phrase are no longer accessible for further syntactic operations after Spell-Out, and in consequence, no elements can be extracted from it. Importantly, the spelled-out phrase itself keeps its label and is still available and can hence merge to the rest of the structure.

The idea that adjoined material is immediately transferred is also proposed in Raposo (2002), Narita (2011), and Boeckx (2012, 2014). For example, Boeckx (2012) assumes that adjunction triggers immediate Spell-Out to avoid a mapping problem in the absence of labeling (in other terms, to avoid doubly-routed trees), i.e. the entire adjunct domain is obligatorily transferred to the external systems for interpretation. This will lead to islandhood of the transferred adjunct, because the external systems will regard it as a closed unit and cannot reaccess its content at a later point in the derivation to integrate an A'-chain into it. In phase-theoretical terms, adjuncts would lack a phase edge that is necessary for extraction, since both the complement and the edge of the adjunct phase are spelled out upon Transfer (Boeckx 2012: 113–115). At the same time, immediate Spell-Out is supposed to capture the asymmetric nature of adjunction, since it adds a constituent to an already existing structure. In another similar proposal, Johnson (2003) suggests that adjuncts are assembled in isolation before being merged with the phrase containing them, which means that their linear order is already fixed at this point and cannot be altered anymore.

2.3.3 The Late Adjunction Hypothesis

Also Stepanov (2001, 2007) invokes the special structural status of adjuncts as opposed to complements to derive their islandhood, but he rejects the notion in Huang's (1992) CED account and many similar approaches that subjects and adjuncts should be grouped together. His main argument for a differential treatment of subject and adjunct islands is that subject island effects are subject to cross-linguistic variation, whereas the Adjunct Condition is cross-linguistically much more stable. Instead, Stepanov suggests that subject and adjunct islands should be analyzed differently. In detail, his proposal is that adjuncts are islands because they are merged late (postcyclically) in the derivation, i.e. only after all non-adjuncts have been merged. Adjunct island effects thus arise because at the

time when extraction has to take place, the adjunct containing the moved element is not yet present in the structure.

2.3.4 Pair Merge

Chomsky (2004, 2008) derives the islandhood of adjuncts by invoking a special operation called *pair Merge* that attaches adjuncts to their host. As opposed to the *set Merge* operation applying to complements which forms binary sets, *pair Merge* forms ordered pairs. This is supposed to capture the special properties of adjunct constructions, including their asymmetric nature and their opacity for movement operations. Since pair Merge is assumed to apply cyclically, the asymmetric character of adjunction comes according to this approach not about due to late Merge of adjuncts, but rather because adjunction happens "on a separate plane" (Chomsky 2004: 18); i.e. adjuncts are assumed to occupy another dimension. As a consequence, adjuncts cannot be searched by probes for extraction (Chomsky 2008: 147), which derives the Adjunct Condition.

The pair Merge approach has been criticized amongst others by Chametzky (2003: 205–206), Hornstein (2009), and Oseki (2015) for its stipulative nature and for being too restrictive, ruling out any kind of relation into an adjunct. This is at odds with empirical facts showing that adjuncts are transparent to a certain extent, as they can contain parasitic gaps and elements that are c-commanded by variables from the host clause for purposes of antecedence relations (Lasnik et al. 2005: 257–258).

2.3.5 Non-labeled constituents

A few scholars have put forward proposals that break with the traditional view that complementation is the norm and that adjunction should be treated as special. According to their argumentation, adjunction is the simplest mode of combination (amounting to conjunction), whereas complementation requires more complex mechanisms (Pietroski 2005; Boeckx 2008; Hornstein & Nunes 2008). In detail, these proposals model the difference between complements and adjuncts as a difference in the output of the Merge operation: While arguments require integration into structures via labeling, adjuncts can be merged by mere concatenation without labeling. The idea is originally proposed in Chametzky (2000) and is elaborated in Hornstein & Nunes (2008) and Hornstein (2009). Hornstein & Nunes (2008) and Hornstein (2009) motivate this by a difference between arguments and adjuncts in their event-semantics: While adjuncts can modify events directly, arguments can only modify events via designated relations, i.e. they require a θ-role. Labeling is necessary for establishing these relations.

The absence of a label is supposed to capture the purported simpler character of adjunction (compared to complementation). At the same time, due to the lack of a label, adjuncts are less integrated into the rest of the structure (they 'dangle off' the complex) and are therefore less visible to certain operations, which Hornstein & Nunes (2008) and Hornstein (2009) tentatively suggest to explain the island status of adjuncts: Elements that lack a label cannot be probed for extraction (see also Boeckx 2008: 102). Of a similar spirit is also a proposal by Hunter & Frank (2014), according to whom adjuncts are introduced (inserted) into a workspace, but they are never merged. Hunter & Frank (2014) assume further that when Spell-Out is applied to the phase during which the adjunct has been introduced, it will find the unmerged element and incorporate the relevant adjunct both phonologically and semantically with the remaining content of the phrase (see also Hunter 2010).

Also Oseki (2015) derives the Adjunct Condition from labeling: Since adjunction can be assumed to amount to merger of two phrases, the resulting structure cannot be labeled. In consequence, one of the two phrases – the adjunct – has to undergo Transfer, which renders the adjunct opaque for further subextraction. Oseki's approach thus combines the idea that adjuncts are non-labeled with Uriagereka's (1999) proposal that adjuncts are islands because they are transferred and spelled out early.

2.3.6 Agree-based approaches

Boeckx (2003) pursues an Agree-based approach to explain adjunct islands: He suggests that island effects should be derived from constraints on the Agree operation (which is a necessary precursor to movement), rather than from constraints on the Move operation itself. According to this proposal, adjuncts are islands because they cannot be targeted by Agree from e.g. matrix v, since adjuncts usually have inherent Case and inert Φ-features (Boeckx 2003: 100). For a similar proposal based on agreement, see Gallego (2010), also assuming that adjuncts cannot take part in Agree relations because their Case is typically inherent (since they are usually introduced by a preposition). Also Rackowski & Richards (2005) argue that extraction from a phrase requires v to Agree with this phrase, since only then can v disregard the phrase for the computation of further Agree relations and probe constituents internal to it for extraction via Spec,vP. However, since adjuncts never enter into an Agree relation with v, they remain opaque for such operations.

All the proposals examined so far have in common that they derive the islandhood of adjuncts from the intuition that adjuncts are not as integrated into the derivation as arguments are and therefore are not accessible for certain operations. That is, at the point where subextraction is supposed to take place,

adjuncts are not part of the tree or they are only loosely connected to it – either because they have already been transferred to the interfaces and spelled out (Immediate Spell-Out), or because they have not been merged yet (Stepanov's Late Adjunction Hypothesis), or because they are merged on a different plane (Chomsky's pair Merge), or because they lack a label and therefore are not sufficiently integrated into the structure, or because they are featurally unconnected to the rest of the tree (and hence cannot enter into Agree relations), cf. Boeckx (2008: 25). These proposals thus attempt to derive the Adjunct Condition from the special structural status of adjuncts, as opposed to complements. The approach presented in the next subsection, instead, derives the adjunct island effects from more general locality conditions such as phase impenetrability, rather than from the complement/non-complement distinction.

2.3.7   Subjacency, Barriers, and the PIC

The *Subjacency Condition* (Chomsky 1973, 1977) as well as the *Barriers* framework (Chomsky 1986) derive island constraints from a principle stating that movement may not cross too many, i.e. two or more, bounding nodes (barriers) of a certain kind. Approaches to adjunct islands that are based on Subjacency or Barriers usually capitalize on the assumption that finite adjunct clauses are not bare CPs, but are embedded under a higher XP – usually a PP shell – that acts as an additional barrier, thereby blocking movement. For evidence that clausal adjuncts are PPs, see e.g. Johnson (1988); Larson (1990); Müller (1995); Emonds (2009); and Haegeman (2012). An explicit proposal that explains the islandhood of adjuncts in terms of Barriers is given in Müller (1995). Müller derives the Adjunct Condition from an NP-shell analysis for finite adjunct clauses, i.e. adjunct clauses are analyzed as PPs with an empty P node and with an NP-shell that intervenes between the CP and the PP-shell, as illustrated in (25).

(25)   … [$_{PP}$ P [$_{NP}$ N [$_{CP}$ SpecC C [$_{IP}$…   (Müller 1995: 86)

Under the assumption that PP and NP both count as a barrier for movement, any extraction from the embedded adjunct clause thus has to cross two barriers (the NP and the PP-shell) and hence induces a strong Subjacency violation.

   Also Haegeman (2012) reviews evidence that adjunct clauses are free relatives with a nominal structure, and suggests that this nominal structure can account for their strong island status (presumably due to the DP layer that functions as a Subjacency barrier). In detail, Haegeman (2012: 204) analyzes temporal adverbial clauses as free relatives with a silent nominal element TIME, as in (26):

(26)   [$_{PP}$ after [$_{DP}$ [$_{CP}$ OP TIME [$_{TP}$ Sue went to hospital t]]]]

The DP layer is selected by the introducing preposition, since prepositions cannot select for a CP, but only for nominal complements. The proposal resembles the analysis by Demirdache & Uribe-Etxebarria (2004), according to whom temporal clauses are PPs in which P (which may be silent) selects a 'temporal argument' labeled ZeitP (a DP with temporal interpretation), cf. (27) (Demirdache & Uribe-Etxebarria 2004: 169; cf. also Haegeman 2012: 209).

(27)   [$_{PP}$ Ø [$_{ZeitP}$ Ø [$_{CP}$ when Zooey arrived]]]

Similarly, conditional clauses can be derived as free relatives with a possible world variable (Bhatt & Pancheva 2006a).

However, since the categories that count as barriers for movement are defined by means of government relations, any explanation of island constraints in terms of Subjacency and Barriers became outdated when the notion of government was dispensed with under Minimalism. Instead, *Phase Theory* was implemented in the course of the Minimalist program (Chomsky 2000, 2001, 2008) to account for locality constraints. In Phase Theory, syntactic derivations are assumed to proceed in smaller units – *phases*. Once a phase has been completed, a portion of its structure is removed from narrow syntax and transferred to the external systems, where it undergoes *Spell-Out*. Spell-Out thus applies multiple times during the derivation of a sentence. Island constraints can be derived as a consequence of cyclic Spell-Out: Domains that have been transferred and spelled out are 'frozen'; i.e. they become impervious for narrow syntax and are not accessible anymore for further derivational steps. However, to make sure that some form of communication across phase boundaries is possible, it is assumed that Transfer applies only to a part of the relevant phase domain: Only the complement of the phase head (the *phase domain*) is transferred, whereas the *phase edge* (the head of the phase and its specifiers) remain accessible. This idea is formalized in the *Phase Impenetrability Condition* (PIC) (Chomsky 2000: 108). Furthermore, it is assumed that the phase head can project additional specifier positions and, by virtue of an EPP-feature (or an edge feature in Chomsky 2005), can trigger movement of any constituent from within the phase complement to the phase edge. Constituents that are contained within the phase complement can thus extract and move to a higher phase, if they move successive-cyclically through the escape hatches created by the extra specifier positions of the phase head.

Whether or not adjunct islands can be explained by Phase Theory and the PIC thus depends crucially on whether adjunct clauses are phases or not and on the availability of an escape hatch at the phase edge. In existing structural analyses of adjunct clauses, it is not obvious why or by what element the supposed phase edge of an adjunct clause should be occupied and therefore should not be available as an escape hatch. Doubts as to whether Phase Theory really can account for adjunct

island effects have been expressed for example by Stepanov (2007: 83, fn. 4) and by Gallego (2010: 70).

One explicit attempt to derive the Adjunct Condition from the workings of the PIC is presented in Müller (2010). Müller's (2010) proposal is based on the assumption that adjuncts are last-merged specifiers (cf. Cinque 1999) and that last-merged phrases cannot be equipped with edge features (which are necessary for triggering intermediate movement steps), because last-merged phrases have already checked all their features and therefore are inactive. Thus, it is not possible to extract from adjuncts without violating the PIC. For a critical review of Müller's account, see Boeckx (2012: 62–72).

However, it should be noted that the potential of Phase Theory as an explanation of island constraints in general has been under criticism in the light of the conceptual and empirical shortcomings of Phase Theory noted over the years. Boeckx & Grohmann (2007) provide a whole list of complications for phase-based frameworks. One of the major concerns is that the escape hatch strategy suggested to account for the licit cases of movement from phase complements, together with the availability of multiple specifier positions, is too permissive. Without a theory that restricts the possibilities for a phase head to project additional specifiers, it becomes almost impossible to prohibit movement out of phases (Boeckx 2012: 60).

2.3.8   Reductionist accounts

The above discussed syntactic accounts of adjunct islands can be contrasted with another group of proposals that attempt to derive island effects from non-grammatical factors instead, often referred to as *reductionist accounts* of islands. Reductionist accounts argue that movement across islands is in fact permitted by the grammar and that the unacceptability associated with island extraction can be reduced to processing factors, semantic/pragmatic factors, or constraints on discourse organization.

One major group of reductionist accounts argues that island effects emerge because the structures in question overburden the parser's processing capacities (e.g. Deane 1991; Pritchett 1991; Kluender 1991, 1992, 1998, 2004; Kluender & Kutas 1993; Clausen 2010; Hofmeister & Sag 2010; Hofmeister et al. 2012, 2013). A typical line of argumentation (e.g. in Kluender & Kutas 1993; Kluender 1998, 2004; Hofmeister & Sag 2010) is that island effects are a product of the cost induced by the long-distance dependency (involving the challenging task of identifying the gap and maintaining the filler in working memory while processing the material intervening between the filler and the gap), combined with the independent cost imposed by the structure that forms the island in question (for instance the adjunct clause). While none of these processes individually causes a

processing load big enough to lead to unacceptability, it is claimed that the joint occurrence of these processing demands in island extraction structures overburdens the parser's processing resources in a way that leads to strongly degraded acceptability. Most processing accounts focus on deriving weak island effects and complex NP islands from the above mentioned factors; however, Kluender (1998: 267), e.g., suggests explicitly that also adjunct islands may be amenable to a processing account.

While it is generally regarded as certain that processing factors have an impact on acceptability ratings of island extractions, processing-based reductionist accounts of island effects go further than that and claim that the low ratings observed with island violations can be entirely explained with processing difficulties without any recourse to formal syntactic constraints.

Other reductionist accounts try to derive island effects from semantic and pragmatic factors (e.g. Szabolcsi 2006; Abrusán 2007, 2011a,b) or information-structural factors (e.g. Erteschik-Shir 1973, 1982; Goldberg 2006, 2013; van Valin 1994, 1996, 2005). For example, Goldberg (2006) suggests that islands are domains that are backgrounded in the discourse. Since extracted phrases are typically in discourse-prominent slots, they can only be moved from the *potential focus domain* of a sentence, i.e. the part of the sentence that is asserted (see also Erteschik-Shir 1973). Extraction from backgrounded domains, by contrast, is problematic because it implies that the extracted phrase would have to be treated as backgrounded and discourse-prominent at the same time (Goldberg 2006: 135). Most semantic/pragmatic and discourse-based accounts of islands were developed to cover primarily weak island types, but the discourse-based account suggested in Erteschik-Shir (1973) and Goldberg (2006, 2013) has also been applied to relative clause islands (see Erteschik-Shir 1973), and Truswell's (2007, 2011) account of adjunct islands in terms of event structure (presented in Section 2.4.1) can be seen as a semantic account of adjunct islands.

Boeckx (2012) and Phillips (2013a,b) note a number of challenges for reductionist accounts, among others the lack of evidence for the purported processing difficulty of certain island structures: Sprouse et al. (2012) found that several strong island structures, among them adjunct clauses, had no consistent impact on acceptability ratings, and hence do not seem to cause an independent cost as predicted by reductionist processing-based accounts of islands. Sprouse et al. (2012) moreover failed to find a correlation between individual working memory capacity and the strength of island effects, as predicted by processing-based accounts. Further problems for reductionist accounts are the existence of cross-linguistic variation in island effects (e.g. Sprouse et al. 2016; Kush et al. 2018), evidence that active gap-filling is possible inside islands under certain conditions (Phillips 2006), and evidence that island effects exist with *wh*-in-situ structures (e.g. Huang 1982). See Boeckx (2012) and Phillips (2013a,b) for further discussion.

Based on these issues, the conclusion by many authors has been that island effects reflect at least to some extent formal grammatical conditions (e.g. Phillips 2006; Boeckx 2012; Sprouse et al. 2012; Phillips 2013a,b; Kush et al. 2018); and even Hofmeister & Sag (2010) concede that some islands may be irreducibly of grammatical nature. This does not dispute that processing and pragmatic factors have an impact on acceptability ratings of island extractions, nor does it deny that also formal syntactic accounts of islands face challenges, such as the existence of cross-linguistic variation in island effects (which is a problem for both formal syntactic and reductionist accounts), and so-called amelioration effects, i.e. apparently acceptable island violations. I defer a discussion of these effects to Chapter 5 and 7.

Another class of accounts that combines aspects of formal grammatical approaches and processing accounts is known as *grounded accounts* of island effects (Phillips 2013a). Grounded accounts claim that the processing difficulties associated with dependencies that span into islands has motivated the development of formal constraints in the grammar banning such dependencies (e.g. Fodor 1978, 1983; Berwick & Weinberg 1984; Hawkins 1999). Grounded accounts thus share with syntactic accounts the assumption that island effects reflect formal grammatical constraints; in addition to that they make claims about the diachronic origins of those constraints (Boeckx 2012: 27; Phillips 2013a,b).

2.4 Conditions on adjunct clause extraction

Although adjunct clauses are considered to be strong islands, it appears that extraction from adjunct islands is not completely excluded even in languages that otherwise obey the Adjunct Condition, e.g. in English, as indicated by certain exceptions to the Adjunct Condition. The possibility to extract from adjunct clauses under certain conditions is part of an increasing body of evidence that most domains that have been referred to as islands are not absolute islands, but are 'extractable' under certain circumstances (e.g. Cinque 1978; Postal 1998; Boeckx 2012). Two general cases of acceptable adjunct clause extraction can be distinguished. First, adjunct clause extractions, like many other island violations, can be 'repaired' (at least for some types of adjunct clauses) by certain mechanisms. For example, extraction from the *if*-clause in (28a) results in unacceptability on account of the adjunct island violation, but can be repaired by eliding the adjunct constituent in (28b) (so-called *sluicing*, Ross 1967; Merchant 2001).

(28) a.   *Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which (of the teachers) Ben will be mad if she talks to.

    b.   Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which.
        (Merchant 2001: 88)

Extraction from (at least some) adjunct clauses can also be repaired by so-called *parasitic gap constructions*, involving the presence of another, licit, gap that is linked to the same filler (Engdahl 1983; Nissenbaum 2000; Culicover 2001). In (29a), extraction from the *if*-clause yields an unacceptable result, but if the structure is combined with (licit) extraction from a non-island complement clause, the sentence becomes acceptable (29b).

(29)   a.   *John's [the guy]$_i$ that they said they'll hire me [if I criticize $\_i$ publicly].
       b.   John's [the guy]$_i$ that they said they'll hire $\_i$ [if I criticize $\_i$ publicly].
         (Nissenbaum 2000: 22)

A second class of exceptions to the Adjunct Condition concerns cases of non-parasitic adjunct clause extraction that have been reported to be surprisingly acceptable (sometimes referred to as amelioration effects) e.g. in English, even though English is otherwise considered to obey the Adjunct Condition. For example, extraction is reported to be possible from the non-finite English adjunct clauses in (30).

(30)   a.   What$_i$ are you working so hard [in order to achieve $\_i$]?
       b.   Who$_i$ did John go home [after talking to $\_i$]?
         (Truswell 2007: 5)

These cases ought to be distinguished from the repair phenomena in (28)–(29): While a repair mechanism such as parasitic gapping can make an extraction acceptable in exactly the same configuration in which it otherwise would be unacceptable, ameliorated island extractions such as (30) seem to be tied to specific types of adjunct clauses, possibly indicating that theories of the Adjunct Condition need to be modified to accommodate extractions from certain types of adjuncts (see Phillips 2006: 797, fn. 1 for a similar comment). Island repair constructions such as (28)–(29) will not be discussed further here; however, (surprisingly) acceptable cases of adjunct clause extraction are the topic of this thesis, and I will return to the specific cases in (30) in my discussions of English.

   The possibility of non-parasitic adjunct clause extraction in English appears to be tied to certain semantic and syntactic conditions studied e.g. by Truswell (2007, 2011) and Tanaka (2015), and arguments for another syntactic condition on adjunct clause extraction can be derived from work by Haegeman (2003, 2004, 2010, 2012). These suggestions are relevant for the study of adjunct island

extraction in MSc. languages such as Swedish, as they raise the question whether adjunct clause extraction in these languages is affected by similar conditions, even though MSc. appears to be overall more permissive for extraction from adjuncts. Before turning to the situation in MSc., I therefore present four factors that have been reported to constrain extraction from adjunct clauses in English: (i) the semantic relation and the corresponding degree of coherence between the adjunct and matrix clause event, (ii) the finiteness of the adjunct clause, (iii) the degree of syntactic integration of the adjunct clause, and (iv) the grammatical function of the extracted element (arguments vs. adjuncts). In Chapters 4 and 5 I will investigate whether these factors also affect the possibility of adjunct clause extraction in Swedish.

2.4.1   The semantic relation between matrix and adjunct clause

One major condition on the possibility of extraction from adjuncts has been explored by Truswell (2007, 2011) and concerns the semantic relation between the event described in the adjunct and in the matrix clause. Truswell observes that it is not categorically impossible to extract from adjuncts in English. For example, the extractions in the form of *wh*-movement from the non-finite adjuncts in (31a–c) are considerably better than the one in (31d) (examples from Truswell 2007: 5).

(31)   a.   What$_i$ are you working so hard [in order to achieve $_{\_i}$]?
       b.   Who$_i$ did John go home [after talking to $_{\_i}$]?
       c.   What$_i$ did John drive Mary crazy [whistling $_{\_i}$]?
       d. *What$_i$ does John work [whistling $_{\_i}$]?

To account for this contrast, Truswell suggests that *wh*-movement is constrained by event-based locality domains. Specifically, he imposes a *Single Event Condition* on extraction from adjuncts, the exact formulation of which is given below:

(32)   The Single Event Condition
       An instance of *wh*-movement is legitimate only if the minimal constituent containing the head and the foot of the chain can be construed as describing a single event. (Truswell 2011: 38)

Under this approach, extraction is possible in the sentences in (31a–c) because the matrix VP and the adjunct VP can be subsumed under one single event. The formation of such a single macroevent is only possible if the two events described by the matrix and the adjunct VP are related by a *contingent relation*, i.e. *causation* or *enablement* (as opposed to a purely temporal relation, for example). *Coherence* can be used as a cover term for these and similar relations (see Hobbs

1979; Kehler 2002, for extensive discussion). Extraction from *in order* clauses such as (31a) is hence predicted to always be well-formed, since the introducing element *in order* linguistically encodes such a coherent relation (namely goal-driven enablement). In (31b), the introducing element *after* specifies merely a temporal relation between the matrix event and the adjunct event; however, a plausible interpretation of this sentence is that John went home as a consequence of talking to a certain person. It is thus possible to pragmatically enrich this relation in such a way that it can be interpreted as a causal (and hence a coherent) relation, which creates the right conditions for macroevent formation and hence for extraction. Similarly, the gerund adjunct *John whistling* in (31c) is most naturally interpreted as being the cause of Mary's craziness and thus allows the creation of a single macroevent. This possibility is not available in (31d), however, since the matrix and adjunct clause events in this case are interpreted as taking place simultaneously rather than as being causally related. Illformed instances of adjunct extraction are according to this approach ruled out by semantic and pragmatic filters applying to the output of syntax.

Tanaka (2015) provides experimental evidence corroborating the observations made by Truswell regarding the role of coherence in adjunct island extraction. In an acceptability judgment study, Tanaka tested the acceptability of *wh*-extraction from different types of non-finite adjuncts including *after*-adjunct clauses while manipulating the availability of a causal and hence coherent interpretation of the matrix and the adjunct event. To do so, Tanaka presented the test sentences with written contexts that either explicitly described a causal relation between the two events, or that depicted a scenario making such a causal reading very difficult to obtain. Tanaka found that acceptability ratings were significantly higher for extraction from causally than from non-causally interpreted *after*-clauses, indicating that causality is an important factor for extraction from such clauses (Tanaka 2015: 117–122).

A note of caution regarding the terminology is necessary here. The adequate label and the exact demarcation of the family of semantic relations that support a single-event interpretation and thereby facilitate extraction from adjuncts are still debated (see e.g. Moens & Steedman 1988; Wolff 2003; Truswell 2007, 2011). While Truswell (2007) confines contingent relations, as he terms them, to relations of either causation or enablement, he leaves open the possibility that the class of contingency relations might include further concepts (p. 45, fn. 21). Indeed there are arguments to expand this class to also include other relations such as prevention relations and concessive relations. In this thesis I use primarily the term *coherence* (described in Hobbs 1979 and Kehler 2002), which has a slightly broader coverage than contingency. I will initially confine coherence relations to relations of either causation or enablement, in accordance with Truwell's approach, but it will become evident that some of the results reported in the forthcoming chapters can better be accounted for under a wider understanding of

coherence also including prevention and concessive relations, which moreover coincides with observations made in the literature.

2.4.2 Finiteness of the adjunct clause

In addition to the coherence requirement, English has been reported to disallow extraction from tensed, finite adjuncts, as the examples below illustrate (from Truswell 2007: 166; see also Manzini 1992).

(33) a. *Who$_i$ did John go home [after he talked to _$_i$]?
       b. *What$_i$ is John talking to Mary [so that she will understand _$_i$]?

Truswell (2011) takes Tense in finite adjunct clauses to block the formation of macroevents or coherent relations, on account of the additional event that is obligatorily introduced by the tense node in finite adjuncts; however, in the coming chapters we will see reasons to doubt this explanation.

In light of the growing consensus, I assume that the traditional notion of finiteness can be deconstructed into a set of different phenomena (see e.g. Landau 2004; Adger 2007), including the syntactic representation of finiteness ([±finite]) encoding dependence on the speech event; the semantic interpretation of the finite clause as temporally independent; the morphological expression of finiteness as tense and agreement marking on the verb; and the presence of an overt subject in finite clauses. Any observed effect derivable from finiteness could thus be due to any of the properties that distinguish finite from non-finite domains. For the purposes of the following studies, *finiteness* is used as a cover term for the above mentioned properties, though I will return to a discussion of the matter in Section 5.6.

2.4.3 The degree of syntactic integration of the adjunct clause

Another factor which is likely to have an impact on extraction possibilities is the degree of integration of the adjunct clauses with the clause that they modify. Differences in syntactic integration of adjunct clauses have been studied extensively by Liliane Haegeman (2003, 2004, 2010, 2012). She distinguishes between *central adverbial clauses* (CACs) and *peripheral adverbial clauses* (PACs). These clause types differ in their internal and external syntax, and they have a different relation to the associated clause. In essence, central adverbial clauses modify the event described in the matrix clause (they are event structuring) whereas peripheral adverbial clauses have a discourse structuring function. The difference is demonstrated below by means of a few examples from Haegeman (2012), starting with clauses that are introduced by *while*.

While is one of the conjunctions that may introduce either a CAC or a PAC. When used in a CAC, as in (34a), *while* provides a temporal specification for the event described in the matrix clause (meaning roughly 'during the time that'). In the PAC in (34b), however, *while* is contrastive and can be said to structure the discourse, by providing a context against which the content of the host clause should be processed.

(34)   a.   According to Smith, a group of Arkansas state troopers who worked for Clinton while he was governor wanted to go public with tales of Clinton's womanising. (CAC)
        b.   While his support for women priests and gay partnerships might label him as liberal, this would be a misleading way of depicting his uncompromisingly orthodox espousal of Christian belief. (PAC)
             (Haegeman 2012: 160)

A similar situation obtains for the conjunctions *since* and *when*: They can either introduce a CAC with a temporal reading in English, or they introduce a PAC, in which case they receive a different (discourse-related) interpretation (in the case of *since*, a rationale reading, and for *when*, a concessive reading). For more details and examples, see Haegeman (2012: 160).

Also *if* can occur in different types of adverbial clauses. In (35a–b), the adverbial clause has a conditional reading both times, but the central *if*-clause in (35a) expresses a condition for the event described in the main clause and hence receives a causal interpretation, whereas in (35b), the peripheral *if*-clause introduces a background assumption for the proposition expressed in the main clause. Such peripheral *if*-clauses describe often controversial statements, and typically, they echo a proposition that is present in the context (Haegeman 2012: 161).

(35)   a.   If your back-supporting muscles tire, you will be at increased risk of lower-back pain. (CAC)
        b.   If we are so short of teachers, why don't we send our children to Germany to be educated? (PAC)
             (Haegeman 2012: 161)

Furthermore, one can distinguish central and peripheral *because*-clauses. Both types encode a causal relation; however, a central *because*-clause such as the CAC in (36a) provides a cause (*reason*) for the situation described in the main clause, whereas the peripheral *because*-clause in (36b) provides a *rationale* or evidence for the speaker to make the claim expressed in the main clause.

(36) a. Personally, I don't run because I want to live longer, I run because I want to live better. (CAC)
   b. This is not a list drawn up by people sitting night after night reading to babies and toddlers, because then it would include books such as *Boing*! by Sean Taylor which expand the child's experience along with his or her joy of reading. (PAC)
   (Haegeman 2012: 162)

Two readings are also available for *so that*, depending on whether it introduces a purpose clause (central) or a result clause (peripheral). Some other conjunctions such as *before, after*, and *until* allow only a temporal (central) reading, while e.g. *whereas* and *although* always introduce a peripheral clause and thus have no central counterpart. Table 2.1, from Haegeman (2012), summarizes the different central and peripheral readings available with different conjunctions in English.

Table 2.1: Typology of adverbial clauses (from Haegeman 2012: 164)

Conjunction	Central adverbial clause: Event structure	Peripheral adverbial clause: Discourse structure
(Al)though		Concessive
As	Event time	Cause/premise
Before/after	Event time	
Because	Event clause/reason	Rationale
If	Event-condition	Conditional assertion
Since	Event time	Cause/premise
So that	Purpose	Result
Until	Event time	
When	Event time	Contrast
Whereas		Concessive
While	Event time	Concessive

CACs and PACs differ in their external syntax, since they are merged at different points in the structure with the clause that they modify. In detail, CACs are merged comparatively low in the structure of the associated clause (at TP or *v*P) and are hence closely integrated. PACs, by contrast, are merged higher (in parallel with the CP) and are hence less integrated with the associated clause. A similar analysis for PACs is proposed (and supported by evidence from prosody) in Frey & Truckenbrodt (2015). They elaborate on a proposal by Frey (2011, 2012), according to which PACs are attached at a very high level to the host clause

(by base-generation in Spec,CP or adjunction to the CP) and are in consequence only marginally integrated.

The difference in syntactic integration between CACs and PACs has a number of consequences for coordination possibilities and scope phenomena, which in turn can be used as diagnostics for the status of an adverbial clause. As for coordination, Haegeman (2012: 165) shows that CACs cannot be coordinated with PACs, but only with other CACs, since central and peripheral clauses are attached at different heights in the tree. As for scope phenomena, the general rule is that CACs are within the scope of operators inside TP or CP, whereas PACs are not, since they are merged external to TP and therefore cannot be c-commanded by elements in the associated clause. For example, PACs – as opposed to CACs – are outside the scope of focusing operators and hence they cannot be clefted (37a) or be preceded by *only* (37b):

(37) a. *It is while my mother is a doctor that my father used to work in a brickyard.
      b. *Only while my mother was a lawyer did my father use to work in a brickyard.
         (Haegeman 2012: 168)

Furthermore, PACs are outside the scope of interrogative operators, and Ros (2005: 90) provides the following examples showing that PACs (38b), but not CACs (38a) are also outside negative operators of their associated main clause:

(38) a. John does not study while his children are asleep, but rather while they are out in the playground.
      b. *John did not study mathematics in Cambridge, while his son is studying physics in Oxford, but while his daughter is studying classics in London.
         (Ros 2005: 90)

PACs are also outside the scope of the focus operator *only*, as shown in (39): The central *if*-clause in (39a) receives an 'only if'-reading, whereas this reading is not available for the peripheral *if*-clause in (39b), since it is not in the scope of *only*.

(39) a. John will only finish the book if there is a lot of PRESSURE on him ('only if').
      b. John will only finish the book, if there is already such a lot of pressure on him (he won't finish anything else).
         (Ros 2005: 91)

Further differences that will not be discussed here include possibilities for temporal subordination (applicable for CACs, but not PACs) and for VP substitution and VP ellipsis (may affect CACs, but not PACs). For details, see Haegeman (2012: 166, 171).

The two types of adverbial clauses differ also in their internal syntax. The differences can mainly be derived from the presence or absence of independent illocutionary force: While CACs lack illocutionary force and are part of the speech act performed with the main clause, PACs have their own illocutionary potential, and, more generally, have root clause status. To formally implement the idea that PACs have an illocutionary potential, but do not in fact constitute independent speech acts, Frey (2011, 2012) suggests that PACs have a Force projection, but that their Force needs to be licensed by the Force head of their host clause (i.e. they are parasitic on the speech act of their associated clause), as opposed to illocutionary phrases that can be directly linked to the speaker. One consequence of this is that speaker-oriented modal markers are compatible with PACs, but not with CACs. (40a) illustrates the unavailability of speaker-oriented modals in CACs for a speech act modal, and (40b) for an epistemic modal.

(40) a. ??*If **frankly** he's unable to cope, we'll have to replace him.
      b. *We met John before he **must** have tampered with the tapes.
         (Haegeman 2012: 173)

In detail, the ban on modal markers in CACs concerns the four highest expressions of modality on the Cinque (2004, 2013) hierarchy (41): speech act modals, evaluative, evidential, and epistemic modals.

(41) MoodP$_{\text{speech act}}$ 〉 MoodP$_{\text{evaluative}}$ 〉 MoodP$_{\text{evidential}}$ 〉 ModP $_{\text{epistemic}}$ 〉 T…

Finally, there are reasons to assume that the distinction between central and peripheral adverbial clauses is relevant to extraction possibilities. As noted by Haegeman (2004: 70), extraction from CACs is sometimes reported to be acceptable for a few speakers of English – witness the authentic examples in (42a–b) noted by Haegeman – whereas extraction from PACs is unattested and leads to a considerably stronger degradation in constructed examples like (42c) or (42d) (see also Cecchetto & Donati 2015).

(42) a. [the details and the whole]$_i$, which an artist cannot be great [unless he reconciles $\_{i}$]
        (Haegeman 2004: 70)

b. a stranger, from [that remote and barbarian Isle]$_i$ which the Imperial Roman shivered [when he named _$_i$], paused.
(Haegeman 2004: 70)

c. *What$_i$ does he hate his situation [if you want to know _$_i$]?
(cf. He hates his situation, if you want to know the truth)
(Cecchetto & Donati 2015: 122)

d. *[What car]$_i$ is Gianni at home [because he parked _$_i$ in the backyard]?
(cf. Gianni is at home, because he parked his car is in the backyard)
(Cecchetto & Donati 2015: 122)

Hence, the expectation is that extraction, to the extent that it is possible in a language, should be restricted to CACs. Peripheral clauses are presumably not sufficiently syntactically integrated with the host clause and hence too independent from it to allow subextraction. More concretely, the lack of integration responsible for the opacity of PACs can be a consequence of their external syntax (attachment height) as well as of their internal complexity (the presence of an independent illocutionary potential). Both factors have been claimed to induce islandhood. For instance, Truswell (2007, 2012), Boeckx (2012), and Narita (2011) argue that attachment height has an impact on the possibility to extract from adjuncts in the sense that only adjuncts that are attached low enough allow extraction. A high degree of internal complexity and the presence of illocutionary force in turn have been suggested to induce island effects in embedded verb-second clauses (Bentzen et al. 2007; Bentzen & Heycock 2010; Hrafnbjargarson et al. 2010; Sheehan & Hinzen 2011). In Chapter 4, I will show that both the external and the internal syntax of an adverbial clause appear to play a role for the acceptability of extraction sentences.

2.4.4   The grammatical function of the extracted element

Yet another factor that is likely to play a role for extraction possibilities from adjunct clauses is the grammatical function of the extracted element, i.e. whether an argument or an adjunct is extracted from the adjunct clause. This factor is standardly assumed to be a diagnostic of weak islandhood of a domain (e.g. Huang 1982; Chomsky 1986; Lasnik & Saito 1992; Szabolcsi 2006): Whereas strong islands allow neither extraction of arguments nor of adjuncts, cf. the relative clause islands in English in (43), weak islands tend to show island effects only in the case of adjunct extractions, as demonstrated for *wh*-islands in (44).

(43) a. *[Which kid]$_i$ must you call [the teacher who punished $\_i$]?
      b. *Where$_i$ must you call [the teacher who put the book $\_i$]?
          (Szabolcsi 2006: 482)

(44) a. [Which problem]$_i$ did John ask [how to phrase $\_i$]?
      b. *How$_i$ did John ask [which problem to phrase $\_i$]?
          'What is the manner such that John asked which problem to phrase in
          that manner'
          (Szabolcsi 2006: 494)

Tanaka (2015: 90) shows that a similar argument/adjunct asymmetry can be observed for extraction from non-finite, coherent adjuncts of the type investigated in Truswell (2007, 2011): While *wh*-extraction of arguments may be accepted out of such clauses in English, adjunct extraction does not seem possible, see the contrasts in (45a/b) and (46a/b). This may be taken to be indicative of a weak island status of such adjuncts in English.

(45) a. ?What$_i$ did John cut himself [trying to carve $\_i$ with a Japanese knife]?
      b. *How$_i$ did John cut himself [carving the Christmas turkey $\_i$]?

(46) a. %?Which$_i$ gardening book did John redesign his garden [after reading $\_i$
          with great care]?
      b. *How$_i$ did John redesign his garden [after reading The Gardeners Pocket
          Bible $\_i$]?

2.5 Summary

This chapter has introduced adjunct islands and different accounts suggested to analyze adjunct island effects theoretically. Various syntactic as well as processing-based and pragmatic proposals have been put forward to derive the island status of adjuncts. Among the syntactic accounts, the proposals can be roughly divided into two groups of approaches: proposals that derive the Adjunct Condition from the special structural status of adjunction, building on the idea that adjuncts are not as integrated into the derivation as complements and therefore not accessible for certain operations, and proposals deriving adjunct island effects from more general locality conditions such as phase impenetrability, building on the idea that movement operations cannot cross certain kinds of elements. However, there is to date no agreement on what the right approach is, which is partly due to the lack of an adequate theory of how to characterize adjunction

formally (see e.g. Boeckx 2008). Henceforth, the Adjunct Condition is used as a cover name for whatever derives the relative intransparency of adjunct structures (e.g. the structural relation between the adjunct and its host). I return to a discussion of the Adjunct Condition in Chapter 7.

Even though adjuncts are considered to be strong islands, we have seen data suggesting that even in English, adjunct clause extraction is not completely excluded if certain conditions are fulfilled: The extracted element should be an argument of the adjunct clause, and the adjunct clause in question should be a central rather than a peripheral clause, non-finite, and convey a semantically coherent relation to the matrix clause event. These observations raise the question whether the same conditions also affect the acceptability of adjunct clause extraction in MSc. languages such as Swedish, which have been reported to be unusually permissive for extraction from strong islands, including from adjunct clauses. While some of the data suggesting such permissiveness involve extraction from adverbial clauses that appear to be selected and thus behave more like arguments than adjuncts, it was shown in this chapter that the MSc. cases reported in the literature include also examples with extraction from clauses that are clearly adjuncts and which thus cannot be explained away by saying that they are underlyingly arguments. This thesis aims at getting a better understanding of the unexpected behavior of MSc. with regard to the Adjunct Condition. Before the main empirical investigations, the next chapter introduces the situation in MSc. in detail.

3 Island extraction in Mainland Scandinavian

In Chapter 2, we concluded that extraction from adjunct clauses in Swedish is allowed in so far as the examples cited from the literature reflect intuitively acceptable sentences to native speakers of Swedish. Prima facie, this seems to suggest that there is cross-linguistic variation in island effects, thus challenging the assumption that island constraints are universal. In this chapter I provide an overview of research on the exceptional behavior of the Mainland Scandinavian languages in relation to island constraints to place the apparent adjunct island violations in the broader context. Section 3.1 provides an overview of the strong island constructions that appear to behave exceptionally in MSc. Section 3.2 provides a review of previous research trying to account for island extraction in MSc., and Section 3.3 presents accounts suggesting that the MSc. cases are not genuine extractions but comprise something termed surface variation. Section 3.4 summarizes the observations made in this chapter and identifies remaining challenges for research on adjunct clause extraction.

3.1 The case of Mainland Scandinavian

The traditional assumption that island constraints are universal has been challenged by growing evidence for cross-linguistic variation in island effects (e.g. Rizzi 1982; Yoshida 2006; Stepanov 2007; Sprouse et al. 2016; Kush et al. 2018). While it has been noted that the observed variation is limited and systematic (Phillips 2013a), many cases are poorly understood and there is no principled account of the variability. As we have seen, a prominent case of apparent variation is exhibited by Swedish. In fact, all three Mainland Scandinavian languages Swedish, Norwegian, and Danish have been claimed to allow extraction from constructions that yield island effects in other languages. Some examples of island extraction in Swedish have already been provided above; (1) exemplifies the purported possibility to extract from relative clause islands in Norwegian (1a) and in Danish (1b).

(1) a. [Dette biletet]$_i$ kjenner eg [den målaren som har måla   _$_i$].
         that   picture   know   I   the   painter   who   has   painted
         'I know the painter who has painted this picture.'
         (Norwegian; Faarlund et al. 1997: 1099)

     b. Suppe$_i$ kender jeg [mange der   kan lide _$_i$].
         soup   know   I   many   who   can   like
         'I know many people who like soup.'
         (Danish; Erteschik-Shir 1973: 67)

A closer look reveals that the MSc. languages do not seem to permit extraction from all of the strong island structures listed in Chapter 2. To be specific, MSc. behaves as expected with regard to at least two strong island constraints: Both subject islands and coordinate structure islands do appear to induce island effects in the MSc. languages. The sentence pairs in (2)–(3) demonstrate that extraction from nominal subjects in e.g. Swedish and Norwegian is only possible if the subject does not undergo overt movement. While extraction from displaced subjects is reported to be unacceptable in these languages (2a and 3a), subjects become more transparent for extraction when they are forced to stay in-situ by the insertion of an expletive (2b and 3b). In that regard Swedish and Norwegian do not differ from the situation in English, cf. (4a) and (4b).

(2) a. *[Vilken kung]$_i$ hänger [många porträtt   av _$_i$] på Gripsholm?
         which   king   hang   many   portraits   of   at   Gripsholm

     b. [Vilken kung]$_i$ hänger det   [många porträtt   av _$_i$] på Gripsholm?
         which   king   hang   there   many   portraits   of   at   Gripsholm
         (Engdahl 1982: 164)

(3) a. *[Hvilken konge]$_i$ henger [mange portretter   av _$_i$] på Gripsholm?
         which   king   hang   many   portraits   of   at   Gripsholm

     b. [Hvilken konge]$_i$ henger det   [mange portretter av _$_i$]
         which   king   hang   there many   portraits   of
         på Gripsholm?
         at   Gripsholm
         (Marit Julien, p.c.)

(4) a. *[Which candidate]$_i$ were [posters of _$_i$] all over the town?
     b. [Which candidate]$_i$ were there [posters of _$_i$] all over the town?
         (Boeckx 2012: 131)

Similarly, extraction from coordinate structures is not allowed in MSc., as demonstrated in (5) for Swedish and Norwegian, unless extraction is across-the-board (6), or extraction occurs from structures which can be shown not to involve true coordination (pseudocoordination) (7), in which case extraction is also possible in English, cf. (8).

(5) a. *[Vilken bok]$_i$ köpte   Lisa [en tidning]   och [$_i$]?
          which book bought Lisa a   newspaper and
          'Lisa bought a newspaper and which book?'
          (Swedish; Engdahl 1982: 163)

     b. *Dessert$_i$ påstod   han [at   han var mett] og [at   han ikke
          dessert   claimed he   that he was full and that he not
          ville   ha $_i$].
          wanted to.have
          'He claimed that he was full and that he did not want to have dessert.'
          (Norwegian; Faarlund et al. 1997: 1100)

(6) a. Korven$_i$ skar Britta upp $_i$ och satte $_i$ i   kylskåpet.
          sausage.the cut Britta up   and placed in fridge.the
          'Britta cut up the sausage and put it in the fridge'
          (Swedish; Andersson 1994: 305)

     b. Hesten$_i$ prøvde dei å [fange $_i$] og   [ha $_i$ til husdyr].
          horse.the tried   they to catch   and have as domestic animal
          'They tried to catch the horse and have it as a domestic animal.'
          (Norwegian; Faarlund et al. 1997: 1101)

(7) a. Vad$_i$ började han och skrev $_i$?
          what started he and   wrote
          'He started and wrote what?'
          (Swedish; Wiklund 2007: 16)

     b. Det er ikke noe$_i$ man våkner   om morgenen   og
          this is not something one   wakes.up in morning.the and
          bestemmer seg   för å bli $_i$.
          decides   REFL   for to become
          'This is not something one wakes up in the morning and decides to become.'
          (Norwegian; Faarlund et al. 1997: 1101)

(8) [Which dress]$_i$ has she [gone] and [ruined _$_i$] now?
(Ross 1967: 170)

A third structure which behaves like an island for extraction in the Scandinavian languages is embedded verb-second (V2) clauses (see e.g. Vikner 1995; Hrafnbjargarson et al. 2010; Holmberg 2015), exemplified in (9).

(9) a. *Vad$_i$ sa   han att han åt   alltid   _$_i$ till frukost?
           what *said* *he that he ate   always   for breakfast*
           'What did he say that he always ate for breakfast?'
           (Swedish; Hrafnbjargarson et al. 2010: 299)

     b. *Hvad$_i$ sagde han at   han kunde ikke synge _$_i$?
           what   said he that he could not sing
           'What did he say that he could not sing?'
           (Danish; Hrafnbjargarson et al. 2010: 304)

     c. *Hvem$_i$ sa   han at   denne boka   hadde han ikke gitt   _$_i$?
           whom   said he that this   book.the had   he   not given
           'Who did he say that he had not given this book to?'
           (Norwegian; Hrafnbjargarson et al. 2010: 303)[2]

However, MSc. has been reported to be unusually permissive with regard to extraction from the other strong island domains, viz. complex NP islands (e.g. Erteschik-Shir 1973, 1982; Maling & Zaenen 1982; Taraldsen 1982; Engdahl 1997; Lindahl 2017; Nyvad et al. 2017; Tutunjian et al. 2017), and adjunct clauses (e.g. Hagström 1976; Anward 1982; Faarlund et al. 1997; Jensen 1998, 2001; Nyvad et al. 2017).[3] Extraction from complex NPs with a relative clause is exemplified in (10), extraction from complex NPs with a complement clause in (11), and extraction from adjunct clauses in (12).

---

[2] Norwegian differs from Swedish and Danish in that it only disallows argument extraction from V2 clauses involving a fronted non-subject (see 9c), but allows argument extraction from subjectinitial V2 clauses (Hrafnbjargarson et al. 2010).

[3] The MSc. languages have also been reported to be more permissive than other languages with regard to extraction from weak islands such as embedded questions, exemplified in (i) (see Engdahl 1982; Erteschik-Shir 1982; Christensen 2013a,b; Kush et al. 2018).

(i) Ägaren$_i$ vet   jag inte om jag träffat   förut _$_i$.
      owner.the know I   not   if I   met.PTCP before
      'I do not know if I have met the owner before.'
      (Swedish; Thorell 1977: 264)

(10) *Relative clause extraction*

a. [De   blommorna]*ᵢ* känner jag [en man som säljer _ *ᵢ*].
    those flowers   know   I   a   man who   sells
    'I know a man who sells those flowers.'
    (Swedish; Allwood 1982: 24)

b. [Dette biletet]*ᵢ* kjenner eg [den målaren som har måla   _ *ᵢ*].
    that picture   know   I   the painter who has painted
    'I know the painter who has painted this picture.'
    (Norwegian; Faarlund et al. 1997: 1099)

c. Suppe*ᵢ* kender jeg [mange der   kan lide _ *ᵢ*].
    soup   know   I   many   who can like
    'I know many people who like soup.'
    (Danish; Erteschik-Shir 1973: 67)

(11) *Complex NP (complement clause) extraction*

a. Nobelpriset*ᵢ*   hörde jag [ett rykte   att   han hade fått   _ *ᵢ*].
    Nobel Prize.the heard I   a   rumor   that he   had   received
    'I heard a rumor that he had received the Nobel Prize.'
    (Swedish; Anward 1982: 73)

b. [Denne bilen]*ᵢ* har vi hørt [rykter om   at   du skal kjøpe _ *ᵢ*].
    this   car   have we heard rumors about that you will buy
    'We have heard rumors that you are going to buy this car.'
    (Norwegian; Faarlund et al. 1997: 1100)

(12) *Adjunct clause extraction*

a. Sportspegeln*ᵢ*   somnar   jag [om/när jag ser   _ *ᵢ*].
    sports program.the fall.asleep I   if/when I   watch
    'I fall asleep if/when I watch the sports program.'
    (Swedish; Anward 1982: 74)

b. [Såna skyltar]*ᵢ* kan inte polisen   haffa oss [om vi inte lyder _ *ᵢ*].
    such signs   can not police.the   catch us   if   we not obey
    'The police cannot catch us if we do not obey such signs.'
    (Swedish; Teleman et al. 1999: 424)

c. [Den saka]$_i$ ventar vi her [mens de ordnar _$_i$].
   this thing wait   we here while   they fix
   'We are waiting here while they fix this thing.'
   (Norwegian; Faarlund 1992: 117)

d. [Den vase]$_i$ får du ballade [hvis du   taber _$_i$].
   this vase   get you trouble if   you drop
   'You are in trouble if you drop this vase.'
   (Danish; Hansen & Heltoft 2011: 1814)

In contrast to MSc., the Insular Scandinavian languages Icelandic and Faroese do not seem to allow extraction from relative clauses (13) or from adjunct clauses (14).

(13) a. *[Þessi blóm]$_i$ þekki ég [mann, sem selur _$_i$].
          those flowers   know I   a.man who sells
          'I know a man who sells those flowers.'
          (Icelandic; Maling & Zaenen 1982: 232)

    b. *[Húsini   hjá Eivindi]$_i$ er hetta [maðurin, sum keypti _$_i$].
        houses.the at Eivind   is this man.the who bought
        'This is the man who bought Eivind's houses.'
        (Faroese; Thráinsson et al. 2004: 295)

(14) a. *Guðmund$_i$ var ég þar [þegar þú hittir _$_i$].
          Gudmundur was I there when you met
          'I was there when you met Gudmundur.'
          (Icelandic; Thráinsson 1994: 185)

    b. *Bréfið$_i$ var Jón að þvo   gólfið [eftir að   María hafði
        letter.the was John to wash floor.the after that Mary had
        skrifað _$_i$].
        written
        'John was cleaning the floor after Mary had written the letter.'
        (Icelandic; Zaenen 1985: 137)

    c. *Tvøstið$_i$ fari eg, [tá ið Maria hevur etið   upp _$_i$].
        whale.meat.the go I   when Mary has   eaten up
        'I will leave when Mary has finished the whale meat.'
        (Faroese; Thráinsson et al. 2004: 295)

In traditional Swedish grammars, constructions of this type (i.e. constructions where an element has been extracted from a subordinate clause) are often referred to as *satsfläta* 'sentence braid' (e.g. Wellander 1948; Hagström 1967; Wessén 1968; Teleman et al. 1999), referring to the impression that two clauses are intertwined in such structures. In the relevant literature the examples are often accompanied by a remark that these kinds of extractions are rather marginal and associated with colloquial style, although Lindahl (2017) shows that e.g. Swedish relative clause extractions can be found in texts of different genres.

Examples of the kind shown in (10)–(12), apparently violating island constraints such as the Complex NP Constraint and the Adjunct Condition, have posed a puzzle for research on locality since they first attracted attention among linguistic researchers in the 1970s and 1980s. Getting a proper understanding of the apparent variation between MSc. and other languages regarding certain island constraints is considered important because the nature and cause of the variation has implications for theories of island constraints.

In the examples given in (10)–(12), the extracted constituent has been topicalized, but one can easily find MSc. island extractions involving other types of A'-movement such as relativization or cleft formation, see e.g. (15) for a Swedish example.

(15) Det är kanske [den här   låten]$_i$ som han alltid   gråter [när
      it is maybe the here   song   that he always   cries   when
      han sjunger _$_i$].
      he   sings
      'Maybe it is this song that he always cries when he sings [this song].'
      (Swedish; Teleman et al. 1999: 424)

Examples involving *wh*-movement (question formation) from islands in MSc. are harder to come by, but do not seem completely impossible (e.g. Lindahl 2017), see (16) for a Swedish example of question formation out of a relative clause.

(16) [Vem]$_i$ var det   [ingen   som   kände _$_i$]?
      who   was there nobody that   knew
      'There was nobody that knew who?'
      (Swedish; Engdahl 1997: 57)

Lindahl (2017) reports that in her collection of spontaneously uttered relative clause extractions in Swedish, topicalization is the most frequent type of extraction.

Extraction from complex NPs in MSc. has already been investigated thoroughly (Engdahl 1997; Lindahl 2017; Tutunjian et al. 2017; Wiklund et al. 2017), whereas there is currently little research on adjunct island extraction.

3.2 Previous research on island extraction in MSc.

This section presents the accounts that have been offered to characterize and explain the possibility of extraction from adjuncts and other island domains in the MSc. languages, starting with early observations on adjunct clause extraction in prescriptive or descriptive grammars, and continuing with more recent approaches trying to analyze MSc. adjunct clause extraction, or island extractions more generally.

3.2.1   Early observations

Early mentions of adjunct clause extraction can be found in stylistic guides and prescriptive recommendations for language users, where different types of extraction phenomena are discussed together under the above mentioned term *satsfläta* 'sentence braid'. For example, Lindstedt (1926) provides an overview of commonly used extraction types in Swedish to then give stylistic advice on their use. He observes that extraction occurs most commonly from *that*-clauses and indirect questions, but is relatively rare with other clause types such as with adverbial clauses. Nevertheless, some examples of extraction from temporal and conditional clauses are provided, see (17). However, note that in all these examples the adverbial clause is what was described as a selected adverbial clause above, or, as in (17c), is embedded under a psych-predicate and hence has an unclear status in terms of the argument/adjunct distinction.

(17) a. [Brännvin]$_i$ märkte man snart, [när   han hade druckit _$_i$].
        brännvin *noticed one   soon when he   had   drunk*
        'One could tell quickly when he had drunk *brännvin*.'
        (Lindstedt 1926: 8)

    b. [Den hatten]$_i$ skulle jag tycka om, [ifall du   köpte_$_i$].
        that hat   would I like   if   you bought
        'I would like if you bought that hat.'
        (Lindstedt 1926: 8)

    c. [Den boken]$_i$ blev   jag glad [när   jag hade fått   _$_i$].
        this book   became I glad when I   had gotten
        'I got happy when I got this book.'
        (Lindstedt 1926: 8)

Wellander (1948) notes that 'sentence braids' in general are very common in Swedish, especially in spoken language. He provides numerous examples which,

among some cases of extraction from selected adverbial clauses, also include the following extractions from clearly non-selected conditional adjunct clauses.

(18) a. Det är [en fordran]$_i$ som han är dum [om han avstår   från _$_i$].
         this is a request that he is stupid if he refrains from
         'He is stupid if he refrains from this request.'
         (Wellander 1948: 509)

     b. [Den boken]$_i$ dog   Anna [om hon läste _$_i$].
          this book   die.SBJV Anna if she read
         'Anna would die if she read this book.'
         (Wellander 1948: 506)

Both Lindstedt (1926) and Wellander (1948) advise language users to avoid extractions in very formal language, or when such constructions can give rise to misunderstandings, but they also suggest that extractions are not generally to be condemned and that a decision for or against the use of such constructions should be made on a case-to-case basis.

   Further examples and observations on extraction from adjunct clauses can be found in modern descriptive grammars of the MSc. languages. The Swedish reference grammar (Teleman et al. 1999: 424), for example, notes that while subextraction from embedded clauses in general is common in Swedish, extraction from adverbial clauses occurs more marginally than with other clause types. The majority of speakers will according to Teleman et al. (1999) accept extraction from selected adverbial clauses, but reject such extraction if the adverbial clause is not selected and thus clearly an adjunct. However, they note that many speakers accept extraction even from non-selected adverbial clauses, at least in colloquial language, when the adverbial clause is a conditional or a temporal clause with generic meaning, see the examples in (19a–c). As an example of unacceptable extraction, the sentence in (19d) is provided.

(19) a. [Såna skyltar]$_i$ kan inte polisen   haffa oss [om vi inte
          such signs   can not police.the catch us   if we not
         lyder _$_i$].
         obey
         'The police cannot catch us if we do not obey such signs.'
         (Teleman et al. 1999: 424)

b. [Mot   rött ljus]$_i$ är det   väl   ingen   som säger nåt
   against red light is there PRT[4] nobody who says something
   [om   man går   _$_i$].
   if   you   walk
   'There is probably nobody who says something if you run a red light.'
   (Teleman et al. 1999: 424)

c. Det är kanske [den här   låten]$_i$ som han alltid   gråter [när
   it   is maybe the here song   that he always cries   when
   han sjunger _$_i$].
   he   sings
   'Maybe it is this song that he always cries when he sings [this song].'
   (Teleman et al. 1999: 424)

d. *Bilbälte$_i$ skadade han   sig   svårt [fastän   han   hade _$_i$].
   seatbelt   injured he   REFL hard although he   had
   'He was badly injured even though he had a seatbelt.'
   (Teleman et al. 1999: 424)

Similarly, Andersson (1994: 304) notes that "[e]xtraction from adverbial clauses is marginal, but not infrequent" in Swedish, and provides for instance the following example of extraction from a purpose clause.

(20) ?[Den här metoden]$_i$ sände de   mig utomlands [för att   jag
      this here method   sent   they me abraod   for that I
      skulle lära   mig   _$_i$].
      should learn REFL
      'They sent me abroad so that I would learn this method.'
      (Andersson 1994: 304)

The phenomenon has received similar comments in Danish and Norwegian grammars. Hansen & Heltoft (2011: 1814) mention that extraction from non-selected adverbial clauses, exemplified in (21), is rare in Danish.

(21) a. [Den vase]$_i$ får du   ballade [hvis du   taber _$_i$].
         that vase get you trouble if   you drop
         'You are in trouble if you drop this vase.'
         (Danish; Hansen & Heltoft 2011: 1814)

---

[4] PRT = particle

b. [De   sko]$_i$ kan jeg godt vente [mens du   reparerer _$_i$].
   those shoes can I   well wait   while you repair
   'I can easily wait while you repair those shoes.'
   (Danish; Hansen & Heltoft 2011: 1814)

Askedal (1994) writes that extraction can occur from conditional clauses in Norwegian, such as in (22), although such constructions "have a colloquial flavor" (p. 266).

(22) [Den jenta]$_i$ vert   eg sjalu   [dersom du   kysser _$_i$].
     that girl   become I jealous if   you kiss
     'I will become jealous if you kiss that girl.'
     (Norwegian; Askedal 1994: 266)

Faarlund et al. (1997: 1102–1103) observe in their overview of which constructions behave like islands in Norwegian that extraction from adverbial clauses even in spoken language often requires a very specific context. According to Faarlund et al. (1997), adjunct clause extraction is most common with conditional clauses, and yields best results if the adjunct clause can be interpreted as a logical subject or object. For instance, the extraction sentence in (23a) can be paraphrased as *To get such an offer would make me very happy*, and (23b) as *I would laugh at you buying this shirt*.

(23) a. [Eit slikt tilbod]$_i$ ville   eg bli   svært glad [viss eg fekk _$_i$].
        a such offer   would I become very   happy if   I   got
        'I would become very happy if I got such an offer.'
        (Norwegian; Faarlund et al. 1997: 1103)

     b. [Den skjorta]$_i$ ville   jeg le   [hvis du kjöpte   _$_i$].
        that shirt   would I laugh if   you bought
        'I would laugh if you bought that shirt.'
        (Norwegian; Faarlund et al. 1997: 1103)

Adjunct extraction is claimed to be much less acceptable if such a paraphrase is not possible, as in (24).

(24) a. *[Det tilbodet]$_i$ vil eg fortsetje i   den gamle jobben min
        that offer   will I continue in that old   job   mine
        [viss eg ikkje får _$_i$].
        if   I not   get
        'I will continue in my old job if I do not get that offer.'
        (Norwegian; Faarlund et al. 1997: 1103)

b. *Tannverk$_i$ ville jeg le   [hvis jeg ikke hadde _$_i$].
   toothache   would I laugh if   I   not had
   'I would laugh if I did not have toothache.'
   (Norwegian; Faarlund et al. 1997: 1103)

This claim appears to be similar to the hypothesis that extraction is only possible from adverbial clauses that function as an argument on some level, reviewed in Chapter 2. The conclusion there was that not all cases of adverbial clause extraction in MSc. can be reduced to a potential argument status of the clause in case. Also Faarlund et al. (1997) note that their observation seems to be more of a tendency than a rule, since other types of extraction do occur in Norwegian. They give for instance the following examples noted from the radio or spontaneous speech.

(25) a. Det er [et sånt spörsmål]$_i$ man blir sett   litt   rart   på
        it is a such question   one is looked a.little strange at
        [hvis man stiller _$_i$ i dag].
        if   one asks   today
        'You are getting strange looks if you ask such a question today.'
        (Norwegian; Faarlund et al. 1997: 1103)

     b. Der er [det bildet]$_i$ som konen   gråt [når hun
        it is that picture that woman.the cried when she
        fikk se   _$_i$].
        got to.see
        'The woman cried when she got to see that picture.'
        (Norwegian; Faarlund et al. 1997: 1103)

     c. [Kva melodi]$_i$ puttar du bomull i øyra   [når   han
        what melody   put   you cotton in ears.the when he
        spelar _$_i$]?
        plays
        'You are putting cotton in your ears when he plays which melody?'
        (Norwegian; Faarlund et al. 1997: 1103)

Further Norwegian examples of adjunct clause extraction can also be found in Faarlund (1992):

(26) a. [Den saka]$_i$ ventar vi her [mens de   ordnar _$_i$].
        this thing wait   we here while they   fix
        'We are waiting here while they fix this thing.'
        (Norwegian; Faarlund 1992: 117)

b. [Det kravet]$_i$ er han dum [viss han neglisjerer _$_i$].
   that request is he stupid if he denies
   'He is stupid if he denies that request.'
   (Norwegian; Faarlund 1992: 118)

An interesting insight shared by most of the works reviewed in this section is that adjunct clause extraction only seems to be possible under certain conditions. However, the authors do not offer more than just some speculations on what these conditions are. The works quoted so far also do not draw attention to the unexpected cross-linguistic variation that the Scandinavian extraction examples reveal with regard to adjunct island effects. The unexpected behavior of islands in the MSc. languages started to attract international attention among linguistic researchers in the 1970s and 1980s, e.g. through the work of Erteschik-Shir (1973), Maling & Zaenen (1982), and the papers in Engdahl & Ejerhed (1982). However, these works are focused almost entirely on extraction from relative clauses and embedded questions, with almost no mentioning of adjunct clause extraction. As one exception, Anward (1982) notes in an examination of what types of unbounded dependencies are possible in Swedish that extraction from adjunct clauses is "sometimes possible" (p. 74) and provides the following example, which has been mentioned before.

(27) Sportspegeln$_i$ somnar   jag [om/när jag ser   _$_i$].
      sports program.the fall.asleep I   if/when I   watch
      'I fall asleep if/when I watch the sports program.'
      (Swedish; Anward 1982: 74)

The following sections present more recent accounts of MSc. island extractions that try to provide an analysis of the phenomenon. Since most proposals do not address adjunct clause extraction specifically, I will include analyses that try to capture other forms of apparent island violations such as those constituted by relative clause extractions, to explore the applicability of these analyses to adjunct clause extraction.

3.2.2   Pragmatic and semantic accounts

Pragmatic accounts have been suggested both to account for the variable acceptability of different island extractions in MSc. and for the cross-linguistic variation between MSc. and other languages.

   One prominent pragmatic account is Erteschik-Shir's (1972, 1982) proposal that the possibility of extraction is conditioned by pragmatic dominance rather than by a formal syntactic constraint. In detail, Erteschik-Shir suggests that extraction is

only possible from clauses which can be interpreted as dominant in the discourse, i.e. they express what is being asserted in the sentence and represent a possible future topic of conversation (similar to the pragmatic account suggested by Goldberg (2006, 2013), see above). This can according to Erteschik-Shir explain different degrees of acceptability for relative clause extraction and extraction from embedded questions in Danish. For example, relative clause extraction is reported to be possible in Danish in (28a), but not in (28b).

(28) a. Det$_i$ kender jeg mange der kan lide _$_i$.
          that know I   many who can like
          'I know many people who like this.'
          (Erteschik-Shir 1982: 176)

      b. *Det$_i$ er den dreng som Peter kender pigen   der kan lide _$_i$.
          it   is that boy   that Peter knows   girl.the who can like
          'Peter knows the girl who likes that boy.'
          (Erteschik-Shir 1982: 175)

The operational test employed by Erteschik-Shir (1973, 1982) to diagnose whether a constituent is dominant or backgrounded involves testing whether it is possible for a speaker to deny the content of the relevant clause in a discourse. If it is possible to deny for instance a certain relative clause, this is an indicator that this relative clause can be interpreted as dominant and hence should allow extraction according to Erteschik-Shir's proposal. The dialogues in (29)–(30) below demonstrate the results of the dominance test for the English translations of the sentences in (28) (adapted from Erteschik-Shir 1982: 177): The test reveals that it is possible for Speaker B to deny the content of the relative clause in (28a), see (29), but not of the relative clause in (28b), see (30).

(29) Speaker A: I know many people who like that
      Speaker B: That's a lie – nobody likes that.

(30) Speaker A: Peter knows the girl who likes the boy.
      Speaker B: #That's a lie – she doesn't.

According to Erteschik-Shir's criteria, the relative clause in (28a), but not in (28b), can hence be dominant, which explains under this account why extraction is possible in Danish in (28a) but not in (28b).

  A problem with this proposal, pointed out in Heinat & Wiklund (2015) and Lindahl (2017), is that not all relative clause extractions in MSc. fulfill the pragmatic conditions formulated by Erteschik-Shir (1972, 1982), since there are acceptable cases of relative clause extraction in e.g. Swedish where the relative

clause is not dominant according to Erteschik-Shir's test. For example, Heinat & Wiklund (2015: 45) note that relative clause extraction is possible in Swedish in (31) even though the relative clause in this example (*dom som utvecklade den teorin* 'the guys that developed this theory') cannot be interpreted as pragmatically dominant according to Erteschik-Shir's criteria, as the results of the dominance test in (32) reveal.

(31) [Den teorin]$_i$ känner jag dom som utvecklade _ $_i$.
       this theory.the   know   I   them that developed
       'I know the guys that developed this theory.'

(32) Speaker A: Jag känner dom som   utvecklade den teorin.
                    I   know   them that developed   this theory.the
                    'I know the guys that developed this theory.'

       Speaker B: #Nej, det   gjorde dom   inte.
                     no, that   did   they not
                     'No, they didn't.'

Moreover, Lindahl (2017) observes that there are some irreducibly syntactic restrictions on relative clause extraction in Swedish, such as complementizer-trace effects restricting extraction of subjects from relative clauses, and that a purely pragmatic or discourse-structural account of extractions can hence not handle the full range of data when it comes to relative clause extractions.

   Applying Erteschik-Shir's dominance test to adjunct clause constructions does not render as clear results as with the relative clauses above, as it seems to be difficult to judge whether the content of a given adjunct clause can be felicitously denied or not. In the case of the acceptable extraction sentence in (33), the dominance test seems to indicate to that it may be marginally possible to deny the content of the adjunct clause in the non-extracted version of this sentence, see (34). Since there seems to be some residual pragmatic oddness about this sentence, the judgment should be treated with care. But to the extent that (34) shows that a speaker can indeed deny the content of this adjunct clause, the clause can be classified as dominant according to Erteschik-Shir's criteria, and the possibility of extraction in (33) is thus predicted under her pragmatic account of extractions.

(33) Det är kanske [den här   låten]$_i$ som han alltid   gråter [när
      it   is maybe the here   song   that he   always   cries   when
      han sjunger _ $_i$].
      he   sings
      'Maybe it is this song that he always cries when he sings [this song].'
      (Teleman et al. 1999: 424)

(34) Speaker A: Han gråter alltid   när   han sjunger den låten.
                  he   cries   always when he   sing   this song
                  'He always cries when he sings this song'

      Speaker B: ? Det stämmer inte, han sjunger aldrig den här låten.
                  'That's not right, he never sings this song.'

However, applying the dominance test to a case where adjunct clause extraction is reported to be unacceptable (35) renders a similar result: It seems to be marginally possible to deny the adjunct clause in (35) in a discourse, see (36). Again, the judgments are subtle, but it seems that at least the possibility to deny this clause is not worse than the possibility to deny the clause in (34) above, thus indicating that both of these clauses could be pragmatically dominant to the same degree. Nevertheless, these adjunct clauses appear to differ with regard to extraction possibilities: Extraction is reported to be possible from the temporal clause in (33), but not from the concessive clause in (35).

(35) *Bilbälte$_i$ skadade han   sig   svårt [fastän   han   hade _$_i$].
      seatbelt injured he   REFL hard although he   had
       'He was badly injured even though he had a seatbelt.'
       (Teleman et al. 1999: 424)

(36) Speaker A: Han skadade sig   svårt fastän   han hade bilbälte.
                  he   injured REFL hard   although he   had seatbelt
                  'He was badly injured even though he had a seatbelt.'

      Speaker B: ?Det stämmer inte, han var faktiskt utan bilbälte.
                   'That's not right, actually he was not wearing a seatbelt.'

As far as the judgments provided here indeed reflect the dominance status of the adjunct clauses under examination, these data thus seem to indicate that Erteschik-Shir's dominance condition cannot correctly discriminate between acceptable and unacceptable cases of relative clause or adjunct clause extraction in Swedish.

  A further problem of Erteschik-Shir's proposal is that it leaves the variation between MSc. and e.g. English regarding extraction possibilities unexplained, since extraction from relative clauses and adjunct clauses is still not possible in English even if the clause in question is interpreted as pragmatically dominant. For example, extraction from the dominant relative clause in (28a) may be possible in Danish and the other MSc. languages, but is still not possible in English (cf. Erteschik-Shir 1982; Lindahl 2017: 154, fn. 6). To explain this difference, Erteschik-Shir (1982) refers to the observation that topicalization is used much less frequently in English than in Danish, and vaguely suggests that this has led to

the grammaticalization of a constraint generally banning extraction from relative clauses in English. In a similar manner, Engdahl (1997) suggests that what distinguishes MSc. from other languages such as English, German, or Dutch, which do not allow island extraction easily, is that topic fronting – including topic fronting out of embedded clauses – is in general a relatively preferred strategy to organize discourse in the MSc. languages. Moreover, both contrastive and continuous topics are very easily fronted in the MSc. languages, which stands in contrast to other languages where fronting of continuous topics is much more restricted. Engdahl suggests that this difference is responsible for the possibility to extract from a wider range of clauses, including from adjunct clauses, in the MSc. languages.

However, it is doubtful whether such pragmatic considerations alone can explain the apparent variation regarding adjunct island effects between e.g. Swedish and English: As the investigations in the following chapters will reveal, a potentially important point of variation between adjunct islands in Swedish and English is finiteness, making it thus unlikely that cross-linguistic variation in adjunct island effects can be explained entirely in terms of pragmatic differences or different discourse strategies in languages.

The notion of pragmatic dominance thus does not seem to make the right cut between acceptable and unacceptable island extractions in MSc., nor can it account for cross-linguistic variability in adjunct islands. However, it is possible that other pragmatic or semantic factors can explain at least some of the acceptability contrasts between different cases of adjunct clause extraction in MSc. In an investigation of pragmatic conditions for successful extraction from relative clauses in MSc., Engdahl (1997) observes that naturally occurring examples of relative clause extraction often involve presentational or cleft constructions. When this is not the case, relative clause extraction often occurs from NPs that are complements to verbs like *känna* 'know' or *se* 'see'. Engdahl suggests, based on an observation by Allwood (1982), that what these verbs have in common is that they "designate relations both to singular objects and to state of affairs" (p. 67). This in turn is crucial for the fulfillment of one important condition for extraction, viz. that the sentence minus the extracted constituent is "[…] interpreted as a coherent and relevant comment on the fronted constituent in the utterance context" (p. 75). She furthermore conjectures that "the same factors are responsible for distinguishing natural, coherent extractions out of adverbial clauses from illformed ones" (Engdahl 1997: 74). Unfortunately, it is not clear how the notion of coherence that Engdahl invokes is operationalized, or how it can be determined whether an utterance is coherent in the relevant sense or not, and it is thus difficult to test this approach.

A very similar concept, viz. *cohesion*, is invoked by Jensen (1998, 2001) to account for successful and ill-formed instances of adjunct clause extraction in Danish. Jensen argues that extraction from adverbial clauses in Danish is tied to

the condition that the adverbial clause is a manner or instrumental adverbial (37a), a purpose clause (37b), or describes a cause for a psychological or physical state expressed in the matrix clause (37c).

(37) a. [Den hæk]$_i$ får i mere lys i haven   [ved at klippe _$_i$].
        this hedge get you more light in garden.the by to cut
        'You get more light in the garden by cutting this hedge.'
        (Jensen 1998: 17)

     b. det$_i$ tog   jeg ned   til Køge [for at lære _$_i$].
        that went   I   down to Køge for to learn
        'I went down to Køge in order to learn this.'
        (Jensen 2001: 2)

     c. Det$_i$ blev   hun smaddersur [fordi   jeg sagde_$_i$].
        that became she very.mad   because I   said
        'She became very angry because I said that.'
        (Jensen 1998: 17)

What these cases share according to Jensen (1998) is that the content of the adjunct and of the matrix clause are related by a high degree of semantic cohesion, defined after Van Valin and LaPolla (1997: 478) as "[…] the extent to which a given construction expresses facets of a single event, action or state of affairs or discrete events, actions, or states of affairs".

Jensen (1998: 17) argues that the following extractions in Danish are not acceptable because the matrix predicate does not describe a physical or psychological condition:

(38) a. *[Den artikel]$_i$ gik hun [da   hun havde skrevet _$_i$].
        that article left she when she had   written
        'She left when she had written this article.'
        (Jensen 1998: 17)

     b. *[Den fest]$_i$ købte   hun stort ind [fordi   hun skulle
        that party bought she in bulk   because she wanted
        fejre   _$_i$].
        to.celebrate
        'She bought in bulk because she wanted to have that party.'
        (Jensen 1998: 17)

c. *[Det vindue]$_i$ går jeg ud [hvis du åbner _$_i$].
  that window go I out if you open
  'I leave if you open that window.'
  (Jensen 1998: 17)

Moreover, Jensen (1998: 18) claims that extraction is not possible if the adjunct clause is a concessive (39a) or describes an accomplishment (39b).

(39) a. *[Den store stråhat]$_i$ blev hun solskoldet [selv om
     the big straw.hat got she sunburned even though
     hun bar _$_i$].
     she wore
     'She got sunburned even though she wore the big straw hat.'
     (Jensen 1998: 18)

   b. *Det$_i$ rejste hun hovedgærdet [så han bedre ku' se _$_i$].
     that lifted she headboard.the so he better could see
     'She lifted the headboard so that he could better see that.'
     (Jensen 1998: 18)

Poulsen (2008) has tested the prediction that cohesion, as defined in Jensen (1998, 2001), facilitates adjunct clause extraction in Danish. To this end, Poulsen investigates extraction in the form of topicalization from adjunct clauses in Danish in two experiments using controlled acceptability judgment and reading-time measures. In his first experiment, Poulsen compares extracted and non-extracted versions of conditional adjunct clauses and complement clauses in Danish in terms of acceptability ratings and self-paced reading measures. He finds that extraction from the conditional adjuncts is rated significantly lower than extraction from the (non-island) complement clauses. Moreover, an interaction between the factors extraction and clause type indicates that the difference must be derived from the effect that extraction has on acceptability, rather than from the overall felicity of the adverbial clauses. Results from a self-paced reading study of the same sentences indicate prolonged reading times already at the subordinator in sentences involving extraction from adjunct clauses, compared to sentences involving complement clause extraction, thus pointing to processing difficulties already at the point where the parser enters the adjunct clause.

In a second experiment, Poulsen (2008) tests again the acceptability and processing of sentences involving extraction from conditional adjunct clauses, compared to the non-extracted versions of those sentences, but now also manipulates cohesion to investigate if cohesion can account for some of the variability reported in ratings for extraction from adverbial clauses. To test the effect of cohesion on extraction, Poulsen constructs sentences involving adverbial

clauses where the matrix predicate describes a physical or psychological state (according to Jensen a crucial condition for successful extraction from cohesive clauses), and where the adverbial clause can either very easily be interpreted as describing a reason for the state (cohesive, 40a), or not (incohesive, 40b), the assumption being that "cause and effect are aspects of the same complex event, and thus semantically cohesive" (p. 88).

(40) Example stimuli from Experiment 2 in Poulsen's (2008) study

a. cohesive
[Den whisky]$_i$ bliver   hun fuld   hvis hun bæller $\_i$ inden   fodboldkampen.
that whisky becomes she drunk if   she chugs   before soccer.game.the
'She will get drunk if she chugs that whisky before the soccer game.'

b. incohesive
[Den kam]$_i$ bliver   hun fuld   hvis hun taber $\_i$ inden   fodboldkampen.
that comb becomes she drunk if   she drops   before soccer.game.the
'She will get drunk if she drops that comb before the soccer game.'
(Poulsen 2008: 89)

The results showed an interaction between the factors cohesion and extraction which took the reverse direction from what was expected: Cohesion was found to make a bigger difference in the non-extracted than in the extracted conditions. Poulsen takes this to be a floor effect, indicating that extraction from adverbial clauses in Danish is judged bad across the board, with cohesion not being able to make a difference. Moreover, he finds that even within the cohesive conditions, extraction caused a dramatic drop of mean acceptability ratings.

A self-paced reading experiment of the same stimuli showed again that reading times were slowed down already at the subordinator in the extraction conditions. Moreover, cohesion was found to facilitate processing in the adverbial clause; however, this effect could be observed equally in the extracted as well as in the non-extracted conditions.

Poulsen concludes that cohesion, or at least semantic plausibility, does influence the acceptability and processing of sentences, such that sentences lacking a cohesive relation obtain low ratings and are processed with more difficulty. However, this effect seems to apply just as much to the non-extracted as to the extracted versions of the sentences in Poulsen's study and hence does not support the hypothesis that cohesion has a specific effect on extraction (as suggested by Jensen). Rather, cohesion merely seems to affect the overall plausibility and naturalness of a sentence. In light of the finding that extraction from adverbial clauses was rated near the bottom of the scale and associated with a processing cost across the conditions, i.e. even in semantically cohesive sentences, Poulsen

argues that his results make it difficult to maintain the hypothesis that cohesion makes adjunct clause extraction acceptable. The examples of adjunct clause extraction reported as acceptable in Jensen should instead be considered as speech errors or idiosyncratic anomalies according to Poulsen (2008: 98).

It should be noted that one can only draw limited conclusions from this study with regard to the effect of cohesion on extraction, due to the design of the tested sentences: For the incohesive conditions, Poulsen constructs sentences where the event expressed in the adjunct clause, e.g. dropping a comb in (40b), cannot easily be interpreted as a cause for the state expressed in the matrix clause, 'get drunk' in this sentence. However, the incohesive sentences in this design thus become overall pragmatically odd to the extent that they are infelicitous regardless of the extraction, a fact also noted by Poulsen (2008: 96) himself. That is, already the non-extracted incohesive sentences, such as the English translation of (40b), are intuitively unacceptable to begin with as there is no plausible context in which a sentence like this could be uttered, and thus one would not expect the extracted version to be any better. Presumably, some level of cohesion has to hold between the clauses in a sentence for the utterance to be felicitous. The experiment can hence not be assumed to measure the effect that cohesion has on extraction specifically, a state of affairs reflected in the results which were merely indicating an overall effect of cohesion on the felicity of the sentences. Further research is thus needed. In the next chapter, it will be investigated whether semantic coherence, a concept closely related to cohesion, plays a role in the acceptability of sentences involving extraction from adjunct clauses in Swedish.

3.2.3   A CP recursion analysis

While pragmatic factors may play a role for the relative acceptability of island extractions, it was mentioned that a pragmatic account is unlikely to capture the cross-linguistic variation in island effects between MSc. and other languages. Nyvad et al. (2017) therefore suggest a structural account of this variation. In detail, Nyvad et al. argue that different cases of island extraction in MSc., including extraction from relative clauses, adjunct clauses, and *wh*-islands, can be accounted for in a unified manner with a particular instantiation of a CP recursion analysis, which they also suggest to derive embedded V2 clauses and complementizer stacking (see also Vikner 2017 and Lindahl 2017). Nyvad et al. base their analysis on the phase-theoretic assumption that extraction from an embedded phase such as CP has to proceed successive-cyclically through an escape hatch created in the specifier position of the relevant phase head, in this case Spec,CP. Islands emerge according to this approach when such a specifier position is not available, or is occupied by another element. Nyvad et al. provide an analysis of embedded clauses according to which the highest layer of an

embedded clause is a *c*P, i.e. a CP headed by a non-lexical element (reminiscent of the function of *v*P in the VP-domain). Extraction, embedded V2 structures, and complementizer stacking require this embedded *c*P to be recursive. CP recursion, in turn, comes in two guises: one where *c* selects another *c*P, and one where *c* selects a CP. The latter type is reserved for embedded V2 structures and involves verb movement to C, whereas recursion involving *c*P is the structure required for complementizer stacking as well as extraction from subordinate clauses. Extraction from embedded clauses (including from relative clauses, *wh*-clauses, and adjunct clauses) is made possible according to this account by *c*P recursion since the higher of the *c* heads carries an edge feature which can trigger movement of an XP within its phase; moreover, this *c* head provides an extra specifier and hence escape hatch for the extracted element, see (41).[5]

(41)
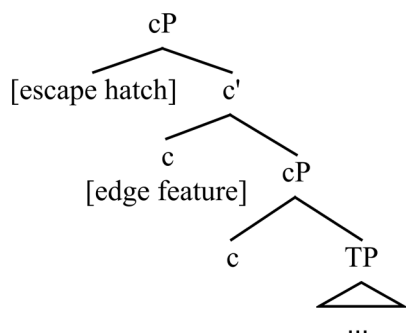
That is, the object of an adjunct clause for instance can in this model be attracted to Spec,*c*P by the edge feature of the phase head *c* and can from there move on to the CP domain of the superordinate clause to yield an adjunct clause extraction. The exceptional possibility exhibited in MSc. to extract from a number of clauses traditionally considered islands can thus be explained with the option to have *c*P/CP recursion.[6] To explain why other languages seem to differ from MSc. in that regard, Nyvad et al. (2017) have to assume that the availability of *c*P/CP recursion is subject to parametric variation and is not available in other languages that do not allow extraction as freely. Nyvad et al. speculate that *c*P/CP recursion

---

[5] Although this is not made explicit by Nyvad et al. (2017), note that the account hinges on the assumption that only the topmost *c*P counts as a phase, and that the account thus requires a dynamic notion of phasehood as introduced in Bobaljik & Wurmbrand (2005), den Dikken (2007), or Gallego (2010) (see Kush et al. 2018 for a similar comment).

[6] Degraded examples of relative clause or adjunct clause extraction in MSc. are a consequence of extrasyntactic performance factors according to Nyvad et al. (2017), as already suggested in Christensen et al. (2013a,b) and Christensen & Nyvad (2014).

is computationally very costly and is therefore not often employed by the grammars of languages. As pointed out in Christensen & Nyvad (2014), this account is compatible with the assumption that the locality constraints responsible for syntactic islands are universal, as the exceptionality of MSc. can be blamed on the independent availability of recursive CP-structures in these languages.

Nyvad et al. argue that their analysis of MSc. island extractions in terms of CP recursion does not exhibit the overgeneration problem associated with standard phase-theoretic approaches to extraction (involving the assumption of a generic edge feature together with the general availability of multiple specifiers), as CP recursion is more restricted than a multiple-specifier approach. Firstly, the CP involved in embedded V2 structures is assumed to constitute a phase too; however, C does not have an edge feature at its disposal to trigger movement and create an extra specifier. In addition, a *c*P with the edge feature necessary for extraction does not seem to be possible above this CP, accounting for the fact that embedded V2 clauses are islands for extraction in Scandinavian according to Nyvad et al. (2017) (see also Vikner 2017). Secondly, CP recursion differs from analyses involving multiple specifiers in that the additional *c*P layer only provides one additional specifier and hence only one escape hatch for extraction.

However, the presence of cross-linguistic variation remains a challenge for this account, as Nyvad et al. essentially have to leave open why some languages have access to a recursive CP structure that enables extraction and other languages do not (a challenge also mentioned by Lindahl 2017: 241–242). Moreover, the attested possibility of multiple extraction from e.g. relative clauses in Swedish (Engdahl 1982; Lindahl 2017) presents a challenge to the assumption that extraction depends on the presence of a phase edge providing a single specifier (however, see Lindahl 2017: 230–234 for an attempt to address this problem).

3.2.4   Weak islands

The CP recursion analysis developed in Nyvad et al. (2017) is also adapted by Lindahl (2017) to account for the possibility to extract from relative clauses in Swedish, however, with an additional suggestion. In her investigation of syntactic as well as discourse and pragmatic conditions on relative clause extraction, Lindahl (2017) discovers that Swedish relative clauses do put some constraints on the nature of the extracted element: some sorts of phrases, e.g. certain adjuncts and certain *wh*-phrases in question formation are more difficult to extract than others. Based on this observation, Lindahl argues that Swedish relative clauses behave like a species of weak islands. Lindahl takes the CP recursion analysis developed in Nyvad et al. (2017) to account for the overall possibility to extract from relative clauses in Swedish, but suggests that the weak island effects observed in Swedish are due to pragmatic or semantic factors. A weak island analysis of Swedish

relative clauses is also adapted by Tutunjian et al. (2017) to explain their finding that Swedish relative clause extractions pattern in-between extraction from non-islands and extraction from uncontroversial strong islands in eyetracking measures. Tutunjian et al. point out that such a weak island account is compatible with the universality of the complex NP constraint, since languages like Swedish and English in that case only differ in whether relative clauses are weak or strong islands. Variation must then be located in the features or structure of the relative clause.

Lindahl's proposal raises the question whether a weak island analysis can also be adopted for adjunct clause extractions in Swedish or other MSc. languages. A potential indicator of a weak island status of adjunct clauses in MSc. is that the literature on the topic often mentions that extraction from adjunct clauses is only possible in some but not all cases, a typical behavior of weak islands. As mentioned above, Faarlund et al. (1997: 1102–1103) observe that adjunct clause extraction in Norwegian often requires a very specific context, another typical indicator of weak islandhood. However, more investigation is needed. The possibility of a weak island analysis of adjunct clauses in Swedish in light of my data is further discussed in Chapter 7.

3.2.5 Differences across subordinators

Bondevik (2018) investigates more rigorously the question whether or not different adjunct clauses in Norwegian induce island effects as defined via a formal measure of islandhood. To be specific, Bondevik employs the factorial design developed by Sprouse (2007) and Sprouse et al. (2012, 2016), in which island effects are measured by factoring out the influence of two important processing factors on acceptability: the presence of a long-distance dependency, and the presence of an island configuration. Island effects are in this design identified as significant interactions between the two factors mentioned above, which create a superadditive effect, i.e. an effect on acceptability that cannot be explained by the linearly additive effects of the processing costs imposed by the long-distance extraction and the island structure. Bondevik (2018) uses the factorial design to investigate whether topicalization from adjunct clauses introduced by *fordi* 'because', *når* 'when', and *om* 'if' in Norwegian induces superadditive island effects.

Her results indicate statistically significant superadditivity effects (taken to be diagnostic of island effects in the above described factorial design) for all three tested types of adjunct clause extraction; however, the size of the effect was found to differ between the three clause types: Extraction from *om*-clauses yielded a smaller island effect than extraction from *når*-clauses, which in turn yielded a smaller island effect than extraction from *fordi*-clauses. Moreover, extraction from

the different types of adjunct clauses yielded significantly different average *z*-score ratings: While the average *z*-score for extraction from *fordi*-clauses remained below zero, the *z*-scores for extraction from *om*- and *når*-clauses were above zero and thus in the range of ratings that is normally reserved for clearly acceptable sentences.[7] Bondevik's results for *om*- and *når*-clauses thus present an inconsistency between significant superadditivity effects (indicating an island effect) and positive *z*-score ratings (suggesting that the structure in question is acceptable to most speakers), a phenomenon that has been described as *subliminal island effects* in the literature (Almeida 2014). Bondevik (2018) takes these results to indicate that, despite the superadditive interaction effects, at least *om*-clauses are not perceived as islands by many speakers.

Overall, Bondevik concludes from her results that different types of adjunct clauses, or adjunct clauses introduced by different subordinators, should not be treated as a homogenous class in relation to island effects, but that the question whether or not adjunct clauses in a language conform to the Adjunct Condition needs to be investigated for each type of adjunct clause individually. Specifically, her results seem to implicate that at least some types of adjunct clauses in Norwegian, viz. *fordi*-clauses, conform to the expected universality of adjunct island constraints in the sense that extraction from them induces superadditive island effects and yields average *z*-score ratings below zero. Conditional *om*-clauses, by contrast, are argued not to be islands for topicalization for many speakers in Norwegian by Bondevik, based on the relatively high ratings and the small size of the superadditivity effect that topicalization from them yielded in her study. In that, they appear to differ from conditional *if*-clauses in English, which have been shown to induce comparatively large superadditivity effects and negative *z*-score ratings at least for *wh*-extraction by Sprouse et al. (2016). Bondevik speculates that the universal validity of the constraint underlying the Adjunct Condition could nevertheless be maintained if it is stipulated that the clauses that behave exceptionally (*om*-clauses in Norwegian) are somehow not covered by the relevant constraint, for instance, if it is assumed that they are 'properly governed' (in contrast to other adjunct clauses, e.g. *if*-clauses in English) and thus do not violate Huang's CED. However, she acknowledges that such an account would be based on a mere stipulation.

The observation that adjunct clauses may differ with regard to extraction possibilities appears to be relevant, however, in light of other observations in the literature that adjunct clause extraction in MSc. is not unrestricted but appears to be subject to certain conditions. Chapter 4 will investigate the acceptability of

---

[7] Bondevik's results for *om*- and *når*-clauses resemble those of Kush et al. (2018) for *wh*-extraction from *whether*-islands in Norwegian, which were also found to induce smaller superadditive island effects than more uncontroversial island violations and to yield positive average *z*-score ratings. Similar to Kush et al.'s (2018) finding for *whether*-island extraction, Bondevik (2018) finds some of her average acceptability ratings to be the result of inter-speaker-variation.

adjunct clause extraction in Swedish taking into account a range of different types of adjunct clauses.

3.3 Genuine extractions?

Some suggestions have been made that the MSc. cases only apparently violate island constraints, but have underlyingly an alternative structure that does not actually involve extraction from an island. In this case they would clearly be instances of *surface variation* (compatible with the universality of island constraints), rather than *deep variation* in island constraints, i.e. variation in the island constraints themselves (see Phillips 2013a for the distinction).

For example, one could suppose that the topicalized element in Scandinavian extractions is not actually moved from the subordinate clause, but rather base-generated in the matrix clause and binds a resumptive pronoun without phonetic content in the gap position, as has been suggested by Cinque (1990) to account for some apparent adjunct island and complex NP extractions. However, Engdahl (1997) shows that an analysis of e.g. relative clause extraction in Swedish in terms of an empty resumptive pronoun strategy cannot be on the right track, because Swedish does not otherwise allow empty pronouns, and because relative clause extraction is ungrammatical with an overt resumptive pronoun:

(42) *De   blommorna$_i$ känner jag en man som säljer dem$_i$.
       those flowers   know   I   a   man that sells them

Relatedly, a left dislocation analysis of the extracted element can be ruled out because left dislocation does not trigger V2 in MSc., and all reported cases of relative clause extraction in MSc. display V2 word order in the matrix clause. Lindahl (2014, 2017) provides further evidence that relative clause extractions in Swedish cannot plausibly be analyzed in terms of Cinque's empty pronoun strategy, based on the observation that not just phrases of the category NP, but also APs and PPs (for which there is no evidence of a silent pro-form) can be extracted from relative clauses.

The same counterarguments as put forward in Engdahl (1997) and Lindahl (2014, 2017) against an empty resumptive pronoun analysis of Swedish relative clause extractions can also be applied to the case of adjunct clause extraction in Swedish: Adjunct clause extraction occurs with V2 word order in the matrix, cf. examples (12) in the beginning of this chapter, hence ruling out a left dislocation analysis. Similar to relative clause extraction, extraction from adjunct clauses is also degraded with a resumptive pronoun in the gap position, although the contrast to a version with gap is less strong than it is for relative clause extraction:

(43) ?[Den boken]$_i$ skulle Eva dö [om hon läste den$_i$].
   this book   would Eva die if   she read it
   'Eva would die if she read that book.'

Moreover, examples such as (44) suggests that not just NPs can be extracted from adjunct clauses in Swedish or Danish, but also categories that do not have silent pro-forms (in these cases a PP), contrary to what would be predicted by an empty resumptive pronoun account.

(44) a. [Mot   rött ljus]$_i$ är det   väl ingen   som säger nåt
      against red light is there PRT nobody who says   something
      [om   man går _$_i$].
      if   you walk
      'There is probably nobody who says something if you run a red light.'
      (Teleman et al. 1999: 424)

   b. [Om   netop det emne]$_i$ bliver   han panikslagen [hvis du
      about just this topic   becomes   he panic-struck if   you
      udtaler dig _$_i$].
      talk   REFL
      'He gets panic-struck if you make a statement on just this topic.'
      (Jensen 1998: 20)

In sum, analyses suggesting that the Scandinavian cases do not genuinely involve extraction do not hold up on scrutiny, and cannot plausibly be applied to adjunct clause extraction in MSc. either. The apparent variation between languages in this regard thus remains to be explained.

3.4 Summary

The apparent possibility of island extraction in the MSc. languages has attracted considerable attention in the syntactic literature. Despite efforts to provide an account for the possibility to extract from certain strong islands such as complex NP islands or adjunct clauses, there is no agreement on how to analyze the apparent Scandinavian island violations, and the source of cross-linguistic variation in this regard is still unclear.

Most of the previous research has focused on the possibility of relative clause extraction in these languages, with little attention on extraction from adjunct clauses. My investigations in the upcoming chapters intend to contribute to an

increased understanding of this understudied type of island extraction. While little is known on adjunct clause extraction in MSc., one observation commonly made in the literature is that the felicity of adjunct clause extraction in these languages appears to be subject to certain conditions, since extraction is considerably more acceptable in some cases than in others. This raises the question what these conditions are. The next chapter investigates whether some of the factors introduced in Chapter 2 as conditions on adjunct clause extraction may be responsible for variable acceptability in adjunct island extraction in Swedish.

4 An acceptability judgment study for Swedish[8]

Based on examples such as (1), Swedish and the other MSc. languages have been claimed to permit extraction from adjunct clauses, thereby apparently violating the Adjunct Condition.

(1) Sportspegeln$_i$ somnar jag [om/när jag ser _$_i$].
 sports program.the fall.asleep I if/when I watch
 'I fall asleep if/when I watch the sports program.'
 (Swedish; Anward 1982: 74)

However, the extractions do appear to be subject to certain restrictions. The Swedish reference grammar (Teleman et al. 1999), for instance, marks the example in (2) as ungrammatical. This raises the question: Under which conditions is extraction from adjunct clauses possible in the MSc. languages?

(2) *Bilbälte$_i$ skadade han sig svårt [fastän han hade _$_i$].
 seatbelt injured he REFL hard although he had
 'He was badly injured even though he had a seatbelt.'
 (Swedish; Teleman et al. 1999: 424)

This chapter investigates whether three of the four conditions that have been shown to constrain the possibility to extract from adjuncts in English (reviewed in Chapter 2) also constrain extraction from adjunct clauses in Swedish, thereby accounting for potential restrictions on such extraction: (i) the semantic relation and the corresponding degree of coherence between the adjunct and matrix clause event, (ii) the degree of syntactic integration of the adjunct clause, and (iii) the grammatical function of the extracted element (arguments vs. adjuncts). A fourth factor reported to restrict adjunct clause extraction in English is finiteness of the adjunct clause; however, based on initial observations suggesting that the acceptability of Swedish adjunct clause extraction is not sensitive to the finiteness

---

factor, only finite adjunct clause extraction is tested in this chapter, and a more detailed investigation of the role of the finiteness factor in Swedish deferred to Chapter 5. The predictions concerning the impact of the other three factors on extraction possibilities are presented in Section 4.1. The impact of these factors on extraction sentences is investigated by means of an acceptability judgment study for Swedish, the method of which is presented in Section 4.2, and the results of which are presented in Section 4.3. In Section 4.4, possible explanations for the found effects are discussed. Section 4.5 summarizes the chapter and points out implications of the findings. In particular, the results suggest that Swedish (and possibly also the other MSc. languages) still stands out from a cross-linguistic perspective, in allowing extraction from (at least a subset of) finite adjunct clauses. This is considered to be impossible in other languages, e.g. in English.

4.1 Predictions

In Chapter 2.4, we saw that argument extraction from adjunct clauses has been reported to be possible also in English, provided that specific conditions are fulfilled. First, research by Truswell (2007, 2011) shows that extraction from adjuncts is acceptable in English provided that the adjunct clause is non-finite and describes an event that is coherently related to the matrix clause event. Second, observations by Haegeman (2004, 2012) suggest that adjunct clause extraction, to the extent that it is possible in a language, is expected to be restricted to central adverbial clauses, since peripheral clauses presumably are not sufficiently syntactically integrated with the host clause (in terms of their attachment height and/or internal complexity) and hence too independent from it to allow subextraction. This is in line with the observation that extraction from CACs is sometimes reported to be acceptable for a few speakers of English, whereas extraction from PACs is unattested and leads to a considerably stronger degradation in constructed examples. Third, observations by Tanaka (2015) indicate that only extraction of arguments, but not of adjuncts is possible from adjunct clauses in English under the above named conditions (suggestive of weak island status of such adjunct clauses).

Initial observations suggest that at least some of these factors might play a similar role in extraction from adjunct clauses in the MSc. languages. First, most of the extraction examples reported in the literature involve extraction from purpose clauses, conditional clauses, or temporal clauses, which are adverbial types that have the potential to fulfill the coherence requirements formulated by Truswell (2007, 2011). The review of previous analyses of MSc. extraction phenomena given in Chapter 3 revealed moreover that several authors report intuitions according to which sentence coherence, in some sense, is relevant for

the possibility of extraction from syntactic islands in the MSc. languages (e.g. Engdahl 1997; Jensen 1998, 2001). Poulsen (2008) has investigated experimentally whether cohesion, a concept related to coherence, facilitates adjunct clause extraction in Danish, and concludes that his results only support an effect of cohesion on the overall plausibility and naturalness of a sentence, but not a facilitative effect of cohesion on extraction. However, as pointed out in Chapter 3, Poulsen's design was not apt to measure any potential effects of cohesion on extraction specifically, since already the non-extracted incohesive sentences in his study were pragmatically odd and therefore intuitively unacceptable.

Second, a constraint on extraction from peripheral clauses could for instance be responsible for the unacceptability of the Swedish example reported in (2), repeated below as (3), since extraction in this case is from a concessive clause which is a PAC according to Haegeman (see Table 2.1).

(3)   *Bilbälte$_i$ skadade han sig svårt [fastän han hade _$_i$].
         seatbelt injured   he   REFL hard although he   had
         'He was badly injured even though he had a seatbelt.'
         (Teleman et al. 1999: 424)

Also Jensen (1998: 18) claims that adjunct clause extraction in Danish is not possible if the adjunct clause is a concessive or a result clause. Both of these clause types are PACs in Haegeman's classification.

Finally, considering the selectivity in the island status of Swedish adjunct clauses displayed in the preliminary data that were discussed so far, there is reason to assume that adjuncts in Swedish behave like weak islands, permitting extraction in some, but not all cases. If adjunct clauses in Swedish indeed have the status of weak islands, extraction of adjuncts is expected to lead to a stronger degradation than extraction of arguments, similar to the situation reported for English in Tanaka (2015).

Crucially, one constraint on adjunct extraction that has been assumed to hold uniformly, regardless of e.g. the interpretation of the adjunct, is that extraction from *finite* adjuncts is generally ungrammatical (Manzini 1992; Truswell 2007, 2011). The impossibility to extract from tensed, finite adjunct clauses in English is illustrated again below (examples from Truswell 2007: 166–167).

(4)   a.   *Who$_i$ did John go home [after he talked to _$_i$]?
       b.   *What$_i$ is John talking to Mary [so that she will understand _$_i$]?

By contrast, extraction from finite adjuncts appears to be possible in Swedish and the other MSc. languages, see the example in (1) above and the other MSc. extraction examples reported in Chapter 3.

One possibility is that although Swedish is more permissive with regard to extraction from finite adjuncts, these extractions are still subject to the semantic requirements formulated by Truswell as well as to the constraint on extraction from PACs and to the argument/adjunct asymmetry in extraction, as the observations mentioned above suggest. In that case, the accounts by Truswell (2007, 2011), Haegeman (2004, 2012), and Tanaka (2015) create the following three predictions for Swedish:

- The acceptability of adjunct clause extraction sentences should improve if the matrix and adjunct clause event can be interpreted as coherently related.
- Sentences involving extraction from CACs should be more acceptable than sentences involving extraction from PACs.
- Extraction of arguments from adjunct clauses should be more acceptable than extraction of adjunct constituents.

These predictions are tested for finite adjunct clauses in Swedish in the study described below.

4.2 Method

The impact of the above described factors on extraction sentences was tested by means of an acceptability judgment study for Swedish which could be described as semi-formal. The study was carried out as a written survey that contained constructed sentences in which a phrase had been subextracted from an adjunct clause. All sentences were judged to be acceptable in their non-extracted form by a Swedish native speaker, thus avoiding that for instance the non-coherent sentences in the survey described completely implausible scenarios regardless of the extraction, which was pointed out as a problem in Poulsen's (2008) study of cohesion effects.

In order to avoid potential floor effects for reasons independent of the factors manipulated, extraction was tested in the form of topicalization rather than question formation. Topic fronting has been reported to be easier than question formation out of island domains in several works on the Scandinavian languages (see Maling 1978; Lie 1982; Engdahl 1997; Teleman et al. 1999: 424) and all examples of good extractions therefore involve topic fronting from the adjunct clause. Lindahl (2017) reports that in her collection of spontaneously uttered relative clause extractions in Swedish, all examples involved topicalization or relativization (with topicalization being the most frequent type), whereas she found no cases of question formation out of relative clauses.

I ensured that the (topicalized) extracted filler NP could not be interpreted as an object of the matrix verb in any of the sentences. Another factor that was kept

constant across the questionnaire was finiteness of the adjunct clause: The adjunct clause was finite in all tested sentences, since initial observations suggest that the acceptability of Swedish adjunct clause extraction does not vary depending on whether the adjunct clause is finite or non-finite (see Section 4.1). See Chapter 5 for a more detailed investigation of the finiteness factor and its role in Swedish.

In order to test the predictions regarding coherence and syntactic integration of the adjunct clause, 26 sentences were constructed in which an argument had been extracted from an adjunct clause that triggered either a central or a peripheral reading and that was either compatible with a coherent interpretation or not. The adjunct clauses varied between purpose clauses (3 items), temporal clauses (6), concessive clauses (2), result clauses (2), conditional clauses (4), and causal clauses (4). Out of these adverbial clauses, 13 were CACs and 8 were PACs. Sixteen clauses encoded a coherent relation and 5 a non-coherent relation with the matrix clause.

To see whether extraction of adjuncts contrasts with extraction of arguments in terms of acceptability, 5 additional sentences involving extraction from conditional clauses were constructed in which the extracted element had the status of an adjunct in the adverbial clause.

The informants (19 native speakers of Swedish, who were naive to the purpose of the study) were asked to judge the sentences on a five-point Likert scale (1 = *oacceptabel* 'unacceptable'; 5 = *helt okej* 'completely fine'). A five-point scale was deemed sufficient for the purpose of this semi-formal study, which was to identify general trends and patterns in the acceptability of adjunct clause extraction sentences. Prior to answering the questionnaire, the participants received detailed instructions about the criteria according to which they should judge the sentences, with the aim to minimize any influence from extragrammatical factors on the ratings. Specifically, the participants were instructed to judge in how far the sentences sounded like possible sentences in Swedish, regardless of their length or complexity, and regardless of any prescriptive rules learned in school. All sentences were presented with a preceding context in the form of a dialogue or a short description of the situation. The purpose of this was a) to ensure that all informants had similar chances to construe a plausible context for the sentence containing the topicalization, and b) to ensure that the sentences were interpreted with the intended reading (e.g., a coherent as opposed to a non-coherent reading, or a central as opposed to a peripheral reading). An example of one test sentence from the survey with its preceding context is given below – in this case, the informants were asked to judge the last sentence in the dialogue (only the crucial sentence is provided with detailed glosses).

(5) 2 personer har förfest och pratar om vilket vin de ska dricka.
     '2 persons are having a preparty and talk about which wine they should drink.'

A: Vilket vin ska vi dricka ikväll? Det vita eller det röda vinet som du har kvar?

A: 'Which wine should we drink tonight? The white one or that red wine that you have left?'

B: Hellre det vita.
'Rather the white one.'
Det där röda vinet mådde jag lite illa efter att jag hade druckit sist.
this there red wine.the felt I a.little sick after that I had drunk last.time
I felt a little sick after I had drunk that red wine last time.'

No filler items were used. However, the test sentences were pseudo-randomized such that items testing the same type of adjunct clause (e.g. two sentences involving extraction from a temporal clause) did not appear in immediate succession. The complete questionnaire can be found in Appendix A.

Admittedly, a more formal and controlled acceptability judgment experiment may permit stronger conclusions than the data collected with this method. However, there is very little previous research on adjunct clause extraction in Scandinavian that an experiment could build on, which is why the primary goal for this study was to get an overview of which factors play a role for sentences involving adjunct clause extraction in Swedish, and in which direction these factors may influence the results for Swedish. The method used for data collection in this chapter is deemed sufficient to capture general patterns and trends in the acceptability of extraction sentences. Moreover, using a semi-formal acceptability questionnaire has the benefit of permitting me to test many different clause types and to investigate several factors at once. Additionally, it makes it possible to study the acceptability of sentences that are provided with a matching context, which is often not feasible in more controlled acceptability experiments due to the large quantity of test sentences. The lack of contextual clues, in turn, has often been named as a potential source for the unexpectedly low ratings that island extractions have yielded in formal acceptability studies (e.g. Tutunjian et al. 2017; Wiklund et al. 2017; Kush et al. 2018). The study described here can thus explore whether higher ratings can be obtained for certain types of island extractions that have been claimed to be acceptable in the literature when a context for the sentences is provided.

4.3 Results

Below, I will go through the results for each class of adjunct clauses tested in the survey (grouped according to the traditional classification of adverbial clauses)

and examine in how far the results conform to the predictions just mentioned. I will summarize the results by means of the standard descriptive statistics mode, median, and mean (with *mode* being the most frequent value in a sample, i.e. the score that was assigned most often to a test item). It should be noted that the mode and the median are more informative than the mean for the informal data reported here, since mode and median are less sensitive to outliers than the mean (and potential outliers have not been removed from the data I report on). I will hence focus on the mode and the median in my description of the outcomes.

4.3.1   Purpose clauses

Purpose clauses express goal-driven enablement and hence a coherence relation (necessary for macroevent formation) according to Truswell's account. For example, Truswell (2007, 2011) points out that non-finite *in order* clauses in English freely allow extraction, since the introducing element *in order* explicitly encodes enablement. Similarly, in Swedish purpose clauses the introducing element *för att* in combination with the auxiliary *ska(ll)* (or its past tense form *skulle*) (disambiguating purpose clauses and causal or result clauses introduced by *för att*, Teleman et al. 1999: 637, fn. 2) can be said to specify an enablement relation. Moreover, purpose clauses are classified as CACs by Haegeman (2012). The fact that purpose clauses in Swedish can be clefted (6), confirms that also Swedish purpose clauses are central according to the criteria defined above.

(6)   Det är för att värmeförlusten skall hållas nere som jag har
      it   is for that heat loss.the shall be.kept low that I   have
      gjort fönstren så små.
      made windows.the so small
      'It is in order to keep the heat loss low that I have made the windows so small.'
      (Teleman et al. 1999: 588)

Sentences involving extraction from purpose clauses are hence predicted to be well-formed both under Truswell's and Haegeman's account. This prediction is confirmed by the results of the acceptability study, see Table 4.1. Extraction from purpose clauses was tested with three sentences, and all scored a mode and median value of 4, i.e. they were rated on the upper end of the scale by the majority of the informants.

Table 4.1: Results for purpose clauses

	Mode	Median	Mean
a. Det här berget måste man träna mycket för att *this here mountain must one exercise a.lot for that* man ska kunna bestiga. *one shall be.able to.climb* 'One has to exercise a lot in order to be able to climb that mountain.'	4	4	3.42
b. Den här fåtöljen fick vi åka till Göteborg för *this here armchair must.PST we go to Gothenburg for* att jag skulle kunna köpa. *that I would be.able to.buy* 'We had to go to Gothenburg so that I would be able to buy this armchair.'	4	4	3.63
c. Den där bussen måste jag springa varje morgon för att *this there bus must I run every morning for that* jag ska hinna med. *I shall catch with* 'I have to run every morning in order to catch that bus.'	4	4	3.32

4.3.2 Temporal clauses

All temporal clauses tested in the survey provide a temporal specification for the matrix clause event and are hence central. Regarding the coherence requirement, temporal adjuncts typically specify a purely temporal (non-coherent) relation between the matrix and the adjunct event. However, as demonstrated in Chapter 2, extraction from temporal adjuncts is possible in English to the extent that the temporal relation can be pragmatically enriched into a coherent relation, e.g. when a causal interpretation of the events described in the matrix and the adjunct VP is plausible. Hence, the acceptability of sentences involving extraction from temporal adjuncts in Swedish is predicted to be subject to the same conditions, i.e. judgments for the relevant constructions should differ depending on how plausible a causal, coherent reading of the relation between the two events is. This was tested with three pairs of sentences, out of which two pairs involved extraction from adverbial clauses introduced by *efter att* 'after', and one pair involved extraction from clauses introduced by *när* 'when'. The context and content of the test sentences were manipulated such that one sentence in each pair could easily be interpreted as describing a causal (hence coherent) relation between the two events, and one sentence made such an interpretation implausible. The results for the two pairs of *efter att*-clauses are reported below:

Table 4.2: Results for *efter att*-clauses, set 1

	Mode	Median	Mean
a. Den filmen fick jag gå hem efter att vi hade sett.	1	1	1.95
that movie must.PST I go home after that we had seen			
'I had to go home after we had seen that movie.'			
(temporal reading induced by context)			
b. Den filmen börjar man alltid gråta efter att man har	4	4	3.84
that movie starts one always to.cry after that one has			
sett.			
seen			
'One always starts crying after having seen that movie.'			
(causal reading induced)			

Table 4.3: Results for *efter att*-clauses, set 2[9]

	Mode	Median	Mean
a. Det röda kan vi ju gå ut på stan efter	1	2	2.05
the red [wine] can we PRT go out to city.the after			
att vi har druckit.			
that we have drunk			
'We can go out in the city after we have drunk the red wine.'			
(temporal reading induced)			
b. Det där röda vinet mådde jag lite illa efter att	5	4	4.05
this there red wine.the felt I a.little sick after that			
jag hade druckit sist.			
I had drunk last.time			
'I felt a little sick after I had drunk that red wine last time.'			
(causal reading induced)			

The results for the *efter att*-clauses largely confirm the expected outcome. In the first pair (Table 4.2), one sentence is uttered by a person who has to go home after watching a certain movie. The context provided for this sentence indicated that the speaker had to leave in order to catch a bus, making it difficult to obtain a causal interpretation of the two events and leaving only a temporal (non-coherent) reading of the events. As expected, the sentence received very low scores (mostly not higher than 1). The reading of the second sentence of that pair, by contrast, can very easily be enriched into a causal relation, since it is easy to imagine a situation where 'crying' is caused by seeing a sad movie. Macroevent formation (and hence extraction) should therefore be easy, and as expected, the sentence received numerically higher scores than the first sentence of that pair. The same holds for the other pair of *efter att*-clauses (Table 4.3). In the first sentence of this set, the

---

[9] The extracted phrases in this set are not identical, which is an effect of the attempts to create test sentences that sound as idiomatic as possible given the preceding context. Noun phrase ellipsis in the context of an adjective is possible in Swedish, also in the absence of a superlative form (e.g. *det röda* 'the red [wine]'), see sentence (a) in Table 4.3. The difference between sentences (a) and (b) in Table 4.3 should therefore not be due to the presence of ellipsis in sentence (a).

most salient reading is one where the drinking event temporally precedes the event of going out without there being a causal relation between the two. In the second sentence, by contrast, it is very easy to construe a causal (coherent) relation among the two events in addition to the explicitly expressed temporal relation, as feeling a little sick is a plausible consequence of the consumption of red wine. As expected, the latter sentence received considerably higher scores than the first sentence.

A similar result is under Truswell's account expected for the temporal clauses introduced by *när* 'when' in the survey, see Table 4.4. Also for this sentence pair, a causal relation could easily be inferred in one case but not in the other one, i.e. someone may well get bored due to the exercise of examples in a lecture (sentence b), but it is difficult to imagine someone getting sick as a consequence of going through some examples in a lecture (sentence a).[10] However, as the results below indicate, there was only very little difference in the judgments of these sentences.

Table 4.4: Results for *när*-clauses

	Mode	Median	Mean
a. De här exemplen var jag sjuk när vi gick igenom. *those here examples was I sick when we went through* 'I was sick when we went through these examples.' (temporal reading induced)	3	3	3.32
b. De här exemplen blev jag så uttråkad när vi gick igenom. *these here examples became I so bored when we went through* 'I became so bored when we went through these examples.' (causal reading induced)	4	3	2.89

The absence of a clear difference in judgments between these two sentences is unexpected under Truswell's account, since only the second one can be read with a plausible causal interpretation and should hence permit extraction more easily than the first one.

Several potential explanations for this result come to mind. One possibility why the second sentence did not receive better judgments (despite an easily available coherent reading) might be that this sentence causes a garden path effect: In an incremental parsing process, the sentence is likely to receive a different interpretation until the encounter of the adjunct clause, namely one where the extracted phrase *de här exemplen* 'these examples' realizes the stimulus role associated with *bli uttråkad* 'become bored', as in (7).

---

[10] To avoid other interpretations than the intended ones, the sentences were construed such that only an episodic reading (as opposed to a generic reading) of the described events was possible, since under a generic reading, clauses introduced by *när* 'when' are likely to be read as specifying general circumstances and thus causes or conditions, rather than temporal circumstances.

(7) [De   här   exemplen]_i blev   jag så uttråkad av _i.
     these here   examples   became I so bored   of
     'I became so bored of these examples.'

The processing effort connected to the subsequent reanalysis of the sentence, necessary to assign an interpretation to it, might explain the degraded judgments.

   Another possibility is that temporal adjunct clauses introduced by *när* 'when' differ from temporal clauses introduced by *efter att* 'after' in a way that makes coherence unnecessary as a requirement for macroevent formation – perhaps because *när*-clauses describe events that happen simultaneously with the matrix clause event. That would mean that the right conditions for macroevent formation and extraction are also fulfilled when the two events in question are temporally overlapping, even when they are not coherently related. However, note that this would entail that Swedish differs in that regard from English, since in English, extraction is degraded also when the two events in question are temporally overlapping but otherwise independent, as Truswell shows for extraction from a gerund adjunct in English (8a) and for extraction of the nominal complement of *during* (8b) – cf. (8c), where the two events can be interpreted as causally related (Truswell 2007: 164, 231).

(8) a. *What_i did John paint this picture [eating _i]?
     b. *[Which meal]_i did you read a book [during _i]?
     c. %[Which play]_i did John fall asleep [during _i]?

A third possible explanation, which I consider as more plausible than the second one, is that the two events described in the first sentence (a) of the pair (repeated below) can in fact be interpreted as coherently related even though there is no causation or enablement reading.

(9) [De   här   exemplen]_i var   jag sjuk [när   vi gick igenom _i].
     these here   examples   was   I   sick   when   we went through
     'I was sick when we went through these examples.'

Intuitively, there is a connection between the events of 'being sick' and 'going through those examples' that exceeds a mere temporal relation: The event described in the matrix clause (being sick) keeps a person from realizing the event in the adjunct clause (going through examples). This connection could be described as a prevention relation. In fact, Truswell (2007: 45, fn. 21) leaves open the possibility that the class of coherence relations might include more concepts than causation and enablement, and refers to Wolff (2003), who, based on Talmy's (1988) theory of force dynamics, develops a model of causation relations that includes the concepts CAUSE, ENABLE, and PREVENT. These three concepts

have in common that they describe an interaction between an affector and a patient; but in the case of prevention, the affector blocks the tendency of the patient for a result (that would have occurred without intervention) and hence causes the result not to occur.

If prevention relations are a member of the family of coherence relations, as the reasoning above suggests, the relatively high acceptability of (9) might be explained in the following way: The matrix event in this sentence (being sick) is interpreted as a prevention of the adjunct event (going through examples); or, in terms of the force dynamic model of causation, the matrix clause event of being sick is interpreted as an affector that blocks and thus prevents the tendency of the patient (*jag* 'I') for the named result (participating in the exercises in a school class). This in turn arguably makes a coherent interpretation possible also in this case and might explain why extraction in this case scored higher ratings than expected.[11]

This account can also cover an apparent exception to Truswell's account in English: Truswell (2007: 132) notes that (10) is relatively acceptable for many speakers in English, even though John's death can clearly not be interpreted as the cause for John finishing the project.

(10)   % [Which project]$_i$ did John die [before finishing $\_i$]?
       (Truswell 2007: 132)

Rather, John's death is interpreted as an event that prevents him from finishing his project. Slightly extending the class of coherent relations in the above named spirit can hence not only (partially) account for the Swedish data obtained in the survey, but also for the English extraction in (10) which remains unexplained in Truswell (2007).

Overall, the results regarding temporal clauses confirm that both conditions (coherence and a certain level of syntactic integration) must be fulfilled in order for an adjunct clause extraction sentence to reach acceptability ratings at the top end of the scale in Swedish: All adjunct clauses reviewed in this section are of the central type; nevertheless, extraction yielded very low ratings when a coherent reading was not easily available. The next section demonstrates the inverse case, i.e. extraction from a coherent but peripheral clause.

---

[11] The same explanation might also account for some cases of naturally occurring adjunct clause extraction like the following one, seen on a Swedish book cover:

(i)   Det här   är inte   en bok   du   vill   bli   störd   när   du   läser.
      this here   is not   a book   you   want   to. be   disturbed   when you   read
      'You do not want to be disturbed when you read this book.'

4.3.3 Result clauses

Result clauses usually encode causal (hence coherent) relations, since the event in the result clause specifies an effect of the matrix event. From a semantic point of view, extraction from result clauses is hence predicted to be well-formed. However, syntactically speaking result clauses are of the peripheral type. For example, they can only marginally be clefted in Swedish, see (11), which was shown to be one of the characteristics of PACs in Haegeman (2012).

(11) ?Det var så att armen gick ur led som Lisa ryckte till.
it was so that arm.the got dislocated that Lisa winced
'Lisa winced so that the arm got dislocated.'
(Teleman et al. 1999: 635)

Extraction from result clauses is hence expected to be bad regardless of their level of semantic coherence, since they are supposedly not sufficiently integrated with their host clause to allow subextraction. This prediction is confirmed; consider the low ratings that sentences involving extraction from result clauses yielded in the survey (Table 4.5).

Table 4.5: Results for result clauses[12]

	Mode	Median	Mean
a. Det skåpet är det nya vardagsrummet för litet så att *this cupboard is the new living room too little so that* vi måste sälja. *we must sell* 'The new living room is too small so that we have to sell this cupboard.'	1	1	1.32
b. Den föreläsningen sov jag för länge så att jag missade. *this lecture slept I too long so that I missed* 'I slept too long so that I missed that lecture.'	1	2	2.00

The low scores for these sentences also indicate that the availability of a coherent relation reading cannot repair or rescue an extraction that is bad due to the lack of sufficient syntactic integration.

4.3.4 Concessive clauses

There is disagreement in the literature on whether concessive relations (describing the denial of a hindrance) should count as coherence relations or not. Truswell (2007) notices the impossibility to extract the nominal complement (yielding

---

[12] In order to prevent ambiguity with purpose clauses, I construed only sentences with result clauses that describe undesired results.

preposition stranding) of *notwithstanding* and *despite,* the prepositional counterparts to verbal adjuncts denoting concessive relations, and blames this on the absence of a coherent relation of these events with their matrix events. He provides the following motivation for this conjecture:

> The adverse events which are felicitous as complements of *notwithstanding* and *despite* are necessarily too independent of the matrix event to be rescued in the same way: the complements of *notwithstanding* and *despite* describe a *hindrance* to the occurrence of the matrix event, which almost by definition cannot simultaneously participate in the causal and enablement relations which underpin macroevent formation. (Truswell 2007: 164)

However, considering that concessive adjuncts encode the denial of a *prevention* relation and that prevention relations were previously analyzed as potentially being a type of coherence relations (see Section 4.3.2), there is reason to subsume also concessive relations under the class of coherence relations. Concessives are treated as adverbials of contingency e.g. in Bhatt & Pancheva (2006a: fn. 2) and Quirk et al. (1985); and Kehler (2002) treats concessives as a subtype of causal relations. An expansion of the definition of coherence relations to include prevention relations, as suggested above, provides thus a strong argument for also including concessives in that class.

   However, even if concessive adverbials are analyzed as expressing a coherent relation to their matrix clause, extraction from concessive clauses is nevertheless expected to be degraded because concessive clauses are always peripheral, according to Haegeman (2012). This corresponds with the observation in Teleman et al. (1999: 589) that concessives in Swedish cannot be clefted (12a) or focused (12b).

(12) a. *Det är fastän   det regnar som sadeln   är torr.
          it   is   although it   rains   that saddle.the is   dry

      b. *Han tog   cykeln   bara fastän   det regnade.
          he   took bike.the only although it   rained

Extraction is thus expected to be bad independent of the coherence status of concessive clauses. This expectation is met considering the low ratings that the test sentences involving extraction from concessive clauses in Swedish received (Table 4.6).

Table 4.6: Results for concessive clauses

	Mode	Median	Mean
a. Men den boken kunde jag inte lösa uppgifterna *but this book could I not solve assignments.the* fastän jag hade läst. *although I had read* 'But I could not solve the assignments even though I had read this book.'	1	1	1.63
b. Det medlet dog mina blommor fastän de hade fått. *that fertilizer died my plants although they had got* 'My plants died even though I gave them this fertilizer.'	1	1	1.68

4.3.5 Conditional clauses

As English, Swedish has conditional clauses of the central and the peripheral type, both of which are introduced with *om* 'if'. To test extraction from both types, I included four conditional clauses in the survey and manipulated the context to trigger either a central (event-related) or a peripheral (discourse-related) reading, with two clauses for each of these conditions. Since the peripheral reading of conditional clauses might be hard to obtain without the relevant context, I provide and explain the contexts that were given in the survey for the two peripheral clauses in (13) and (14).

(13) Person A klagar på det regniga vädret, men hans kompis B håller inte med:
'Person A complains about the rainy weather, but his friend B does not
     agree:'

B: Jag gillar faktiskt regnväder, jag tycker det är ganska mysigt.
B: 'Actually I like rainy weather, I think it is quite cozy.'

A: På allvar? **Det här vädret borde du bo i Norge om du gillar!**
A: 'Seriously? You should live in Norway if you like this kind of weather!'

(14) 2 vänner pratar om trädgårdskunskaper.
'Two friends talk about gardening issues.'

A: Jag vill så gärna bli bättre på att odla växter, men jag känner att jag
     fortfarande vet för lite.
A: 'I would like to become better at growing plants, but I feel that I still
     know too little.'

B: Men har du läst den där boken om trädgårdstips som du fick låna av mig?

B: 'But have you read that book about gardening advice that you could borrow from me?'

A: Ja, det har jag.

A: 'Yes, I have.'

B: **Den boken borde du veta allt om plantor om du har läst!**
'You should know all about plants if you have read that book!'

The *om*-clauses in these examples provide a reason for the proposition expressed in the main clause, and they introduce a controversial statement that is available in the discourse context. Another term for this type of conditional clause is *factual conditional* (Iatridou 1991; Bhatt & Pancheva 2006a). E.g., the conditional clause in (13) echoes the previous statement by Speaker A about liking rainy weather and hence gets a reading along the lines 'if you actually (as you say) like this kind of weather'. The conditional thus structures the discourse by providing the background assumption for Speaker A to utter the proposition that Speaker B should consider living in Norway. Similarly, in (14) the proposition stated in the conditional (and made available through the preceding context) that Speaker A has read the book on gardening provides the reason for Speaker B to assume that A knows all about plants.

Concerning the coherence criterion, conditionals are standardly treated as contingency adverbials (Quirk et al. 1985: 1086; Bhatt & Pancheva 2006a). Since conditionals express general causes for a consequent expressed in the matrix clause and hence can easily be interpreted as being causally related to the matrix clause, they fulfill the requirements for a coherence interpretation according to Truswell's criteria.

The prediction was hence that the sentences in Table 4.7, with extraction from central (and coherent) conditionals, should trigger better judgments than the sentences in Table 4.8, where extraction occurred from a coherent but peripheral conditional. As Tables 4.7–4.8 reveal, extraction from central conditionals yielded indeed slightly better scores than extraction from the peripheral conditionals. However, the difference is not as clear as with the sentences discussed in the previous sections.

Table 4.7. Results for central conditional clauses

	Mode	Median	Mean
a. De där byxorna kommer folk att skratta åt dig *those there pants come people to laugh at you* om du har på dig! *if you have on you* 'People will laugh at you if you wear those pants!'	4	3	3.26
b. Den kakan blir jag väldigt populär om jag bakar igen. *this cake become I very popular if I bake again* 'I get very popular if I bake that cake again.'	2	3	2.58

Table 4.8: Results for peripheral conditional clauses

	Mode	Median	Mean
a. Den boken borde du veta allt om plantor *this book should you know all about plants* om du har läst! *if you have read* 'You should know all about plants if you have read this book!'	1	2	2.05
b. Det här vädret borde du bo i Norge om du gillar! *this here weather should you live in Norway if you like* 'You should live in Norway if you like this weather!'	2	2	2.42

A possible explanation is that the central and the peripheral reading for conditionals are so similar that the informants can marginally retrieve a central parse for the peripheral clauses. As already pointed out by Iatridou (1991) and Ros (2005), the difference between factual (peripheral) and hypothetical (central) conditionals is a very fine one, and the different readings might be hard to distinguish: Both types of clauses are introduced by the same conjunction (*om* 'if'), and both establish a condition and a causal connection between adjunct clause and associated clause. Whether the causal connection is interpreted on the event level or propositional level depends in part on pragmatic factors. There is thus a slight possibility that a conditional clause is in fact structurally ambiguous (between being central or peripheral), giving informants the option to construe the respective alternative reading, perhaps in form of a reanalysis procedure, in order to assign an interpretation to the (supposedly illicit) extraction from a peripheral clause. This might give rise to the slightly ameliorated judgments of peripheral conditionals.[13]

---

[13] Note also that the PAC in sentence (a) (Table 4.8) induces a garden path effect where *den boken* 'that book' is interpreted as the complement of the preposition *om* 'about' as in (i), which might additionally interfere with the judgments for this sentence.

(i) Den boken borde du veta allt om.
   this book should you know all about
   'You should know all about this book.'

However, a surprising outcome of the results for conditional clauses is also that the sentences involving central conditional clauses yielded only intermediate ratings, with values ranging around 3 (Table 4.7), even though they fulfill both the coherence requirement and are of the central type. The ratings for sentence (a) in Table 4.7 can possibly be explained by the circumstance that also this sentence induces a garden path effect, triggering a reading where the extracted phrase *de där byxorna* 'those pants' is interpreted as the complement of *åt* 'at' (thus realizing the stimulus of *skratta* 'laugh'), as pointed out to me by Fredrik Heinat (p.c.). However, the relatively low ratings for sentence (b) in Table 4.7 remain unexplained. Participants of the Grammar Seminar in Lund (December 3, 2015) found this sentence perfectly fine. Moreover, the general picture emerging from the literature on adjunct clause extraction is in fact that most reported extraction examples involve conditional adjuncts, see e.g. the Swedish examples in (15), which reinforces the impression that extraction from conditional clauses in Swedish is probably not ruled out in principal. I have currently no explanation of the comparatively low ratings especially for sentence (b) in Table (4.7).

(15) a. Sportspegeln$_i$ somnar   jag [om jag ser   _$_i$].
          sports.program.the fall.asleep I   if   I   watch
          'I fall asleep if/when I watch the sports program.'
          (Anward 1982: 74)

     b. [Såna skyltar]$_i$ kan inte polisen   haffa   oss [om   vi inte
          such   signs   can not police.the catch us   if   we not
          lyder _$_i$].
          obey
          'The police cannot catch us if we do not obey such signs.'
          (Teleman et al. 1999: 424)

     b. [Mot   rött ljus]$_i$ är det   väl   ingen   som säger nåt
          against red light is there PRT nobody who says something
          [om   man   går   _$_i$].
          if   you   walk
          'There is probably nobody who says something if you run a red light.'
          (Teleman et al. 1999: 424)

     d. [Den boken]$_i$ skulle Eva dö [om hon läste _$_i$].
          this book   would Eva die if   she read
          'Eva would die if she read that book.'
          (Ekerot 2011: 96)

e. Det är [en fordran]$_i$ som han är dum [om han avstår från _$_i$].
   this is   a   request   that he   is   stupid if   he   refrains   from
   'He is stupid if he refrains from this request.'
   (Wellander 1948: 509)

4.3.6   Causal clauses

Extraction from causal adjuncts was tested with *eftersom*-clauses in Swedish. A coherent relation (causation) is explicitly marked in these clauses by the introducing element (*eftersom* 'because'). As in English, *eftersom* can introduce different types of adverbial clauses in Swedish, as demonstrated with the examples in (16a–b) from Teleman et al. (1999: 642).

(16) a. Eftersom   väskan   är   för   tung   blev   jag fort   trött.
        because   bag.the is   too   heavy became I   soon   tired
        'Because the bag is too heavy, I got soon tired.'
        (reason – CAC)

   b. Eftersom   väskan   är så tung   är   det   nog   mycket
      because   bag.the is so heavy   are   there   probably many
      böcker   i   den.
      books   in   it
      'Because the bag is so heavy, there are probably a lot of books in it.'
      (rationale – PAC)

Sentence (16a) exemplifies a central (event-related) adverbial clause: The circumstances described in the *eftersom*-clause encode a cause (*reason*) for the state of affairs expressed in the matrix clause. (16b) corresponds to a PAC: the *eftersom*-clause here provides the speaker's evidence (*rationale*) for making the claim 'there must be too many books in it'.

As with conditional clauses, extraction from different types of causal clauses was tested by modifying the context as to trigger either a reason reading (CAC) or a rationale reading (PAC). The peripheral clauses were presented with the following contexts:

(17)   Person A undrar hur han ska köra för att komma till en viss stadsdel och frågar person B.
       'Person A wonders how to drive to get to a certain part of the city and asks person B.'

A: Kan man köra Södergatan?
A: 'Can one drive on Södergatan?'

B: Nej, **den gatan måste det ha hänt en bilolycka eftersom de har stängt av**.
B: 'No, a car accident must have happened because they have closed off that street.'

(18) 2 personer pratar om en gemensam vän.
'Two persons talk about a mutual friend.'

A: Annars berättar Lisa allting för mig, men jag vet fortfarande inte varför hon bara försvann i fredags!
A: 'Usually Lisa tells me everything, but I still do not know why she just disappeared on Friday.'

B: Ja, **orsaken till det verkar det finnas en hemlighet eftersom hon inte vill berätta**.
B: 'Yes, there seems to be a secret because she does not want to talk about the cause for this.'

In (17), the fact described in the causal clause (a road was closed) is not the cause for the event described in the main clause (the car accident). Rather, the causal clause provides a rationale for the speaker to draw the conclusion that a car accident must have happened. Similarly, in (18), the fact that Lisa does not want to talk is presented as evidence for the claim expressed in the main clause that there must be a secret. Acceptability of these latter two sentences was hence predicted to be worse than of the sentences with extraction from central clauses. Tables 4.9–4.10 show the results for the sentences involving extraction from central as well as peripheral causal clauses from the survey.

Table 4.9: Results for central causal clauses

	Mode	Median	Mean
a. Den där låten blir det alltid dålig stämning eftersom *this there song gets it always bad mood because* ingen gillar. *nobody likes* 'The atmosphere always gets ruined because nobody likes that song.'	1	2	1.89
b. Mio min Mio grät han eftersom han inte fick låna. *Mio my Mio cried he because he not could borrow* 'He cried because he could not borrow *Mio, My Son.*'	2	2	2.68

Table 4.10: Results for peripheral causal clauses

	Mode	Median	Mean
a. Orsaken till det verkar det finnas en hemlighet *cause.the to that seems there to.be a secret* eftersom hon inte vill berätta. *because she not wants to.tell* 'There seems to be a secret because she does not want to talk about the cause for this.'	1	1	1.63
b. Den gatan måste det ha hänt en bilolycka *that street must there have happened a car.accident* eftersom de har stängt av. *because they have closed off* 'A car accident must have happened because they have closed off that street.'	2	3	2.47

Unexpectedly, there is no clear difference in the ratings between sentences with extraction from the two PACs on the one hand, and from the CACs on the other. One possible explanation might be the same reason tentatively suggested to account for the ratings for the conditional clauses in Section 4.3.5: Since both types of causal clauses are introduced by *eftersom* and the reason and the rationale reading are very close to each other, some speakers might assign a different structural parse (e.g. central rather than peripheral) to the clause than intended. In fact, Teleman et al. (1999: 626) mention that certain cases of causal clauses in Swedish can be ambiguous between the different readings. One thing that is puzzling about the results in Table 4.10 is the considerable difference in ratings between the two peripheral clauses. As pointed out to me by Fredrik Heinat (p.c.), the predicate used in the peripheral clause in (17) (sentence b in Table 4.10), *stänga av* 'close off', can also be intransitive in Swedish. In that case, it is likely that speakers interpret the extracted element *den gatan* 'that street' as extracted from the main clause, a parse which can be achieved by minimally modifying the sentence by inserting the preposition *på* 'on', as indicated below:

(19) Den gatan måste det ha hänt en bilolycka på
that street must there have happened a car.accident on
(eftersom de har stängt av.)
(*because they have closed off*)

This might account for the ameliorated ratings that this sentence achieved, compared to the other peripheral *eftersom*-clause.

However, one outcome that remains puzzling is the relatively low ratings that extraction from central *eftersom*-clauses yielded in the survey (not more than 2 from most informants). Considering that causal clauses express a coherent relation to their matrix clause and – in the cases presented in Table 4.9 – are central, the expectation would be that these cases are judged about as equally good as for

instance the extractions from purpose clauses or some of the temporal clauses. The situation can be compared to a similar finding for extraction from causal clauses in Norwegian: In a controlled acceptability judgment study of adjunct clause extraction in Norwegian (reviewed in Chapter 3), Bondevik (2018) found that topicalization from adjunct clauses introduced by *fordi* 'because' yielded larger island effects (in terms of the factorial definition of island effects developed by Sprouse 2007) and significantly lower average *z*-score ratings than topicalization from *når* 'when'-clauses or *om* 'if'-clauses, even though all of these clause types induced a coherent interpretation in Bondevik's design.

In order to account for these somewhat surprising results, I want to point out that there is evidence suggesting that *eftersom*-clauses, even if they are central in their external syntax, differ in their internal syntax from other central clauses. Haegeman (2003, 2012) notes that normally, there is a correspondence between the external and internal syntax of adverbial clauses. In other words, the level of attachment (timing of merger) determines the internal syntax of an adverbial clause (presence of independent illocutionary force). However, Haegeman (2012: 182) also acknowledges the possibility that this is not a one-to-one relation and that the internal syntax of an adverbial clause might to some degree be independent of where it is inserted. Ros (2005), in turn, argues that this is the case for certain causal clauses. For example, some central causal clauses like the one in (20) may contain expressions of epistemic modality, a phenomenon that is usually restricted to peripheral clauses:

(20)   Sue went home because her sister **would probably** visit her.
       (Ros 2005: 98, fn. 18)

This suggests that even though these causal clauses are attached at the level of CACs, they may show the complexity of PACs. If these clauses display the internal syntax of a PAC and can accommodate epistemic modal markers, they should consequently have the potential to encode independent illocutionary force (viz. the force of assertion.) This is supported by the observation made in Hooper & Thompson (1973) and Sawada & Larson (2004) that causal clauses may be asserted independently, whereas for instance temporal clauses introduced by *when*, *before*, or *after* in English are always presupposed. This is also in line with the notes by Hooper & Thompson (1973) and Teleman et al. (1999: 627) that central causal clauses are ambiguous between presupposed and nonpresupposed interpretations. In contrast, temporal and conditional clauses (which received better results with extraction in the survey, given that the coherence requirement was fulfilled) have often been identified as non-assertive (e.g. Teleman et al. 1999: 595; Haegeman 2012), i.e. these clause types do not have an illocutionary potential and are part of the speech act expressed with the main clause. In detail, temporal clauses are presupposed, whereas central conditional clauses are neither

presupposed nor asserted, but express a hypothetical state of affairs (e.g. Iatridou 1991).

Sawada & Larson (2004) argue that this contrast can be derived from a semantic difference between *because*-adjuncts and *when-/before-/after*-adjuncts, observed first by Johnston (1994). In short, Johnston suggests that temporal connectives combine with *open event sentences*, thereby creating an interval description that restricts an adverb of quantification. Since quantifier-restrictions are presupposed to be non-empty, this explains the presuppositional character of temporal clauses. Causal connectives, by contrast, combine with *closed event sentences* and do not restrict adverbial quantifiers. Hence, they do not presuppose the existence of the complement event, but rather assert it. Furthermore, Sawada & Larson (2004) suggest that this difference in semantics may also be reflected in the syntax, i.e. *because* differs from temporal connectives not only in applying to a larger semantic domain (an eventuality description plus a quantifier), but also in combining with a larger syntactic domain that contains extra layers of structure. This extended syntactic domain thus arguably provides the projections that can host epistemic modal markers and hence captures the above named intuition that causal clauses exhibit a more elaborate internal complexity than other central clauses.

The preceding discussion can be applied to the Swedish central causal clauses tested in the survey, repeated below:

(21)   a.   Den där   låten blir det alltid   dålig stämning eftersom ingen
            this there song gets it always bad   mood   because nobody
            gillar.
            likes
            'The atmosphere always gets ruined because nobody likes that song.'

       b.   Mio min Mio   grät   han eftersom han inte   fick   låna.
            Mio my Mio   cried he   because   he   not   could   borrow
            'He cried because he could not borrow *Mio, My Son.*'

Scope tests show that the *eftersom*-clauses in (21) indeed are of the central kind concerning their external syntax, i.e. they attach at the same level as other CACs. For example, the *eftersom*-clause in (21b) is within the scope of the interrogative operator of the superordinate clause in (22): As the continuation indicates, the causal relationship and not the matrix clause is questioned in (22). In (23), the same clause is within the scope of the focus operator of the matrix clause, i.e. the focus marker only can be interpreted as focusing on the causal clause (it gets an 'only because' reading).

(22)　Grät han eftersom han inte fick låna Mio min Mio (eller eftersom Emil i
　　　 Lönneberga var utlånad)?
　　　 'Did he cry because he could not borrow *Mio, My Son* (or because *Emil of
　　　 Lönneberga* was borrowed)?'

(23)　Han grät bara eftersom han inte fick låna Mio min Mio. ('bara därför')
　　　 'He cried only because he could not borrow *Mio, My Son*.' ('only because')

If the central *eftersom*-clauses that were tested are merged at the same level as
other CACs, i.e. TP-internally (as suggested by 22 and 23), attachment height
arguably has to be excluded as a reason for the degradation that extraction from
central *eftersom*-clauses yields. That leaves the internal syntax of these causal
clauses as the suspected culprit behind their relative opacity for extraction. If
Swedish *eftersom*-clauses indeed display the internal complexity of a PAC (as
suggested by Ros for causal clauses in English), they are expected to be able to
accommodate certain speaker-related modals such as evidential and epistemic
modals. Examples (24a–b) show that epistemic/evidential modals such as *tydligen*
'apparently' or *lär* 'be said to, ought to' are indeed compatible with the central
eftersom-clauses tested in the survey, here demonstrated for the *eftersom*-clause in
(21b).

(24)　a.　?Han grät　eftersom　han　**tydligen**　　inte　fick　　låna
　　　　　 he　cried　because　he　apparently　not　could　borrow
　　　　　 Mio min Mio.
　　　　　 Mio　my Mio
　　　　　 'He cried because apparently, he could not borrow *Mio, My Son*.'

　　　 b.　?Han gråter eftersom　han　inte　**lär**　få　　låna　　Mio min Mio.
　　　　　 he　cries　because　he　not lär *can　borrow　Mio my Mio*
　　　　　 'He is crying because he can probably not borrow *Mio, My Son*.'

Not all Swedish speakers find the sentences in (24) perfectly fine, but there is a
clear contrast to central conditional clauses, which do not allow high modals at all,
cf. (25).

(25)　a.　Folk　kommer　att skratta åt　dig　om du　(*tydligen) köper
　　　　　 people　are.going　to　laugh　at　you　if　you　apparently buy
　　　　　 dessa byxor.
　　　　　 those pants
　　　　　 'People will laugh at you if you (*apparently) buy those pants.'

b. Folk   kommer   att skratta åt dig om du   {köper/* lär köpa}
   people are.going to laugh at you if you   buy   / lär buy
   dessa byxor.
   those pants
   'People will laugh at you if you buy/*probably buy those pants.'

Temporal clauses seem to allow epistemic modals marginally, cf. (26).

(26) ??Han grät   efter att   han **tydligen**   hade läst   Mio min Mio.
     he   cried after that he   apparently had   read Mio my Mio
     'He cried after he apparently read *Mio, My Son*.'

However, *tydligen* 'apparently' in (26) arguably takes scope over the main clause and the adverbial clause, since the sentence in (26) is equivalent to (27).

(27) Han grät   **tydligen**   efter att   han hade läst   Mio min Mio.
      he   cried apparently after that he   had   read Mio my Mio
      'Apparently he cried after he read *Mio, My Son*.'

The same point has been made by Haegeman (2012: 243) for English temporal clauses, based on the observation that (28a) (containing an epistemic modal in the *when*-clause) can be paraphrased with (28b).

(28) a. That is when he **must** have written his novel.
      b. That **must** be when he wrote his novel.

The (marginal) availability of speaker-oriented modals has therefore probably different sources in temporal and causal clauses.

   A further indicator for the presence of an illocutionary potential in central *eftersom*-clauses is that they are compatible with V2 word order (29a–b), as opposed to temporal clauses (29c) and central conditionals (29d) that do not allow V2.[14] Embedded V2 has been associated with the presence of illocutionary force in Wiklund et al. (2009), Julien (2015), and in many other works. [15]

(29) a. Han grät   eftersom han fick   inte låna   Mio min Mio.
          he cried because he   could not borrow Mio my Mio

---

[14] There is some variation between speakers regarding the acceptability of (29a–b), which may be attributed to inter-speaker variation with regard to embedded V2 structures more generally.

[15] The availability of V2 in causal clauses has also been noted by Teleman (1967) and Andersson (1975) for Swedish, by Julien (2015) for Norwegian, and by Nyvad et al. (2017: 462) for Danish.

b. Det blir   dålig stämning eftersom folk   gillar inte
   it becomes bad   mood   because people like not
   den här   låten.
   this here song

c. *Han grät efter att han fick   inte låna   Mio min Mio.
   he cried after that he could not borrow Mio my Mio

d. *Han gråter om han får inte låna   Mio min Mio.
   he cries if he can not borrow Mio my Mio

In sum, there is evidence that causal clauses that are introduced by *eftersom* have to some degree the internal complexity of PACs, even when they are merged at the level of central clauses with their associated main clause. In formal terms, this indicates that central *eftersom*-clauses probably possess a feature or a functional projection in their CP-domain that is usually only present in PACs. This feature or projection can be assumed to make the causal clause root-like in certain regards by encoding speaker anchoring and can hence account for the presence of an illocutionary potential and the availability of certain speaker-related modals in these clauses. For now, we can assume that the relevant projection is ForceP (or, in terms of features, a [+Force]-feature on the C-projection), in line with Frey's (2011, 2012) analysis of PACs as ForcePs.

As suggested above, the internal syntax of an adjunct clause is likely to be one of the factors that constrain extraction possibilities. For instance, a high degree of internal complexity and the presence of assertive force in embedded clauses have been associated with stronger opacity for extraction in Sheehan & Hinzen (2011). The relatively elaborate internal syntax of reason clauses may hence explain the comparatively low acceptability ratings that extraction from them received in the survey, even though they are attached sufficiently low (see Section 4.4 below for a more detailed analysis of this effect). Thus, in order to allow extraction, the adjunct clause has to be relatively tightly integrated with the matrix clause, both in terms of its external and internal structure. Simply being attached at a certain height is a necessary but not a sufficient condition for a clause to allow extraction. The adverbial clause also needs to fulfill certain criteria regarding its internal structure, meaning that it must lack an independent illocutionary potential and should be integrated into the speech act of the matrix clause.

4.3.7 Extraction of adjuncts

In all sentences examined so far, the topicalized element had the status of an argument in the adjunct clause. In order to test whether the grammatical function

of the extracted element plays a role for the possibility of extraction, the survey also contained five sentences where not an argument but an adjunct has been extracted from an adjunct clause. The adjunct clause in all five cases was a central conditional clause introduced by *om* 'if', since the initial assumption was that conditional adjuncts would allow extraction most easily. The extracted adjunct phrase was a manner adjunct in two sentences (*så här högt* 'that loud' and *så här snabbt* 'that quickly'), a locative adjunct (*där* 'there') in two further sentences, and in one case a temporal adjunct (*klockan sju* 'seven o'clock'). All sentences were preceded by a context that triggered an embedded interpretation of the extracted adjunct; however, it cannot be entirely excluded that some informants nevertheless interpreted the initial adjunct as modifying the main clause (even though that possibility was kept to a minimum by means of the context). The results for the adjunct extractions are reported in Table 4.11.

Table 4.11: Results for adjunct extraction

	Mode	Median	Mean
a. Så här högt kommer mina grannar klaga *so here loudly will my neighbors complain* om vi sjunger. *if we sing* 'My neighbours will complain if we sing that loudly.'	1	1	1.58
b. Så här snabbt blir jag helt yr om du dansar med mig. *so here fast get I totally dizzy if you dance with me* 'I get totally dizzy if you dance with me that fast.'	2	2	2.32
c. Där kommer hon jubla om hon får jobbet. *there will she cheer if she gets job.the* 'She will cheer if she gets the job there.'	3	3	2.68
d. Där blir du jättepopulär på jobbet om du köper tårta. *there get you very.popular at work if you buy cake* 'You will get very popular at work if you buy cake there.'	1	2	2.16
e. Klockan sju hade jag varit tvungen att köra *clock seven had I been forced to drive* som en dåre om vi skulle börja äta. *like a madman if we would start to.eat* 'I would have had to drive like a madman if we started to eat at seven o'clock.'	2	2	2.58

As Table 4.11 shows, the sentences involving adjunct extractions were rated rather low. The sentence that seemed most acceptable (*Där kommer hon jubla om hon får jobbet* 'She will cheer if she gets the job there') was mostly rated with 3; all other sentences tended to get lower scores than that. These results indicate that adjunct extraction from adjunct clauses in Swedish is indeed degraded compared to argument extraction. Note that the adjunct clauses in question are central and

that all clauses trigger a causal interpretation of the matrix and the adjunct clause event; other factors affecting extractability that are discussed in this chapter can hence be excluded as a reason for the degradation.

The relatively degraded status of adjunct compare to argument extraction from adverbial clauses would be compatible with a weak island analysis of adjunct clauses in Swedish, similar to the weak island analysis suggested for relative clause islands in Swedish in Lindahl (2017) and Tutunjian et al. (2017). I will return to a discussion of the island status of Swedish adjunct clauses in Chapter 7.

4.4 Discussion

The results of the acceptability judgment study presented in this chapter show that the acceptability of sentences involving extraction (topicalization) from adjunct clauses in Swedish is affected at least by three factors: 1) the semantic relation between the adjunct and matrix clause, 2) the degree of syntactic integration (both in terms of the external and the internal syntax of the adjunct clause, and 3) the grammatical category of the extracted element.

The first factor affects Swedish in so far as sentences involving extraction from central adverbial clauses are more acceptable when the matrix and adjunct clause can easily be interpreted to be in a coherent relation. Sentences with extraction from temporal clauses for instance scored better ratings in the survey when in addition to the temporal relation, a causal and hence coherent interpretation of the matrix and the adjunct event was easily available. While I have to leave it to future debate what semantic relations exactly are comprised by the family of coherence relations, I have presented arguments that beyond causation and enablement (the relations discussed in Truswell 2007, 2011), also prevention relations, and, as a potential consequence, concessive relations should be included in this group. Such an extension could also explain relatively acceptable cases of extraction from adjuncts that encode a prevention relation with their matrix clause, which otherwise remain unaccounted for. In Chapter 5, it will be explored how the effect of coherence on the acceptability of extraction sentences can be derived. In short, it is possible to deduce the effect either from a processing account assuming that the additional event present in non-coherent structures leads to an increased processing load and correspondingly degraded acceptability (Truswell 2011), or from a syntactic account, if coherence is assumed to be structurally encoded e.g. in terms of an Agree or Feature sharing relation between the adjunct and the matrix clause. This in turn can be assumed to enhance extraction.

Another factor that was found to have an impact on adjunct clause extraction sentences in Swedish was the degree of syntactic integration of the adjunct clause (factor 2). Specifically, only central adjunct clauses, which are syntactically

relatively integrated into the matrix clause, appear to permit extraction, whereas peripheral clauses, which are only marginally integrated with the main clause (such as for instance concessive clauses) disallow extraction. This conclusion is based on the finding that all eight peripheral clause extractions tested in the survey yielded judgments on the lower end of the scale and were on average rated worse than extraction from central counterparts of the respective type of adverbial clause. So far, this was only accounted for by descriptively stating that PACs are not sufficiently integrated with their host clause to permit movement dependencies into them. It remains to be shown how this can be implemented in formal terms.

One explanation that can be excluded is that PACs are opaque for extraction because they are independent derivations and therefore not connected at all to their host clause (as e.g. the 'orphan' analysis of PACs by Haegeman (1991/2009) suggests). As Frey & Truckenbrodt (2015) demonstrate, PACs show certain signs of integration and therefore must be structurally attached to the associated clause (even though they are attached fairly high).

A possible explanation for the opacity of PACs is their attachment height. Haegeman (2012) shows that CACs are adjoined TP-internally, whereas PACs are merged in the CP-domain of their host clause. Also Frey & Truckenbrodt (2015: 88) analyze sentence-final PACs as being adjoined to CP of the host clause, as in (30).[16]

(30)

```
              CP
            /    \
          CP     PAC
         /  \
             C'
            /  \
           C   (rest of clause)
```
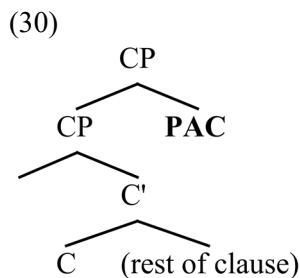
Constituents contained within such peripheral adjuncts might hence not be extractable because they are outside of the search domain of the relevant probes in the main clause that trigger the movement in the first place, i.e. the adjunct is attached too high in relation to the target of movement. In Frey & Truckenbrodt's (2015) analysis (30), for instance, the PAC adjoined to CP is only inside one CP segment of the associated clause, which means that constituents contained in the PAC cannot be c-commanded by the relevant elements triggering topic-fronting to a position in the host clause. Under a derivational view, the level of attachment corresponds to a certain timing of merger which can be taken to lead to opacity

---

[16] Frey (2011) reconciles his analysis with an extended left periphery and suggests that PACs are adjoined to ForceP.

effects: Whereas central clauses are merged early with their host clause (i.e. before TP is completed), peripheral clauses adjoin late, viz. after completion of the CP (Haegeman 2003). This entails that PACs are merged too late to enter into any dependencies with their host clause.

However, syntactic integration is not only dependent on attachment height, but also on the internal syntax of the adjunct clause involved. Another possibility is thus that the internal syntax (i.e. the root clause status) of peripheral clauses is responsible for their relative opacity, either in addition to or independently of attachment height. The relevance of the internal syntax for extraction possibilities found also support in this survey: As the examples with causal clauses have shown, the adverbial clause should not exceed a certain level of complexity with respect to its internal make-up in order to allow extraction, i.e. it must be integrated into the speech act of the matrix clause.

A remaining question is what property of the internal structure of certain adverbial clauses exactly is responsible for the blocking effect in extraction in Swedish. One possible approach to derive the impact of this factor on extraction possibilities is to attribute the effect to the semantic or pragmatic status of root clauses (or clauses with root properties). As noted above, it has been suggested that causal clauses (including central ones) differ from e.g. temporal clauses semantically in expressing a relation between propositions (rather than between events), see e.g. Sawada & Larson (2004), Larson & Sawada (2012), and Frey & Truckenbrodt (2015). Therefore, Johnston (1994) analyzes the complement of causal connectives as a closed event description. Larson & Sawada (2012) elaborate on that proposal and suggest a semantic closure account, in which *because*-clauses (and asserted clauses in general) differ from (presupposed) temporal clauses in that they have to undergo existential closure, which binds all variables in them (apart from the main quantificational variable). Possibly, the closed event structure of causal adjuncts is in some way incompatible with the formation of movement dependencies into the adjunct. Another way of stating this might be to say that semantic closure interacts with cyclic Spell-Out and forces Transfer of the relevant structure to the interfaces (which in turn entails that the clause is also syntactically closed). In other terms, the presence of an illocutionary potential cements the independence of an adjunct clause, leading to independent closure and Spell-out of the structure.

Another possible explanation builds on the assumption that the syntactic representation of illocutionary force (or speaker anchoring) is responsible for the island effects. For example, one could capitalize on a truncation analysis for canonical central adverbial clauses: Haegeman (2006a,b,c) suggests that CACs are structurally reduced, meaning that they lack certain functional projections in the CP-domain (arguably, those related to speaker anchoring or illocutionary force), whereas PACs and other root-like clauses display a fully articulated CP with all projections available. This could be taken to show that PACs and causal clauses

(which are PACs regarding their internal syntax) possess structural layers in their left periphery which CACs lack and which could be argued to somehow act as barriers for extraction. However, Haegeman (2012) and Authier & Haegeman (2014) reject the truncation analysis of CACs due to its stipulative nature and other conceptual problems.

A more likely explanation is that the feature or projection that encodes illocutionary force (and other root properties) in causal clauses and PACs causes an intervention effect with the extracted phrase, similarly to the way extraction is assumed to be blocked from embedded V2 clauses in the Scandinavian languages. Bentzen et al. (2007), Bentzen & Heycock (2010), and Hrafnbjargarson et al. (2010) provide arguments that it is probably not the position of the verb per se that blocks extraction from complement V2 clauses, but rather that some of the features triggering V2 (and licensing illocutionary force) cause an intervention effect. If that is the case, it is possible that the same features are present in PACs and causal clauses and lead to intervention effects there in the same manner. In detail, Bentzen et al. (2007) and Hrafnbjargarson et al. (2010) show that only a subset of those features that trigger V2 lead to island effects, presumably those features that license root phenomena. Root clauses, in turn, are often assumed to possess a specialized functional projection in the CP-domain that encodes speaker anchoring and licenses illocutionary force (e.g. Haegeman 2012; Frey 2012). Often, this projection is assumed to be ForceP, but alternative labels have been proposed (see e.g. Bayer 2001; Bianchi 2003; Speas & Tenny 2003; Sigurðsson 2004; Zagona 2007; Frey 2011, 2012; Julien 2015). I leave open the question what projection exactly encodes speaker anchoring and merely point out the possibility that the relevant projection or feature turns PACs (and causal clauses) in Swedish into islands due to intervention. CACs, which are not root-like, lack this projection or feature for speaker anchoring and therefore do not induce intervention effects with extracted elements according to this argumentation.

For another proposal linking islandhood of assertive clauses to the complexity of the CP-domain of those clauses, see Sheehan & Hinzen (2011): They argue that asserted complement clauses have a more expanded CP than non-asserted clauses (e.g. due to movement of phase-internal material into CP), since their interpretation is not only determined via the interior of the CP-phase, but their phase edge is involved in the determination of reference. This is taken to have an impact on extraction possibilities.

Presumably, further factors than the ones tested here play a role for the acceptability of Swedish adjunct clause extraction. For example, extraction possibilities might vary for different types of extraction dependencies such as topicalization, question formation, and relativization or cleft formation (see Lie 1982; Maling 1978; Lindahl 2017; Kush et al. 2018 for suggestions along these lines). However, I decided to keep the type of extraction constant (topicalization) since the focus of my investigations is on properties concerning the syntax of

different adverbial clauses and their relation to the matrix clause. In standard accounts of adjunct clause islands, it is often implied that extraction from all types of adjunct clauses is categorically banned, with no consideration of any differences between adjunct clauses. What I hope to have shown is that adjunct clauses are not a homogenous class and that differences among adjunct clauses matter for the acceptability of sentences involving extraction.

4.5 Summary

In this chapter I have reported on an acceptability judgment study that has investigated the impact of three factors on sentences involving extraction from adjunct clauses in Swedish: (i) the semantic relation between the adjunct and matrix clause event, (ii) the degree of syntactic integration of the adjunct clause, and (iii) the grammatical function of the extracted element. In short, all of the investigated factors exhibit roughly the predicted effect on acceptability ratings: Factor (i) refers to the observation that sentences with adjunct clause extraction improve if the matrix and adjunct clause event are related by a coherent relation such as causation or enablement. Regarding factor (ii) (the degree of syntactic integration of the adjunct clause), extraction sentences seem degraded when extraction occurs from a peripheral adverbial clause, which is not sufficiently integrated with its host clause. Factor (iii), referring to the grammatical function of the extracted element, constrains extraction in so far as extraction of adjuncts is more difficult than extraction of arguments. In addition, a further factor was found to play a role: the internal syntax of the adjunct clause. This factor lowers the acceptability of sentences with extraction from clauses that have a relatively complex internal structure and possess an illocutionary potential.

   One important finding in this chapter is that argument extraction from adjunct clauses that had optimal conditions (coherent, central clauses) yielded ratings on the upper end of the scale even though all tested clauses were finite. This suggests that extraction in Swedish – despite being subject to certain restrictions – is not confined to non-finite adjunct clauses. This stands in contrast to what has been reported for English and leaves us with the question what role finiteness plays for the possibility to extract from adjunct clauses. Truswell (2011) takes Tense in finite adjunct clauses to block the formation of macroevents or coherent relations, but as this investigation has shown, Tense does not seem to have the same effect in Swedish. Together with the examples of finite adjunct clause extraction in Swedish reported in the literature, these results are a first indicator that finiteness might be a point of cross-linguistic variation between Swedish (possibly also Norwegian and Danish) and English adjunct islands. This hypothesis is investigated more closely in Chapter 5.

5 The role of coherence and finiteness

The preceding chapters suggested that several factors may potentially affect the acceptability of sentences involving argument extraction from adjunct islands, among them the presence or absence of a semantically coherent relation between the matrix and the adjunct clause, the degree of syntactic integration of the adjunct clause with the main clause (both in terms of the external and internal syntax), and the finiteness of the adjunct clause. Once these factors are taken into consideration, the emerging picture is that in both English and Swedish the acceptability of sentences involving extraction from central (syntactically integrated) adjunct clauses increases when the adjunct is in a coherent relation with the matrix clause, but that the languages differ with regard to whether finiteness also affects the acceptability of such sentences. Namely, the acceptability of sentences with extraction from finite adjunct clauses is degraded in English, but not in Swedish. To test this hypothesis in a controlled setting, two acceptability judgment experiments are presented in this chapter that investigate how semantic coherence and finiteness affect sentences involving extraction from (central) *after*-adjunct clauses in Swedish (Experiment 1) and in English (Experiment 2).

In 5.1 and 5.2, I present my hypotheses regarding the role of coherence and finiteness, respectively, for the acceptability of adjunct clause extraction sentences in the languages investigated here. Sections 5.3 and 5.4 present the two acceptability judgment experiments conducted to investigate to what degree semantic coherence and finiteness affect the acceptability of extraction from adjunct clauses in Swedish and English. Sections 5.5 and 5.6 provide a discussion on how the effect of coherence and finiteness on extraction possibilities can be derived, respectively. The findings are summarized in 5.7.

5.1 Coherence

Recent research by Truswell (2007, 2011) and Tanaka (2015) (reviewed in Chapter 2) suggests that the presence of a semantically coherent relation, such as

causation, between the matrix and the adjunct clause event may enhance extraction from adjunct clauses in English. For example, extraction from non-finite *after*-adjunct clauses is reported to be considerably better in (1a) where it is easy to interpret the event in the matrix clause as being caused by the event described in the adjunct clause, than in cases like (1b) where it is difficult to obtain a reading with a causal relation between the matrix and adjunct event.

(1) a. Who$_i$ did John get upset [after talking to _$_i$]?
        (Truswell 2011: 129)

    b. *[Which letter]$_i$ did John break a glass [after writing _$_i$]?
        (Truswell 2011: 141)

The results from the acceptability study presented in Chapter 4 indicate that semantic coherence affects sentences involving extraction from adjunct clauses in Swedish in a very similar way: Extraction from Swedish *after*-clauses, as in (2), for instance scored numerically higher ratings in the survey when a causal (hence coherent) interpretation of the matrix and the adjunct event was easily available (2a), than when the most salient reading was one of temporal sequence between the events and not a causal relation, as in (2b).

(2) a. Det där röda vinet   mådde jag lite   illa efter att jag
        this there red   wine.the felt   I   a.little sick after that I
        hade druckit sist.
        had   drunk   last.time
        'I felt a little sick after I had drunk that red wine last time.'

    b. Det röda   kan vi ju   gå ut på stan   efter att
        the red [wine] can we PRT   go out to city.the after that
        vi har   druckit.
        we have   drunk
        'We can go out in the city after we have drunk the red wine.'

In summary, these observations suggest that Swedish and English are similar in that the acceptability of adjunct clause extraction sentences improves in the presence of a coherent relation between the matrix and the adjunct. The impact of semantic coherence on the acceptability of sentences involving adjunct clause extraction in Swedish and English is tested with an acceptability judgment task (Experiments 1 and 2, respectively), presented below. Based on the observations in Truswell (2007, 2011) and Tanaka (2015) and the results from the acceptability study in Chapter 4, the hypothesized outcome is that coherence will affect acceptability ratings in both languages, with sentences involving extraction from

coherent adjuncts being more acceptable than those involving extraction from non-coherent adjuncts.

For the purpose of this study, which involves an investigation of *after*-adjunct clauses, a coherent relation corresponds to a causal relation between the matrix and the adjunct clause while a non-coherent relation corresponds to a purely temporal, non-causal relation between the two events. While the correct characterization of the relations facilitating a single-event reading and extraction is still debated, there is robust evidence that at least the distinction between causal and non-causal/purely temporal is relevant to extraction possibilities (see e.g. Tanaka 2015), which is why the focus in this study is on testing the effect of these relations.

Note that, strictly speaking, non-coherent adjuncts do not exist, since some degree of coherence will always exist between a matrix event and a following adjunct event on account of the temporal contiguity of events between the two clauses. The non-coherent matrix-adjunct relations in this study are thus not totally void of coherence. Crucially, however, the adjuncts in the non-coherent sentences here are *less coherent* than their causal counterparts. This is in line with the categorization of the semantic relations in our *after*-clauses according to Kehler's (2002) three classes of coherence relations (*Resemblance*, *Cause-Effect*, and *Contiguity*). In this classification, *after*-adjunct clauses inducing a causal interpretation would form part of the class of *Cause-Effect* relations. To be specific, the adjunct in that case provides an explanation for the event in the matrix clause (*backwards causal relation*, Carston 1993; Wilson & Sperber 1998). *After*-adjunct clauses that express merely a relation of temporal sequence with their matrix clause in turn can be argued to represent a type of *Contiguity* relation in Kehler's classification (see e.g. Wolf & Gibson 2006), and thus express a type of coherent relation, too. Under this view, it is thus more accurate to say that the two possible interpretations for *after*-adjunct clauses differ in expressing more and less coherence, in the sense that e.g. *after*-clauses with a purely temporal reading convey only a specific temporal relation between matrix and adverbial clause (Contiguity), whereas *after*-clauses with a causal reading convey both a temporal relation and in addition a specific causal relation between matrix and adverbial clause (Contiguity + Cause-Effect). The same idea is expressed in Jin (2014; 2015) and Van Valin and LaPolla (1997: 478) where different coherence relations are ranked on a *cohesiveness scale*, with causal relations expressing a higher degree of coherence than purely temporal relations. For ease of exposition I will continue to label the purely temporal adjuncts *non-coherent adjuncts* here, keeping in mind that these are rather less coherent on some cohesiveness scale.

5.2 Finiteness

As mentioned in Chapter 4, one factor that may be responsible for the claim that Swedish is exceptionally liberal with regard to extraction possibilities is finiteness. In addition to the coherence requirement, English has been reported to disallow extraction from finite adjuncts, as the contrast between (3a) and (3b) shows (from Truswell 2007: 166; see also Manzini 1992).[17]

(3) a. Who$_i$ did John go home [after talking to _$_i$]?
     b. *Who$_i$ did John go home [after he talked to _$_i$]?

By contrast, the examples of extraction from adjunct clauses in Swedish reported in the literature involve extraction from both non-finite clauses (4) and finite clauses (5).

(4) [Den här poesin]$_i$ måste man vara expert [för att förstå   _$_i$].
     this here poetry needs one to.be expert   for to understand
     'One needs to be an expert to understand this kind of poetry.'
     (Thorell 1977: 267)

(5) a. Sportspegeln$_i$ somnar   jag [om jag ser   _$_i$].
         sports program.the fall.asleep I   if   I   watch
         'I fall asleep if/when I watch the sports program.'
         (Anward 1982: 74)

     b. [Såna skyltar]$_i$ kan inte polisen   haffa   oss [om vi inte
         such   signs   can not police.the catch us   if   we not
         lyder _$_i$].
         obey
         'The police cannot catch us if we do not obey such signs.'
         (Teleman et al. 1999: 424)

The results of the acceptability study presented in the preceding chapter lend further support to the acceptability of sentences with finite adjunct clause extraction in Swedish, given that most sentences involving extraction from finite, central adjunct clauses with a coherent relation to the matrix clause received ratings on the upper end of the scale in that study.

---

[17] Both of these sentences are reported to be acceptable in non-extracted form:

(i) a. John went home [after talking to Mary].
     b. John went home [after he talked to Mary].
         (Truswell 2007: 115−116)

To summarize the situation in Swedish and English, extraction from central adjunct clauses seems to be restricted in both languages in the sense that a coherence relation needs to hold between the adjunct and its host in order for extraction to be possible. However, Swedish appears to be more liberal than English in that Swedish, but not English, permits extraction from finite adjunct clauses (provided that a coherent relation is present). The contribution of finiteness to the relative acceptability of extraction from adjuncts may thus exist as a point of cross-linguistic variation between Swedish and English and therefore deserves further investigation.

Based on the above observations, Experiments 1 and 2 are hypothesized to show an impact of finiteness on the acceptability of sentences with adjunct clause extraction only in English. Namely, sentences where extraction takes place from a non-finite adjunct are more acceptable than sentences where extraction is from a finite adjunct, possibly in the coherent condition alone.

5.3 Experiment 1 – Swedish adjunct clause extractions[18]

One research question to be addressed in this thesis is whether Swedish and English exhibit variation in the set of factors that have an impact on the acceptability of adjunct clause extraction sentences. Experiment 1 takes the first step towards addressing this question by investigating the impact of coherence and finiteness on the acceptability of such extraction sentences in Swedish. Specifically, the goal was to confirm the observations in Chapter 4 that Swedish sentences involving extraction from non-coherent adjuncts would receive worse ratings than those involving extraction from coherent adjuncts (similar to what has been claimed for English), but that finiteness would not cause any significant differences in acceptability, different from what has been reported for English.

5.3.1   Method

Participants
Sixty-six native speakers of Swedish participated in the experiment. All participants were screened to not have any other native language than Swedish and to not have neurological disorders. Each participant received a movie ticket voucher for taking part in the experiment. Seven participants were excluded for being over an age limit of 40. To better balance the lists, two participants were

randomly excluded from one experimental list (list 2), which was overly represented relative to the other lists. This left 57 participants for analysis.

Materials

For the purpose of this experiment, 40 sentence items of the type in (6) were created, involving argument extraction from adjunct clauses introduced by *efter att* 'after'. For each item both coherence (coherent, non-coherent) and finiteness (finite, non-finite) were manipulated, thus enlisting a 2 X 2 factorial design. For coherence, *after*-clauses were construed to bear either a causal (coherent), or a purely temporal (non-coherent) relation to the matrix clause (detailed below). For finiteness, finite and non-finite variants of each embedded adjunct verb were created. Experimental items were then distributed across four lists in a Latin square design so that each participant saw instances of each factorial combination, but only one sentence from each item set. The order of sentences on each list was pseudo-randomized to counterbalance for potential priming or learning effects. See Appendix B for a complete list of the critical items.

(6)
a. coherent | non-finite

Den ölen snubblade han$_i$ dessvärre efter att PRO$_i$ ha svept.
that beer stumbled he unfortunately after to have chugged
'Unfortunately he stumbled after chugging that beer.'

b. coherent | finite

Den ölen snubblade han$_i$ dessvärre efter att han$_i$ hade svept.
that beer stumbled he unfortunately after that he had chugged
'Unfortunately he stumbled after he chugged that beer.'

c. non-coherent | non-finite

Den ölen flanerade han$_i$ lite efter att PRO$_i$ ha svept.
that beer strolled he a.little after to have chugged
'He strolled a little after chugging that beer.'

d. non-coherent | finite

Den ölen flanerade han$_i$ lite efter att han$_i$ hade svept.
that beer strolled he a.little after that he had chugged
'He strolled a little after he chugged that beer.'

Coherence was manipulated by varying the telicity of the (intransitive) matrix verb. For some types of adjuncts, the possibility of extraction has been shown to be influenced by the aspectual class of the matrix predicate (e.g. Truswell 2011; Brown 2015; Fábregas & Jiménez-Fernández 2016). Brown (2015) observes that

extraction from adjuncts in English is enhanced with telic matrix verbs, but is less acceptable with atelic matrix predicates. Additional experimental evidence is provided by Rohde (2008). Although Rohde did not address the impact of telicity on coherence relations directly in her study, she demonstrated that different contextual cues such as verbal aspect and verb type can shift the probability of an upcoming coherence relation, with certain verb types creating a bias towards an explanation relation (like the one identified by our causally interpreted adjuncts). Therefore, only telic verbs (achievements and accomplishments) were used as matrix predicates in the coherent condition, and activity verbs as predicates in the non-coherent condition. The choice of these verb types is expected to enhance or impede the causal reading. For example, in the stimuli set above, the telic event in the matrix clause in (6a,b) (*snubblade* 'stumbled') is easily interpreted as being caused by chugging a beer, whereas in (6c,d) it is very difficult to establish a causal reading between the atelic matrix event (*flanerade* 'strolled') and the event of chugging a beer, making a temporal (non-coherent) reading of the events the most natural reading. In the experiment, the aspect of the matrix verb is expected to function as a cue that the matrix and an expected/predicted upcoming adjunct clause will either bear a coherent relation (telic matrix verb) or non-coherent relation (atelic matrix verb).

Note that all sentences in the current study were constructed to be felicitous in their non-extracted form, and were judged as intuitively acceptable by two native speakers of Swedish. Particular attention was payed to ensure that the non-coherent condition involved verbs that create a plausible narrative sequence, rather than depicting a complete non-sequitur (which was pointed out as a problem in Poulsen's (2008) study of cohesion effects, see Chapter 3). To accommodate limitations in the verbs that met our criteria, each matrix verb was used twice (in two sets of items), whereas the embedded verbs and the extracted phrases differed between all sets.

Adverbs were inserted into all matrix clauses, serving the dual function of increasing the felicity of the sentences in the non-extracted form and enhancing either of the two readings. Adverbs such as *alltid* 'always', *ofta* 'often', or *dessvärre* 'unfortunately' were used for the coherent conditions, (6a,b), and for the non-coherent conditions (6c,d), *lite* 'a little' was always used, since this adverb does not induce a coherent interpretation.

Finiteness, in turn, was manipulated by varying the form of the verb in the adjunct clause between the perfect infinitive and the past perfect. A consequence of this manipulation is that the finite condition has one more overt argument compared to the non-finite sentences, due to the lack of an overt subject in the adjunct clause in the non-finite condition. One influential model of online processing, Dependency Locality Theory (Gibson 1998, 2000; Grodner & Gibson 2005), posits that difficulty associated with dependency formation is in part a function of the number of new discourse referents (NPs or tensed verbal elements)

introduced between the endpoints of the dependency (Grodner & Gibson 2005). It is thus critical to take differences regarding sentential elements crossed over the course of a dependency in the conditions of this study into account, especially if some linkage between acceptability and processing difficulty is assumed. Crucially, the extra subject in our finite condition (the second occurrence of *han* in 6b and 6d) does not introduce a new discourse referent, as it is interpreted as coreferent with the matrix subject. In addition, the non-finite condition does contain a syntactic NP-subject in the adjunct clause, even though this NP is void of phonological content: PRO (see e.g. Landau 2010). The interpretation of PRO is obligatorily controlled by the matrix subject in the stimuli of this experiment, just like the overt adjunct subject is controlled by the matrix subject in the finite condition. Recent experimental evidence (Green 2018) suggests that parsers can interpret the PRO subject in a non-finite temporal adjunct clause and the overt subject pronoun in a corresponding finite clause at the same rate once they receive the relevant bottom-up input. It can thus be assumed that pronoun resolution in (6b) and (6d) is not more costly than their PRO-resolution counterparts in the non-finite clauses (6a) and (6c), at least not in a way that this is reflected in the judgments.

Extraction from adjuncts is tested in the form of topicalization rather than question formation in Swedish for the same reasons that were given in Chapter 4 to motivate the use of topicalization, i.e. because question formation has been reported to be less acceptable or at least less frequent than topicalization out of island domains in the Scandinavian languages. For the present stimuli, it was ensured that the topicalized, extracted filler NP could not be interpreted as an object of the matrix verb in any of the sentences.

Eighty distractor items were constructed to mask the identity of the critical items. The distractor sentences varied between good, bad, and intermediate acceptability. Out of the good fillers, 16 sentences involved non-extracted instances of both finite and non-finite *after*-clauses. This was to monitor the participants' acceptance of both finite and non-finite *after*-clauses, independent of the extraction. The bad fillers had two ungrammatical components: a tense/agreement mismatch and a syntactic violation (missing argument or incorrect word order). The intermediate fillers had either a tense/agreement mismatch or a difficult but grammatical extraction involving more than one level of embedding.

Procedure

Participants were randomly assigned to one of the four presentation lists. They rated the sentences on their own computers using an online questionnaire created with Google forms. Judgments were given on a seven-point Likert scale ranging from 1 = *helt oacceptabel* 'completely unacceptable' to 7 = *helt acceptabel* 'completely acceptable'. The use of seven-point scales is standard in formal acceptability studies of this kind, see e.g. Jurka (2010); Fanselow et al. (2011);

Dillon & Hornstein (2013); Goodall (2015); Atkinson et al. (2016); Sprouse et al. (2016) for studies employing a seven-point scale. Each questionnaire started with three practice items of good, bad, and intermediate acceptability in order to familiarize the participants with the task and the acceptability scale. Prior to answering the questionnaire, the participants received detailed instructions about the criteria according to which they should judge the sentences, with the aim to minimize any influence from prescriptive rules on the ratings.

5.3.2   Results

To analyze the data, a linear mixed effects model was constructed using the mixed() convenience function from afex (Singmann et al. 2018), which fits models using the lmer() function from lme4 (Bates et al. 2014). *p*-values were derived using Satterthwaite's method for approximating degrees of freedom. Note that for these purposes, our Likert scale responses were treated as interval data (see supporting arguments in Carifio & Perla 2008; Pell 2005; and Norman 2010). Following Barr et al. (2013), we fit the maximal random effects structure that reached convergence in our model, which included random intercepts for Subject and Item, and for which slopes were allowed to vary for coherence and finiteness by both Subject and Item. This was expected to sufficiently account of participant scale-interpretation bias and to preclude the need for any additional *z*-score normalization between participants. Mean acceptability ratings (based off raw rating scores) for the four conditions are presented in Table 5.1. Results of the linear mixed models analysis are presented in Table 5.2 and Figure 5.1.

Table 5.1: Experiment 1 mean acceptability ratings

Coherence	Finiteness	Mean	SD
Coherent	Non-finite	3.47	1.82
Coherent	Finite	3.40	1.70
Non-coherent	Non-finite	2.71	1.50
Non-coherent	Finite	2.81	1.49
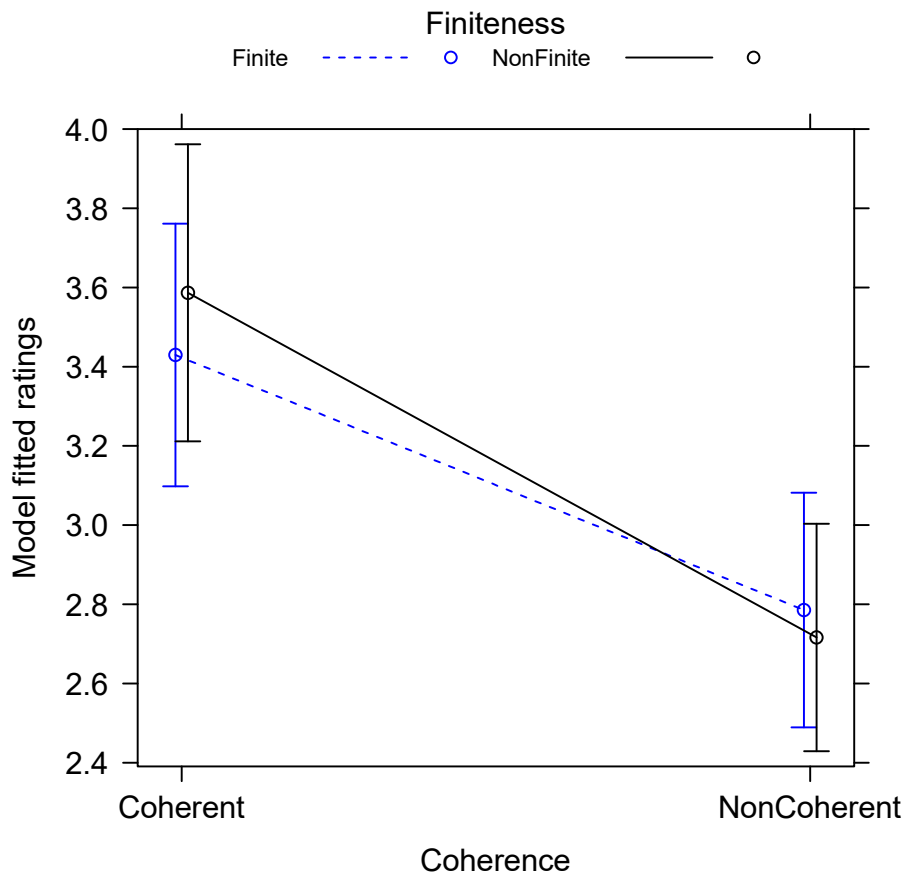
Figure 5.1: Experiment 1 fitted mean acceptability ratings. Error bars represent the 95% confidence interval (CI) of the mean. Note that the full scale on the y-axis ranges from 1–7, and that to increase readability, the plot focuses on the subset of that scale that is relevant to the obtained effects.

Table 5.2: Experiment 1 linear mixed models analysis

	Estimate	SE	df	t	*p*-value	
(Intercept)	3.129	0.13490	76.15	23.20	<.001	***
Coherence	0.379	0.06159	74.29	6.15	<.001	***
Finiteness	-0.022	0.05551	73.12	-0.40	0.694	
Coherence:Finiteness	-0.057	0.04798	144.02	-1.18	0.240	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Note: The intercept value represents the un-weighted grand mean (sum/effects coded).

As expected, there was a main effect of coherence, whereby coherent structures significantly improved the acceptability of extraction sentences for Swedish. Also

as expected, Swedish showed no effect of finiteness and no finiteness by coherence interaction.

5.3.3 Discussion

The presence of a coherence effect in sentences involving extraction from *after*-adjunct clauses, whereby coherent sentences significantly increase acceptability compared to non-coherent structures, lends support to the hypothesis that the acceptability of adjunct island extraction sentences in Swedish increases in the presence of a coherent relation between matrix and adjunct clause. The relevance of coherence for the acceptability of extraction sentences in Swedish is thus further corroborated with evidence from a controlled experiment.

Note that Experiment 1 (and the following experiments) aim to investigate potential effects of coherence and finiteness solely in the presence of extraction, which is where effects have been reported in the literature. No perceived difference has been reported in the literature between temporally and causally interpreted *after*-adjunct clauses in the absence of extraction, and both conditions were judged as intuitively acceptable in the non-extracted form in the stimuli construction process. In that, the materials used here differed from the sentences in Poulsen's (2008) study of cohesion effects in conditional adjunct clause extraction in Danish: As reviewed in Chapter 3, the incohesive sentences in his acceptability experiment did not just make a causal interpretation of the events involved unlikely, but described overall pragmatically odd narrative sequences and were thus intuitively unacceptable even in their non-extracted form. His conclusion that cohesion does not affect extraction, but only the overall naturalness of a sentence, does therefore not need to carry over to the findings presented here, even though unlike Poulsen (2008), we did not manipulate extraction and therefore cannot compare the effect of coherence in the presence and absence of extraction. The effect of the extraction itself on the ratings of adjunct clause extraction, although interesting, lies outside the scope of the present study.

It is noteworthy that even when sentences are coherent, acceptability does not rise above the mid-point of the scale, as can be seen in the modeled values (Figure 5.1) and in the mean ratings (Table 5.1). The coherence effect is significant, but the practical differences are small, and are perhaps best interpreted as subtle shifts in the relative acceptability of the sentences. That is, the effect clearly does not represent a case of unacceptable sentences becoming acceptable. This inability to move above the midpoint occurs in spite of evidence that the full scale was used by the participants, as can be seen by the ratings for the good distractor items (all good distractor items: $M = 6.29$, $SD = 1.13$, distractors involving finite *after*-clauses: $M = 5.75$, $SD = 1.43$, distractor items involving non-finite *after*-clauses: $M = 5.78$, $SD = 1.38$). At first glance, this is unexpected, given the authentic

examples provided in the literature and the informal judgments reporting such structures to be acceptable (e.g. Anward 1982; Teleman et al. 1999). However, this apparent discrepancy between informal and formal judgments finds a parallel in extraction from relative clauses in Swedish which have also been reported to be intuitively acceptable, but scored unexpectedly low ratings in experimental studies (see Müller 2015; Wiklund et al. 2017; and Tutunjian et al. 2017). Several factors have been suggested in these works to be responsible for the low acceptability, including the processing complexity of the stimuli sentences and the lack of contextual cues in the acceptability studies, the latter of which may be required for the felicity of at least some of these extractions. Even though I do not provide a factorial definition of island effects along the lines of Sprouse (2007) and Sprouse et al. (2012, 2016), the low ratings obtained for the sentences involving *after*-adjunct clause extraction in Experiment 1 are at least compatible with the position that these constructions are islands. I assume for now that the *after*-adjunct clauses investigated here are island structures despite the lack a quantitative measure for this. See Chapter 7 for further discussion. The small, but significant changes suggest that the proper avenue for investigating such differences may be via a processing study – an idea that I return to in Experiment 3, for English.

Also in line with expectations, Swedish was not seen to display any finiteness effect. Experiment 1 thus provides no evidence that finiteness affects extraction possibilities in Swedish, as it has been claimed to do in English.

5.4 Experiment 2 – English adjunct clause extractions

Experiment 2 investigated again the effect of coherence and finiteness on the acceptability of adjunct clause extraction sentences, this time using English stimuli and monolingual speakers of English as participants, allowing us to gain insights regarding variation between the two languages. Given the data presented in Truswell (2007, 2011) and Tanaka (2015), coherence was expected to increase the acceptability of extraction sentences in English just as it did in Swedish (Experiment 1). If correct, such a finding would support the hypothesis that the acceptability of sentences involving adjunct island extraction is sensitive to coherence in both Swedish and English and hence that these languages are similar with regard to adjunct island extraction at least in terms of the coherence factor. However, in contrast to what was seen for Swedish, we also expected a finiteness by coherence interaction whereby non-finite adjunct extractions would receive higher ratings than finite adjunct extractions, but only in the coherent condition, similar to what has been reported in Truswell (2007, 2011). If correct, this would provide evidence that finiteness is a factor of variation between these languages

and could, in part, explain why English appears to be less permissive with regard to extraction from adjuncts than Swedish.

5.4.1 Method

Participants

Eighty-five English-speaking participants, all of whom were screened to not have native languages other than English and to not have neurological disorders completed the experiment. Each participant received a movie ticket voucher as compensation. Eight participants were removed for being over the age limit (40) and five subjects were removed (randomly selected) to better balance the experimental lists (two from list 2 and three from list 4), leaving a total of 72 participants (18 per list).

Materials

The materials used in Experiment 2 were very similar to the materials in Experiment 1, manipulating coherence and finiteness, as demonstrated in (7). See Appendix C for a complete list of the critical items. The clauses tested were *after*-adjunct clauses, which are close in interpretation to the Swedish counterparts (*efter att*-clauses) tested in Experiment 1. In English, the non-finite *after*-clause is formed with a gerund instead of an infinitival verb.

(7)
a. coherent | non-finite
　Which beer did he almost stumble after chugging?

b. coherent | finite
　Which beer did he almost stumble after he chugged?

c. non-coherent | non-finite
　Which beer did he stroll a little after chugging?

d. non-coherent | finite
　Which beer did he stroll a little after he chugged?

Three parameters of the experimental design had to be altered from Experiment 1. First, instead of topicalization, question formation was used in the English materials. Topicalization is a fairly marked structure in English compared to Swedish and generally occurs less frequently in English (see e.g. Engdahl 1997; Poole 2017: 15). To circumvent the risk that the items would prove to be degraded

independent from extraction and the experimental manipulations, extraction was tested instead by *wh*-movement. The extracted *wh*-phrase was always of the type *Which NP* and, due to its lexical restriction, strongly favors a discourse-linked (*D-linked*) interpretation (Pesetsky 1987). D-linking has been shown in a number of studies to improve extraction from certain islands (Maling & Zaenen 1982; Cinque 1990; Rizzi 1990; Chung 1994). Any noted effect of coherence and/or finiteness would thus be despite the D-linked interpretation. Admittedly, testing two different types of long-distance dependency (topicalization in Swedish and question formation in English) limits the comparability between the two experiments somewhat. Note though that the focus in this study is on the relative acceptability of extraction within Swedish and English, respectively, given the two manipulations (coherence and finiteness); and the current formulation arguably provided the best design available, given that topicalization is marked in English, compared to Swedish, and given that question formation out of islands seems uncommon or impossible in Swedish. A second design modification concerned the use of auxiliaries. The adjunct clauses in English were constructed without the auxiliary *have,* since *after*-adjunct clauses in English are more commonly used in that way (as opposed to Swedish, where there is a preference for the occurrence of the auxiliary *ha* 'have' in *efter att*-clauses, Teleman et al. 1999: 259).[19] A final point of modification involved the matrix verbs. Some of the matrix verbs used in Swedish can only be translated as particle verbs in English. Since the addition of a particle has been observed to increase the acceptability of some island violations (see e.g. Wiklund 2007), particle verbs were avoided in the matrix clause and exchanged for a non-particle verb where necessary. A consequence of this was that also the lexical content of the adjunct clause had to be changed in some items in order to create felicitous sentences and maintain the desired interpretations. In all other regards, the design was identical to Experiment 1. As with Experiment 1, all of the sentences were constructed to be intuitively acceptable in their non-extracted forms, including those in the non-coherent conditions.

Procedure

The procedure was the same as in Experiment 1. The English-speaking participants judged the sentences on a seven-point scale ranging from 1 = *completely unacceptable* to 7 = *completely acceptable.*

---

[19] A further change, which affected only some items, was in regard to the adverbs that were used to ensure that the sentences sound good when unextracted. In some of the Swedish items, these were higher, speaker-oriented adverbs like *dessvärre* 'unfortunately', which degrade *wh*-extraction in English independent of the island. Thus, for the English stimuli, non-speaker oriented adverbs were used instead (e.g. temporal adverbs such as *often* or *always*). It cannot be excluded that the presence of speaker-oriented adverbs may have lowered the average ratings in the relevant Swedish items, but regardless, their presence in the coherent condition was crucially biased against our hypothesis that extraction from coherent adjuncts should be more acceptable.

5.4.2 Results

Table 5.3: Experiment 2 mean acceptability ratings

Coherence	Finiteness	Means	SD
Coherent	Non-finite	3.35	1.70
Coherent	Finite	3.05	1.65
Non-coherent	Non-finite	2.67	1.57
Non-coherent	Finite	2.59	1.52
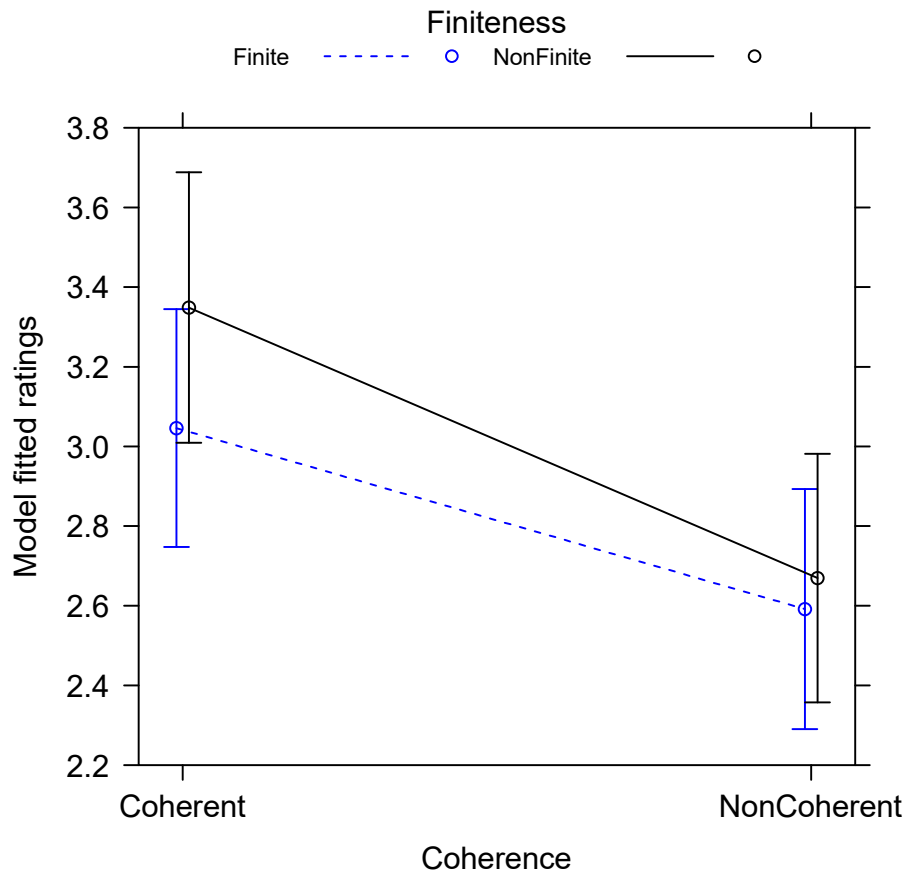
Figure 5.2: Experiment 2 fitted mean acceptability ratings. Error bars represent the 95% confidence interval (CI) of the mean. Note that the full scale on the y-axis ranges from 1–7, and that to increase readability, the plot focuses only on the subset of that scale that is relevant to the obtained effects.

Linear mixed models were again used to analyze the ratings responses. For this, we followed the same fitting procedure used in Experiment 1. The final

converging model included random intercepts for Subject and Item, and random slopes for coherence and finiteness by both Subject and Item. Mean acceptability ratings for all tested conditions in English are provided in Table 5.3. The results of the linear mixed models analysis are provided in Table 5.4.

Table 5.4: Experiment 2 linear mixed models analysis

	Estimate	**SE**	**df**	**t**	**_p_-value**	
(Intercept)	2.914	0.137	100.55	21.26	<.001	***
Coherence	0.283	0.071	62.11	3.98	<.001	***
Finiteness	-0.095	0.035	44.40	-2.70	<.05	**
Coherence:Finiteness	-0.056	0.021	2553.10	-2.69	<.05	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Note: The intercept value represents the un-weighted grand mean (sum/effects coded).

In the analysis, a main effect of coherence was found for which coherent structures were more highly rated than non-coherent structures. There was also a main effect of finiteness for which non-finite structures were rated more highly than finite structures. Finally, a significant finiteness by coherence interaction was found indicating that the finiteness effect was driven by differences in the coherent structures. Namely, the presence of finiteness was seen to degrade coherent, but not non-coherent structures.

5.4.3   Discussion

The presence of a coherence effect on extraction sentences in Experiment 2 further corroborates previous observations that the acceptability of adjunct clause extraction sentences is increased in the presence of a coherent relation between matrix and adjunct clause event. The result can be seen as a partial replication of Tanaka's (2015) finding that a causal, coherent relation significantly increased the acceptability of sentences involving extraction from *after*-adjuncts in English (although Tanaka's study was restricted to non-finite adjuncts). In this regard, *after*-adjunct clauses in English and in Swedish pattern alike in the two experiments, in line with expectations. As in Swedish, even non-finite, coherent extractions were rated below the mid-point of the scale (see Table 5.3), which is unexpectedly low considering the informal judgments reported in Truswell (2007, 2011), where it is suggested that such structures are acceptable.

However, in contrast to Swedish, English showed a significant main effect of finiteness, which interacted with coherence. Sentences involving extraction from non-finite, coherent adjuncts were rated more acceptable than those with extraction from finite, coherent adjuncts, but finiteness did not have an effect on sentences involving extraction from non-coherent adjuncts. This result is compatible with the hypothesis that finiteness affects the acceptability of adjunct

clause extraction sentences in English (in contrast to Swedish); however, despite being significant, the effect was rather small. The mean ratings between coherent finite and coherent non-finite adjuncts varied between 3.05 and 3.35 on the Likert scale (Table 5.3), making it difficult to draw any extended conclusion with regard to finiteness as a locus of cross-linguistic variation between these languages. The small effect size serves as an indication that this phenomenon is perhaps more suitably investigated via a processing study, which will be the focus in Experiment 3. One possibility is that finite structures in English differ from non-finite structures in a way that makes extraction from the former more difficult to process, perhaps on account of the finite structures displaying a more elaborate structure, and that this yields a slight difference in acceptability between the two structures. If correct, one would then have to assume that the relevant difference between the two conditions is not present in Swedish. I defer a discussion of the implications of these results for the Adjunct Condition and for cross-linguistic variation to Chapter 7 below. In the remainder of this chapter, I discuss what I call the coherence and finiteness effects more in depth.

5.5 Deriving the coherence effect

After having established that coherence increases the acceptability of sentences involving adjunct clause extraction both in Swedish and English, the question remains how this effect can be derived. This section discusses some proposals.

Two general approaches to the relative transparency of coherent adjuncts can be distinguished. On the one hand, such apparently semantically defined exceptions to the Adjunct Condition have been taken to suggest that there is no syntactic island constraint ruling out extraction from adjuncts, but that ill-formed instances of extraction can instead be explained by a semantic principle or a more general parsing preference (e.g. Truswell 2011). On the other hand, some approaches assume that a syntactic Adjunct Condition can be maintained even in the light of such counterexamples, and that the difference between coherent and non-coherent adjuncts correlates with a structural difference that helps coherent adjuncts to circumvent the Adjunct Condition.

An example of the former, non-syntactic approach is Truswell's (2011) proposal that unacceptable instances of adjunct clause extraction (island violations) are not syntactically ruled out, but are filtered out at the interfaces as uninterpretable, by a semantic filter. Under this account, a (coherent) single-event reading is coerced in structures involving extraction from adjunct clauses. What leads to the degraded acceptability (island effects) in extraction from non-coherent adjuncts is either that this single-event reading clashes with the most salient interpretation of the sentence as involving two independent events, or that the cognitive effort needed

to coerce the single-event reading is too big (Truswell 2011: 123). To explain why a coherent single-event reading is coerced in extractions, Truswell (2011) advocates a processing account. In detail, he assumes that in non-coherent contexts a multiple-event reading is triggered, with the consequence that an additional event has to be processed while resolving the filler-gap dependency. If events are also discourse referents, this leads to an increased processing load (compared to cases with a single-event reading) according to approaches such as Gibson's (1998, 2000) Dependency Locality Theory, where additional discourse referents intervening between the extracted element and its source position increase the complexity of a sentence. A (coherent) single-event reading can thus be assumed to be coerced in instances of extraction such as in the Swedish stimuli, repeated in (8) below (here only with finite adjunct clauses) because the parser defaults to a single-event interpretation of such a structure due to the lower processing costs associated with such an interpretation, and the degradation in sentences with extraction from non-coherent adjuncts such as (8b) would thus result from the semantic ill-formedness of this single-event reading.

(8) a. Coherent adjunct extraction
Den   ölen snubblade han$_i$ dessvärre   efter att   han$_i$
that beer stumbled   he   unfortunately after that he
hade   svept.
had   chugged
'Unfortunately he stumbled after he chugged that beer.'

b. Non-coherent adjunct extraction
Den   ölen flanerade han$_i$ lite   efter att   han$_i$ hade svept.
that beer strolled he   a.little   after that   he   had   chugged
'He strolled a little after he chugged that beer.'

This problem occurs presumably only in non-coherent sentences involving extraction, but not in the well-formed non-extracted versions of such sentences, because only in the extracted versions does the parser need to maintain a filler in memory while processing the multiple events occurring between the filler and the gap site. The unacceptable cases of adjunct clause extraction are under this account ultimately derived by semantic factors in combination with a general parsing strategy, thus making a syntactic account of the Adjunct Condition dispensable according to Truswell.

An alternative to semantic or processing-based accounts, as mentioned above, would be to investigate the possibility that coherence is encoded structurally and that the coherence effect can be derived from one of the syntactic analyses of the Adjunct Condition reviewed in Chapter 2. This would be the case either if coherent adjuncts could be shown to not involve adjunction, but a complement

structure (expected to be transparent), as suggested e.g. by Fábregas & Jiménez-Fernández (2016) (see below), or if the adjunct occupies a specific structural position or is in a structural relation which encodes coherence and which makes it possible to circumvent the mechanisms of the Adjunct Condition in some way (see below for proposals along this line). The coherent interpretation and relative transparency of the adjunct could then both be the result of syntactic structure rather than transparency being licensed by the semantic interpretation, independently of the structure involved. A coherent reading would on this type of analysis be coerced in the presence of such a specific structure (compatible with extraction), regardless of whether this reading is plausible or not. The degraded acceptability of non-coherent adjuncts would then be due to a clash between the coherent reading enforced by the structure and the (non-coherent) contextual cues making such a reading unlikely.[20]

One explicit attempt to develop a syntactic account of Truswell's observations, couched in Ramchand's first phase syntax, is Fábregas & Jiménez-Fernández' (2016) study of transparent gerund adjuncts (such as *What did John drive Mary crazy whistling?*) in English and in Spanish. The proposal builds on the syntactic account of event structure developed by Ramchand (2008) according to which the *v*P with its subevents is decomposed into a series of heads corresponding to initiation phrase (InitP), process phrase (ProcP), and result phrase (ResP), depending on the aktionsart of the verb. Optionally, Proc can also take a Rheme argument, which in turn can take a ResP as its complement yielding the verbal sequence in (9).

(9)   [InitP [ProcP [RhemeP [ResP]]]]

Fábregas & Jiménez-Fernández (2016) suggest that the transparent gerund constituent is projected as one of the subevents in the verbal domain: It identifies with RhemeP and can thus be merged as a complement to Proc as illustrated in (10). In other words, such gerunds are integrated with the matrix predicate in the same structural space.

---

[20] Contextual cues supporting a non-coherent reading of the adjunct clause can e.g. be an atelic matrix predicate, as in sentence (8b) above.

(10)
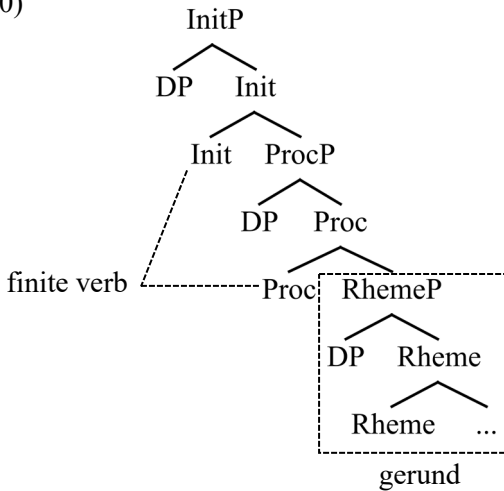
(adapted from Fábregas & Jiménez-Fernández 2016: 1309)

These gerunds permit hence extraction because they are structurally in a complement configuration and not in an adjunct structure.

However, the account was developed for bare present participial adjuncts which are syntactically very small and have a tight semantic relation with the clause they are modifying. The proposal works on the assumption that the integration of an adjunct with the matrix verb is subject to a number of restrictions regarding aktionsart and argument structure of the matrix verb. These restrictions do not seem to hold for adjuncts with a more extended internal structure, such as the *after*-clauses tested in Experiments 1–2 or even transparent finite adjunct clauses in Swedish, and it proves hence difficult to accommodate these cases under the account outlined above. For example, Fábregas & Jiménez-Fernández (2016) point out that RhemeP gerunds cannot combine with predicates that already fill the RhemeP position by themselves, i.e. accomplishments and activities. As a consequence, the gerund has to be introduced as an adjunct with these verb types instead, which excludes the possibility of extraction. However, coherent *after*-adjuncts clearly do not seem to display such restrictions, see (11) for an example of extraction from an *after*-clause modifying an accomplishment, and hence cannot be comprised by this analysis.

(11)   Who*i* did John go home [after talking to _*i*]? (Truswell 2007: 5)

I now move on to syntactic accounts of the coherence effect that maintain an adjunction analysis for both coherent and non-coherent adverbial clauses, but assume that the opacification of the adjunct normally predicted by the Adjunct

Condition can be circumvented in certain structural configurations which are only available to coherent adjuncts. One way to derive the differences in extraction possibilities for coherent and non-coherent adjuncts structurally is to assume different attachment sites for coherent and non-coherent adjunct clauses relative to their host (matrix clause), which correlate with the respective interpretations. This analysis is argued for in Narita (2011), Sheehan (2013), Brown (2015, 2016, 2017), and Dal Farra (2019). The general consensus behind these proposals is that adjuncts in a low position are transparent for extraction whereas adjuncts that are attached in a higher position are opaque. Furthermore, it is assumed that adjuncts in a low (transparent) position are only licensed if they can be interpreted as modifying aspects within a single event together with the matrix VP or as being in a coherent (e.g. causal) relation with the matrix event. Such semantic licensing of adjunction is in line with approaches assuming that the attachment site of adjuncts depends on their interpretation, such as Ernst's (2002) scope-based theory of adjunction. According to Ernst's approach, event-internal modification is restricted to the lower portion of the clause structure, which is compatible with the proposal that adjuncts conveying a coherent, single-event relation to the matrix are attached in a lower position than non-coherent adjuncts.

A correlation between attachment height and extraction possibilities can be derived under different theoretical accounts of the Adjunct Condition. Below, I present first a proposal deriving such an effect from Phase Theory (Brown 2015, 2016, 2017), and then a proposal deriving such an effect under a version of Uriagereka's Multiple Spell-Out model (Narita 2011; see also Sheehan 2013).

Brown (2015, 2016, 2017) suggests that a difference in extraction possibilities between high and low adjuncts can be derived under Phase Theory (Chomsky 2000, 2001, 2008) and the assumption that an Agree relation requires c-command between the involved features. In Phase Theory, it is assumed that complements of phase heads are spelled out in an earlier cycle than the phase head and become hence inaccessible for further syntactic operations after Spell-Out. In consequence, constituents internal to the complement domain of a phase head cannot be extracted, unless the phase head in question triggers movement of the relevant element via the phase edge. However, in contrast to traditional phase-theoretic derivations of island constraints (see Chapter 2), Brown's account refrains from linking islandhood to the phasal nature of adjuncts. Instead, the transparency or intransparency of adjuncts is derived from the phasehood of the projection in the matrix clause that the adjunct clause attaches to. Specifically, Brown suggests that opaque non-single event constructions are merged with the projection of a phase head, viz. vP, whereas transparent single-event constructions are merged with the projection of a non-phase head, viz. VP (assuming that adjuncts modifying the core event are licensed below vP). Both types are illustrated in (12). To derive the possibility of extraction from VP-adjuncts, e.g. extraction of the *wh*-phrase from the *after*-adjunct attached to VP in (12), Brown assumes that the phase head v has

an uninterpretable *wh*-feature [*wh*:_] that needs to be checked under an Agree relation. For this purpose, *v* searches the nodes c-commanded by it for an interpretable copy of the *wh*-feature. Upon finding an interpretable copy, *v* triggers movement of the feature to Spec,*v*P from where it can check [*wh*:_]. This way, a *wh*-phrase within a VP-adjunct can remain in the derivation for further successive-cyclic movement even when the complement of *v* is spelled-out. However, this is not possible for *v*P-adjuncts because nodes within them are not c-commanded by the phase head *v* and thereby outside of its search domain. Hence, *v* cannot target nodes inside *v*P-adjuncts, such as the phrase in bold print in (12), to undergo successive-cyclic movement via its phase edge. This problem does not pertain to VP-adjuncts, since these are c-commanded by *v* and *v* can hence successfully trigger movement of constituents within those adjuncts, making them available for further extraction.

(12)

```
                          CP
                       ／    ＼
                 C_Φ[wh:_]     ...
                            ／     ＼
                         ...         vP
                                  ／     ＼
                               vP          PP
                            ／    ＼      ／    ＼
                      v_Φ[wh:_]   VP    P      VP
                               ／  ＼  after  ...wh- phrase[wh:+]...
                            VP      PP
                                 ／    ＼
                                P       VP
                             after  ...wh- phrase[wh:+]...
```

(adapted from Brown 2017: 58)

Unfortunately, it proves difficult to provide empirical evidence for different attachment heights of coherent and non-coherent adjuncts as the structural position of adjunct clauses has traditionally been hard to determine, due to c-command tests showing inconclusive or conflicting results (see e.g. Pesetsky 1995; Bianchi 1997, 2000; Valmala 2009), or not being applicable to clausal adjuncts. For instance, a strand of research trying to determine whether some adverbials are c-commanded by VP-internal constituents (as predicted by proposal suggesting that certain adverbials are not right-adjoined, but are generated as sisters to the verb low in a VP-shell structure, Larson 1988; Haider 2000; Frey 2003) has produced contradictory results from c-command tests. On the one hand, data from quantifier

binding such as (13) seem to indicate that e.g. temporal adverbials are c-commanded by the matrix object, since a quantifier in the matrix object can bind a pronoun inside the adverbial (which is assumed to be possible only if the binder c-commands the pronoun).

(13) a. I saw everyone$_i$ [the day before he$_i$ died]. (Stroik 1990: 656)
b. I invited nobody$_i$ [before he$_i$ met you]. (Manzini 1995: 8)
c. They will accept every paper$_i$ for publication [after it$_i$ is positively evaluated by two reviewers]. (Valmala 2009: 961)

However, if such temporal clauses indeed are c-commanded by the matrix object, we would expect conversely that coreference between a pronominal matrix object and the subject of the adverbial induces a Condition C violation (assuming that Condition C bans coreference between a full DP and a c-commanding pronoun). This prediction does not seem to be fulfilled in light of data such as (14), indicating that such coreference is possible.

(14) a. I told her$_i$ [before Mary$_i$ asked me]. (Manzini 1995: 2)
b. Mary shot him$_i$ [before John$_i$ could leave]. (Williams 1994: 180)

C-command tests using quantifier binding and Condition C thus produce contradictory evidence with regard to the position of adjuncts.

Further complicating the picture, it turns out that the results obtained with Condition C tests are inconsistent. Some examples parallel to those in (14) are reported to be unacceptable (15a–b), or appear to be rejected by some speakers and to be accepted by others (15c).

(15) a. *We never saw him$_i$ [before we examined John Smith$_i$]. (Brody 1995: 89)
b. *We interviewed them$_i$ [before hiring those students$_i$]. (Tellier 1991: 179)
c. OK/*They will hire her$_i$ [after Mary$_i$ accepts their conditions].
(Valmala 2009: 961)

This inconsistency observed with Condition C tests extends to the *after*-clauses under investigation in this chapter: The sentence in (16), involving a coherently interpreted, non-finite *after*-adjunct clause in English, was rejected with the indicated coreference relations by three English native speakers I consulted and judged as marginally acceptable by two others, making it difficult to evaluate whether e.g. an analysis in which adjuncts are c-commanded by VP-internal constituents could be adapted for coherent adjuncts.

(16) %Mary congratulated him$_i$ [after reading John$_i$'s article].

It is possible that backward pronominalization might be difficult in these contexts for independent reasons. Progovac (2009, 2015) suggests that Condition C effects may overlap with a pragmatic principle of precedence (which operates across independent sentences, 17) in judgments for adjunct clauses.

(17) *He$_i$ finally arrived. John$_i$'s dog went for a walk. (Progovac 2003)

It thus seems that the varying or contradictory speaker responses with regard to the acceptability of sentences such as those in (14)–(16) reflect the potential influence of both syntactic and pragmatic factors in backward pronominalization across adjunct clauses. In this case, Condition C does not provide a valid test of c-command in adjunct clause constructions.

Unfortunately, the quantifier binding tests demonstrated in (13) are equally controversial as a tool of determining c-command, since it has been questioned whether quantifier binding really requires c-command (e.g. Bianchi 1997; Truswell 2011: 220). Ultimately, there are reasons to doubt that c-command tests in general can function as a reliable indicator of the attachment height of adjuncts. Progovac (2009, 2015) proposes that c-command relations do not extend into adjunct structures (meaning that c-command effects are not fully observable in adjuncts) due to the non-integrated status of adjuncts, a proposal I will return to in Chapter 7. I speculate that this may also be the source for the inconclusive or conflicting results from the c-command tests shown above. For the current purposes, this means that it may not be possible to find independent evidence for small differences in attachment height between coherent and non-coherent adjuncts, even though such differences are in principle possible.

In Brown (2017), potential differences in attachment height were argued to cause a difference in the transparency of the relevant adjuncts based on Phase Theory and a definition of Agree involving c-command. As noted in Chapter 2, rather than deriving the Adjunct Condition from Phase Theory, most contemporary accounts of adjunct island effects blame the opacity of adjunct domains on the structural configuration of adjuncts. To be specific, these accounts usually assume that adjunct domains are opaque because adjunction involves Merge of two phrases, i.e. configurations of the type {XP, YP}, which creates complications for linearization. As a consequence, the adjunct phrase in question is assumed to be opacified e.g. by immediate Spell-Out in such accounts (e.g. Uriagereka 1999; Johnson 2003; Narita 2011). Narita (2011) and Sheehan (2013) provide a suggestion for how the transparency of low adjuncts can be derived under this view of the Adjunct Condition. Specifically, they suggest that in cases where the adjunct is transparent, not the adjunct but the target of adjunction in the matrix clause is spelled out instead. This option is excluded for adjuncts that are above a certain height, which thus derives the difference between high and low adjuncts. To illustrate how this proposal work, I will describe the more elaborated analysis

suggested in Narita (2011) in detail, using the adjunct clause extraction sentence *Which book did John design his garden after reading?* as an example.[21]

Narita's proposal is couched within a projection-free version of Bare Phrase Structure (Chomsky 1995). Similar to Uriagereka's Multiple Spell-Out account, Narita assumes that Merge of two phrases, i.e. {XP, YP}, is not possible unless one of the phrases undergoes Spell-Out prior to Merge, with the result that syntax has no access anymore to the interior of the spelled-out phrase. Whereas in Uriagereka (1999) and Nunes & Uriagereka (2000), Spell-Out leaves only the label of an XP, Narita (2011) dispenses with labels and assumes that the reduction of a phrase (XP) through Spell-Out involves elimination of the complement of the head, leaving behind the bare head X (in line with assumptions of Phase Theory), which can then be merged with a phrase. Since adjunction involves phrasal Merge of the problematic kind, this derives the islandhood of canonical adjuncts: To avoid {XP, YP}-Merge, the adjunct phrase needs to be spelled out and reduced to a head before being merged to the rest of the tree, resulting in opacity of the adjunct for further syntactic operations such as extraction. However, Narita diverges from Uriagereka's original approach in assuming that it must not be the adjunct XP that is reduced in such configurations. For transparent adjuncts of the kind described in Truswell (2007, 2011) (our coherent adjuncts), Narita proposes that the target of adjunction can be spelled out instead, leaving the adjunct accessible in the derivation. Crucially, such reduction of the main clausal spine is only possible if the relevant portion of the clause contains no unvalued features.

Further, Narita assumes that noun phrases are headed by a functional category K(ase) with an unvalued Case-feature. In the derivation of a transitive clause such as *John designed his garden*, the object KP {K, {his, garden}} is assumed to be reduced to K before being merged in the *v*P-structure. This reduction involves Spell-Out of the interior of the K-phrase {his, garden}, thus leaving only K[*u*Case] for further computation, as illustrated in (18). The subject KP undergoes the same form of reduction before being merged into the *v*P-structure (Narita 2011: 55–56).

(18)   a.   b.

---
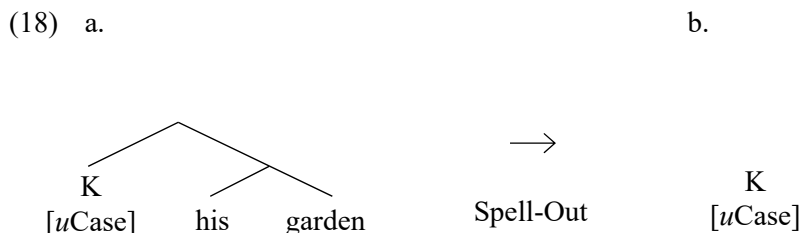
[21] The sentence is reported to be acceptable by Truswell (2011) if the answer to this question refers to a book that can be assumed to enable John to design his garden, thus yielding a coherent interpretation.

The thus reduced object K, as well as the subject K, are merged in the *v*P-structure as indicated in (19a). Upon merger of *v*, *v* can assign Accusative Case to the object and thus value the [*u*Case] feature on K (19a). Since the interior of the *v*-phase, {design, K}, now has no unvalued features left, it can undergo Spell-Out and be transferred, leaving *v* and the subject K in the derivation (19b).
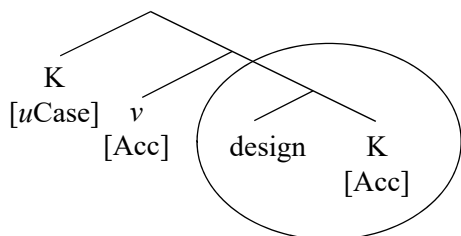
(19) a.   b.
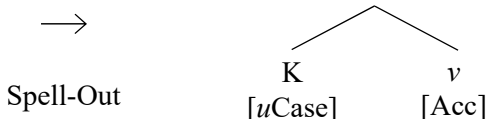
To derive the transparency of coherent adjuncts such as the *after*-clause in *Which book did John design his garden after reading?*, Narita suggests that such transparent adjunct clauses adjoin low in the *v*-structure, viz. in the sister of object K, as illustrated below in (20) (Narita 2011: 109-110).[22] As described above, K is a residue of the object KP, the interior of which has already been spelled out. This was possible because the interior of the KP has no unvalued features left. The remaining [*u*Case] feature on K (which is not valued until merger of *v*, see 19) presumably is not problematic for such reduction, since the head K itself remains accessible in the derivation after Spell-Out of its complement in Narita's system. The adjunct can thus be merged to the structure without needing to be opacified by Spell-Out, since {XP, YP}-Merge has already been avoided via reduction of the phrase in the main clausal spine that the adjunct is merged to, viz. object KP. Extraction from the adjunct is thus predicted to be possible in this configuration.

(20) a.

---
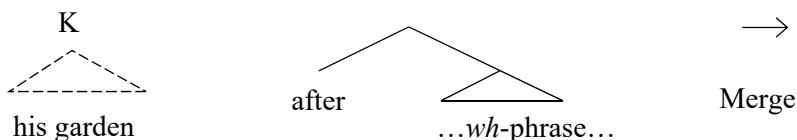
[22] I abstract here away from adjunct-internal movement of the *wh*-phrase.

b.

K

after

…*wh*-phrase…
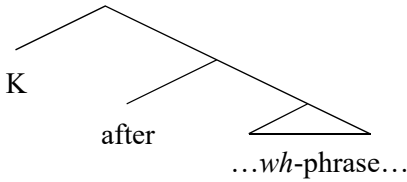
Non-transparent adjuncts, by contrast, are assumed to be adjoined higher than *v*, e.g. to *v*P (21). This prevents Spell-Out of the target of adjunction because of the presence of the [*u*Case]-feature on the subject K in the main clausal spine, which is assumed to remain unchecked until the introduction of C. As a consequence, the adjunct needs to be spelled out and reduced to a head prior to adjunction in this configuration, as illustrated in (21). This deduces the intransparency of high adjuncts (Narita 2011: 111–112).

(21) a.

K   *v*   after   ⟶

[*u*Case]   …*wh*-phrase…   Merge

John

b.

K   *v*   after

[*u*Case]

John
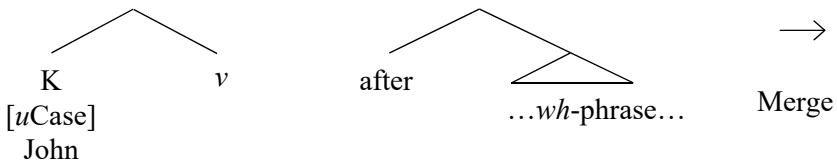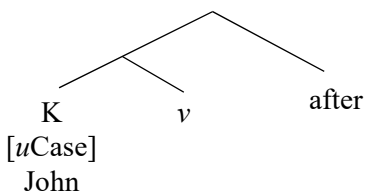
Narita (2011: 114) speculates that these syntactic differences between adjuncts may correlate with the semantic differences between transparent and non-transparent adjuncts observed by Truswell. For the *after*-clauses investigated in this chapter, this would mean that coherently interpreted *after*-adjuncts would be expected to correspond to the adjuncts merged below *v* in Narita's system, whereas non-coherently interpreted adjuncts would be assumed to merge to a position higher than *v*.

In order to account for the fact that adding a temporal adjunct usually does not lead to islandhood of the matrix object, see (22), this proposal has to assume that Spell-Out of the modified phrase (instead of the adjunct) is only activated if extraction is from the adjunct, whereas in cases like (22) (with extraction from the matrix), the adjunct is spelled out as traditionally assumed.

(22)   What$_i$ did John read a book about _$_i$ [after he failed the exam]?

A challenge for accounts such as Narita's (2011) or Sheehan's (2013) is thus to develop a theory that predicts correctly which of the two phrases in a {XP, YP}-configuration is chosen for Spell-Out and reduction, as also noted by Boeckx (2012: 147 fn.5).

Moreover, Narita's suggestion that transparent adjuncts adjoin to the object K predicts that such adjuncts are interpreted as modifying the matrix object, rather than the event described in the matrix clause. For instance, in the example used above, the adjunct clause *after reading (which book)* should according to Narita's account be interpreted in relation to the object *his garden*. Narita argues that this is not an unreasonable assumption (and may in fact be a desirable consequence) in the case of adjuncts with a coherent relation to the matrix clause, since this relation may according to him explain the coherent interpretation. However, the suggestion that transparent adjuncts adjoin to the object K moreover predicts that the object and the adjunct clause form a constituent. This is not supported by constituency tests: In a transitive sentence involving a coherent adjunct such as (23a), it is possible to cleft the object (23b) or the adjunct clause (23c), but clefting of a string corresponding to the object and the adjunct clause does not seem to be possible (23d), indicating that this sequence may not correspond to a constituent (see also Lobo 2002: 97).

(23)   a.   She called the police after hearing loud noises in the staircase.
       b.   It was the police she called after hearing loud noises in the staircase.
       c.   It was after hearing loud noises in the staircase that she called the police.
       d.   *It was the police after hearing loud noises in the staircase that she called.

Modifying Narita's account such that adjunction of transparent adjuncts is not to the object K, but to a slightly higher position, e.g. to matrix VP, is not an option either, since Spell-Out of the matrix VP should be excluded in this configuration due to the unvalued Case-feature on K contained in the V-phrase (Narita 2011: 110).

A further problem for Narita's account is that it is not clear how the thematic roles can be appropriately assigned (specifically, how V can assign a THEME role to KP) in a configuration where the verb is merged with a structure consisting of a spelled-out K and an adjunct (see also Nunes & Uriagereka 2000: 24, fn. 4).

There is another general approach to transparent adjuncts that is also compatible with the idea that the Adjunct Condition can be derived from complications with the phrasal Merge involved in Adjunction, but which assumes a less rigid ban on the presence of {XP, YP}-configurations than Uriagereka's or Narita's account. This approach assumes that the linearization problem in phrasal Merge is related to a labeling issue, since it is unclear how the label is determined in structures of the type {XP, YP} (e.g. Moro 2000; Adger 2013; Oseki 2015). Spell-Out of the adjunct is under these accounts assumed to be necessary for the derivation to continue in the absence of labeling (e.g. Boeckx 2012: 113; Oseki 2015, based on a proposal by Epstein et al. 2012). Alternatively, some accounts (reviewed in Chapter 2) assume that adjuncts can participate in the derivation even when they are unlabeled and that the lack of a label is the reason for the island status of adjuncts; elements that lack a label cannot be probed for extraction (Chametzky 2000; Hornstein & Nunes 2008; Hornstein 2009; Bošković 2016; Blümel 2017). However, based on ideas presented in Chomsky (2013), it has been proposed that the labeling problem created by phrasal Merge of the adjunct can be solved if the adjunct enters into an Agree relation, since the agreeing feature can provide the label in that case. This idea has led to proposals that transparent (coherent) adjuncts have an Agree or Feature sharing relation (not visible in the morphology) with e.g. *v* or Aspect of the matrix clause. Labeling by Feature sharing (FS) is illustrated in (24): Assuming that YP represents an adjunct and XP the phrase that adjunction targets (e.g. matrix *v*P), Merge of the two phrases results in an unlabeled structure in (24a), but in a structure labeled as FP in (24b), where XP and the adjunct YP share a feature [+F]. The resulting FP in (24b) can be targeted by Merge and thus be integrated into the remaining derivation (Oseki 2015).

(24)   a. adjunction without labeling   b.   adjunction with labeling under FS

(adapted from Oseki 2015: 309)

As mentioned above, such an approach requires a less rigid version of the ban on {XP, YP}-structures than assumed in e.g. Uriagereka (1999) and Narita (2011). Specifically, the Agree-based approaches to transparent adjuncts assumes that {XP, YP}-structures can be generated in the syntax, as long as they are integrated into the structure by labeling (as argued for e.g. in Boeckx 2012; Sheehan 2013).

One such Agree-based approach to transparency is also proposed by den Dikken (2018). He suggests that adjuncts that can be interpreted as comprising a single

event together with the matrix predicate have an event-structural or aspectual Agree relation with matrix *v*. The Agree relation makes the adjunct transparent for extraction (e.g. Rackowski & Richards 2005).[23] To explain the low acceptability of extraction from non-coherent adjuncts, den Dikken assumes that the establishment of an Agree relation (which is necessary for extraction) leads to an infelicitous single-event interpretation in the non-coherent cases. In this point, this proposal resembles the semantic filter suggested to be responsible for the unacceptability of island violations in Truswell (2011).

Further support for the proposal that Agree relations render otherwise opaque domains transparent for extraction comes from accusative adverbials in Hungarian, which are structurally case-marked by *v*. Den Dikken's account raises the expectation that these case-marked adjuncts should also be transparent for extraction, by virtue of being the goal of an Agree relation for case with *v*, and he finds this prediction confirmed (den Dikken 2018: 135). Den Dikken argues that the same explanation might be relevant for extraction from *than*-comparatives in colloquial English (25), which resemble the case-Agreeing adjuncts that permit extraction in Hungarian – except for the fact that Agree relations with an adjunct are never morphologically reflected in English.

(25)   a.   I can sing better [than him].
       b.   Who$_i$ can you sing better [than _$_i$]?

Also Miyamoto (2012) shows that in Japanese, certain instances of object-oriented secondary predicates, which hold adjunct status, allow extraction if these enter into an Agree relation with matrix Aspect.

Depending on the framework, labeling under Agree leads to increased integration of the adjunct and enables the formation of a dependency into the adjunct either because it prevents early Spell-Out of the adjunct structure (Oseki 2015), or because labeled constituents do not block the computation of paths (Hornstein & Nunes 2008; Hornstein 2009). Another possibility, suggested in Rackowski & Richards (2005), is that Agree leads to transparency because once matrix *v* Agrees with a phrase, it can disregard this phrase for the computation of future Agree relations by Richards' (1998) Principle of Minimal Compliance. Thus, *v* can probe certain constituents internal to Agreeing adjuncts and trigger movement of them to Spec,*v*P, from where they can move on, whereas this operation is prevented by locality principles in non-Agreeing adjuncts.

---

[23] Den Dikken's account is also connected to a requirement for a certain attachment height of transparent adjuncts, in the sense that an adjunct can according to him only be the goal of an Agree relation with *v* if it is asymmetrically c-commanded by *v*. Integration by Agree is thus only possible for VP-adjuncts, but not e.g. *v*P-adjuncts in this approach. In that, den Dikken's account is similar to the one by Brown (2015, 2016, 2017) presented before, but with the difference that the relevant Agree relation encodes the coherence relation directly in den Dikken (2018).

While a proposal along these lines captures the intuition that the single-event reading necessary for extraction corresponds to an additional relation between the adjunct domain and the matrix, leading to increased integration of the adjunct into the syntactic structure, a potential counterargument for an Agree-based analysis of transparent coherent adjuncts is that there is no overt (morphological) evidence for the Agree relation postulated between the adjunct and the matrix clause and the account thus hinges on the assumption that an Agree relation can be learned even in the absence of any overt realization.[24]

To summarize, many existing syntactic accounts of transparent adjunct clauses are too restrictive to accommodate the relative transparency of coherent *after*-adjuncts in Swedish and English. Some theories can be modified in a way that allows them to cover also these cases, however at the cost of stipulating the modifications in the absence of independent evidence from e.g. morphology. I thus lack clear evidence that allows me to strongly commit to a specific account of the coherence effect. However, it appears to be clear that a complementation analysis along the lines of Fábregas & Jiménez-Fernández (2016) is too restrictive to capture the relative transparency of coherent *after*-adjunct clauses, investigated in Experiments 1–2. Moreover, an account predicting Spell-Out and opacification of the target of adjunction in all instances of transparent adjuncts, as suggested by Narita (2011), also appears too restrictive, in the sense that adjunction of transparent adjuncts should in that case only be possible below VP-level, which seems to create wrong predictions with regard to constituency and θ-assignment. Overall, accounts assuming a rigid ban on the presence of {XP, YP}-structures may be too restrictive to accommodate the ameliorative effect of coherence in *after*-adjunct extraction sentences. Instead, the coherence effect seems to be more compatible with an account based on attachment height such as Brown (2015. 2016, 2017), or with the proposal that an Agree-relation may lead to increased transparency of coherent adjuncts (Oseki 2015; den Dikken 2018). An Agree-based approach seems to capture best the intuition that a coherent relation corresponds to an additional semantic and syntactic relation between the adjunct and the matrix clause, and is compatible with the general gist of the Adjunct Condition as assumed in most contemporary accounts (which attribute the

---

[24] While the proposals discussed above are based on the idea that extraction is enhanced by Agree between the phrase to be extracted from (in this case, the adjunct PP) and a head of the matrix clause, e.g. *v* or Aspect, some authors have suggested that extraction is enhanced by Agree in a different sense, viz. by Agree between the phrase to be extracted from and the extracted element, see e.g. Bošković (2018); Zyman (2018); Reeve (2019). This opens up the possibility for a further Agree-based approach to transparent adjuncts. For example, Bošković (2018) suggests that argument extraction from adjuncts is possible if the extracted element undergoes Feature sharing at the edge of the adjunct since this leads to labeling at the adjunct edge. However, I consider a solution in terms of an Agree relation between the adjunct phrase and a head in the matrix clause (as suggested in den Dikken) as more promising, since it captures the intuition that the coherent reading corresponds to an additional semantic and syntactic relation between the adjunct and the matrix clause, as explained above.

islandhood of adjuncts to their relation to the host clause). I cannot either provide conclusive evidence for or against a syntactic instead of a semantic or processing-based account of the coherence effect. However, a choice in that regard is not decisive for the remaining conclusions argued for in this thesis. In the remainder of the thesis, I will take both possibilities of a syntactic and a non-syntactic explanation for the coherence effect into account, where necessary.

5.6 Deriving the finiteness effect

As mentioned earlier, there is a growing consensus that the traditional notion of finiteness can be deconstructed into a set of different phenomena (see e.g. Landau 2004; Adger 2007). This means that there is a range of possibilities as to what aspect of finiteness is responsible for the presence of a finiteness effect in the English data. However, any explanation has to be able to also accommodate the variation between English and Swedish regarding sensitivity to the finiteness factor.

One ingredient of finiteness is the level of temporal and nominal dependency of a clause in relation to a superordinate clause (e.g. Wurmbrand 2001, 2013, 2104; Landau 2004; Adger 2007; Sundaresan & McFadden 2009; McFadden & Sundaresan 2014). This can be best captured with a scale of dependency rather than a binary distinction (e.g. Landau 2004; Sundaresan & McFadden 2009). That is, in maximally independent clauses (e.g. finite root clauses), nominal referents and tense are established independently of any matrix clause, whereas in more dependent clauses, temporal information and subject reference are typically determined anaphorically by elements of the matrix clause. For instance, prototypical finite clauses have overt DP subjects (e.g. *John* in the finite *whether*-clause in 26a), whose reference is established based on the discourse. By contrast, prototypical infinitivals, e.g. clauses selexted by *try*, have obligatorily controlled PRO subjects, whose reference is determined anaphorically via the matrix clause (26b) (see Landau 2004; Sundaresan & McFadden 2009; McFadden & Sundaresan 2014).[25]

(26)   a.   Maggie asked [whether John worked before dinner].
       b.   Maggie$_i$ tried [PRO$_{i, *j}$ to work before dinner].
            (McFadden & Sundaresan 2014: 10)

---

[25] As a consequence of this, the presence of an overt subject is another distinguishing characteristic of finite structures. However, this component of finiteness can be dismissed as a potential source of the finiteness effect. The Swedish and English materials did not differ in this regard, still English (Experiment 2) but not Swedish (Experiment 1) displayed a finiteness effect in the coherent condition in the sense that finite adjunct island extractions were significantly worse than the non-finite adjunct island extractions.

Similarly, temporal information in finite clauses is typically established independently of the matrix. For instance, the temporal reading of an embedded finite clause is often established in relation to the speaker NOW rather than in relation to the matrix event or reference time (except in shifted construals), and as demonstrated in (27), the tense of an embedded finite clause typically can be varied independently from that of the matrix clause (Wurmbrand 2013).

(27) Leo said (that) he is eating/ate/will eat a cookie. (Wurmbrand 2013: 626)

In non-finite clauses, by contrast, temporal properties are often determined by elements in the matrix clause. For example, infinitival complements are often restricted to certain temporal interpretations depending on the selecting matrix predicate (Wurmbrand 2014). E.g., many control infinitives can only be interpreted as simultaneous with the matrix predicate and do not allow temporal adverbs referring to a time different from that of the matrix:

(28) Yesterday, John tried/began/managed to leave (*tomorrow).
      (Wurmbrand 2014: 408)

In simultaneous infinitives of the type illustrated in (28), the reference time of the infinitive corresponds to the reference time of the matrix predicate (Wurmbrand 2014). Other types of control infinitives receive a future interpretation, such as the infinitival in (29).

(29) Yesterday, John decided/wanted/planned to leave tomorrow.
      (Wurmbrand 2014: 408)

Whether an infinitival complement must involve e.g. a future or simultaneous interpretation depends on the matrix predicate, which selects a specific feature value in the top projection of the embedded infinitive according to Wurmbrand (2013, 2014). Wurmbrand (2013) argues further that this featural dependency between infinitives and the selecting verb can also explain the higher degre of transparency of infinitival domains (as opposed to finite clauses) for various properties.

   An obvious possibility with regard to nominal reference in adjunct clauses is to relate the finiteness effect in English to the presence of an obligatorily controlled PRO subject in the non-finite adjunct clauses. It could be argued that the control relation that obtains for the embedded PRO-subject in non-finite *after*-adjuncts, illustrated for one of the coherent stimuli from Experiment 2 in (30a), makes the adjunct transparent because it adds a syntactic dependency between the adjunct and an element in the matrix clause (e.g. under the assumption that obligatory control is based on Agree, Landau 2000, 2001). This argument would be tied to

the assumption that PRO control in non-finite adjuncts such as (30a) differs from resolution of overt subject pronouns in the finite counterparts of such adjuncts (30b) in that control of PRO is the result of a syntactic dependency (assumed to be necessary for transparency), whereas the interpretation of the embedded subject pronoun in (30b) as coreferent with the matrix subject is not determined by a syntactic dependency, but by contextual factors.

(30) a. Which beer did he$_i$ almost stumble after PRO$_i$ chugging?
      b. Which beer did he$_i$ almost stumble after he$_i$ chugged?

This cannot be correct as an explanation for the finiteness effect in English, because we would then expect also Swedish to exhibit a similar finiteness effect: Like in English, Swedish non-finite temporal adjuncts have obligatorily controlled PRO subjects too, and in both languages, an overt pronoun subject in finite temporal adjuncts is free (with coreference with the matrix subject, as in 30b, being the most natural interpretation in our stimuli).

With regard to temporal dependency, one could hypothesize that Swedish adjunct clauses are temporally dependent on the host clause in a way that the English adjuncts are not, and that this temporal connection makes the Swedish finite adjuncts more transparent for extraction. While adjunct clauses cannot enter into the same type of feature valuation relation with the matrix verb as described for complement clauses in Wurmbrand (2013, 2014) since adjuncts are not selected, it could still be the case that there is some form of temporal dependency between adjunct and matrix tense in Swedish, e.g. if tense in Swedish finite adjuncts was anaphorically anchored to the reference time or event time of the matrix clause, as argued e.g. for shifted readings in finite complement clauses (Demirdache & Uribe-Etxebarria 2007).

However, Demirdache & Uribe-Etxebarria (2007) show that tense of a temporal adjunct clause is always deictically anchored to the speech time rather than being anaphorically anchored to the reference time or event time of the matrix clause (yielding an independent temporal construal of the adjunct clause) since the temporal connective present in temporal adjunct clauses (e.g. *after* in *after*-clauses) determines the relative ordering between the matrix and adjunct event. The lexical semantics of the temporal connective is also the reason why there are restrictions on the possible tense of a temporal adjunct clause based on the matrix tense, described in detail by Hornstein (1990). For example, a matrix clause in the past tense can be modified by an *after*-clause in the past (31a) or past perfect (31a), but a reversal of the tenses in (31b), with past perfect in the matrix clause and past tense in the adjunct clause, is not possible (31c) (Hornstein 1990: 45, 70).

(31) a. John left after Harry arrived.
     b. John left after Harry had arrived.
     c. *John had left after Harry arrived.

Such restrictions are a result of the lexical meaning of the temporal connective (here *after*), which cannot contradict the relative temporal order of the event time of the matrix and of the adjunct clause in relation to the speech time, respectively (Hornstein 1990). In (31a–b), the meaning of *after* and the interpretation of the tenses used do not contradict each other. In (31a), both matrix and adjunct clause are in past tense, meaning that both events are understood as happening prior to the moment of speech. The temporal order of the matrix and adjunct clause event with respect to each other remains undetermined in the temporal derivation until the contribution of the connective *after* is computed, which places the adjunct clause event (Harrys arrival) prior to the matrix clause event (the departure of John). In (31b), the tense in the adjunct clause (past perfect) is different from the matrix clause tense (simple past). The use of past tense in the matrix clause places the matrix event time simultaneous with a reference time which in turn is in the past with respect to the speech time. The adjunct clause however is in past perfect, meaning that the adjunct clause event time is earlier than a reference time which also is in the past with respect to the speech time. Since the speech time for both clauses is the same, this means that the event time of the adjunct clause must be earlier than the event time of the matrix clause in (31b), which is compatible with the meaning of *after* (requiring the adjunct clause event to precede the matrix clause event). However, this requirement is not met in (31c), where the computation of tenses for the matrix and adjunct clause results in the reversal ordering from the one just described for (31b) (Hornstein 1990). In other words, any restrictions on the possible tense of a temporal adjunct clause are the result of the temporal contribution of the connective linking the two clauses, rather than of anaphoric dependencies between the matrix and adjunct clause. There seems to be no difference between English and Swedish in this regard. According to Teleman et al. (1999: 259), there appears to be a strong preference for the use of the past perfect tense in Swedish *after*-clauses that modify a matrix clause in the past tense; however, Teleman et al. (1999: 259) report that also past tense is possible.

  Another possible way to derive the finiteness effect in English under reference to tense is suggested by Truswell (2011). He proposes that finite adjuncts necessarily contain an operator Op (located below T in the phrase structure) that binds the event variable of the adjunct clause and therefore blocks the possibility of macroevent formation with the matrix VP. In detail, Op converts events into temporal intervals, which is necessary for T to apply because Tense can only operate over intervals. This is illustrated in (32), where the finite adjunct clause represented by XP has its own instance of Op, which will bind the event variable within the adjunct according to Truswell's account, making it unavailable for

construal of a single macroevent together with the matrix VP. The structure can thus only be interpreted with a multiple-event reading, not compatible with extraction.

(32)

```
            VP₁
          /      \
      VP₁          XP
     /    \       /    \
   Op    VP₁    X      TP
         /\           /    \
        /__\         T      VP₂
                           /    \
                         Op      VP₂
                                 /\
                                /__\
```
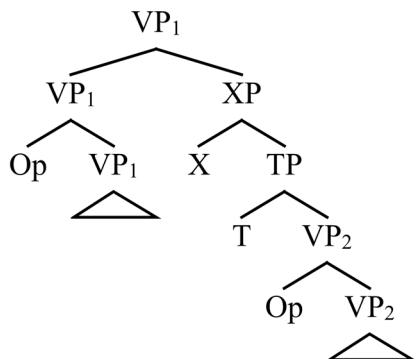
(Truswell 2011: 118)

The situation is different for non-finite adjuncts, which have two options available because Op can, to a certain extent, be merged at different points in the structure. Either, non-finite adjuncts may be merged outside of the scope of the matrix Op and have their own operator, as XP in (33). This yields a multiple-event reading just like the structure in (32), since the adjunct's event variable is bound within the adjunct clause, independently of the matrix VP.

(33)

```
            VP₁
          /      \
      VP₁          XP
     /    \       /    \
   Op    VP₁    X      VP₂
         /\           /    \
        /__\         Op      VP₂
                             /\
                            /__\
```
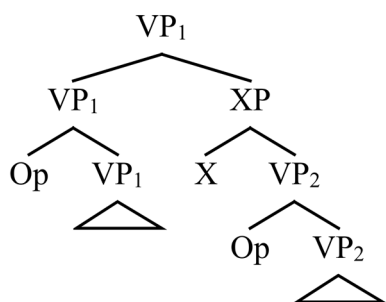
(Truswell 2011: 116)

Alternatively, the adjunct XP may be attached to VP before the matrix Op is merged (34). This yields the possibility of a single event interpretation (and hence

144

extraction) in the case of non-finite adjuncts, since Op in (34) binds the event variables both within the matrix VP and the adjunct XP, meaning that the adjunct and matrix VP can be construed as jointly describing a single event.

(34)

VP
├── Op
└── VP
    ├── VP
    └── XP
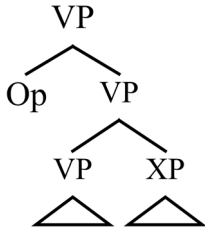
(Truswell 2011: 116)

The structure in (34) is excluded for finite adjuncts, since the introduction of a Tense node, present in finite adjuncts, inevitably entails the application of Op, which will bind the event variable within the adjunct and make a single-event construal (necessary for extraction) unavailable (Truswell 2011: 176).

However, this analysis does also not seem able to explain why Swedish varies from English in not displaying a finiteness effect, because the necessity of a multiple-event construction in finite adjuncts is derived from the Tense node, which one would have to assume is present in the Swedish finite adjunct clauses as well. In order to extend this analysis to also cover the Swedish cases, one would have to assume that Swedish finite Tense differed from English in not necessarily introducing an even operator. Although in principle possible, I am not aware of any evidence that the Swedish finiteness system differs from English that way.

A further component of finiteness is its syntactic representation. How finiteness is encoded in the syntactic structure is a topic that is still subject to debate. Adger (2007), for example, argues for a functional projection in the complementizer domain, termed Fin (following Rizzi 1997), that encodes dependence of the clause on the speech event via a [±finite] feature, and which may furthermore host information about tense and agreement. A non-finite clause can hence either be negatively specified as [–finite] or can be truncated at various positions below the Fin projection. A possibility is thus that non-finite adjunct clauses in English are structurally smaller (i.e. they contain fewer projections) than their finite counterparts and are more transparent as a consequence of this. An account along these lines has been proposed by Wurmbrand (2018) to account for finiteness effects in quantifier raising (QR) in English. QR is another form of extraction which seems to show a similar behavior as extraction from adjunct clauses in that it produces gradient judgments which are, amongst others, sensitive to finiteness.

Roughly, QR seems to be easiest (most acceptable) when it occurs within simple clauses, more costly (and hence less acceptable) across restructuring infinitives, and even more difficult from finite indicative clauses. Wurmbrand (2018) suggests that this variation can be explained with differences in syntactic complexity (in terms of structural size) between the different types of extraction domains, because this has consequences for the number of stop-overs required for successive-cyclic movement out of the relevant domain due to the number of phase edges that movement has to proceed through. If it is assumed that each step of movement induces a processing cost, QR from non-finite domains which lack a contentful CP thus requires fewer intermediate steps in successive-cyclic movement and a corresponding lower processing cost than QR from finite indicative clauses which are full CPs. A similar explanation might be available for the finiteness effect observed in the coherent adjunct extractions in English: As noted earlier, a processing account might be most suitable to derive the small difference in ratings between sentences with extraction from finite and non-finite adjuncts observed in Experiment 2. One would then have to assume that non-finite *after*-clauses in English can be analyzed as being syntactically less complex (e.g. by lacking a CP domain) than finite *after*-clauses, and that non-finite and finite *efter att*-clauses in Swedish are similar enough in structural size to explain the absence of a finiteness effect in Swedish; i.e. they should have an equal number of phase heads.

To explore these predictions, I adopt the analysis for finite temporal clauses suggested in Demirdache & Uribe-Etxebarria (2004), according to which temporal clauses are PPs in which P selects a temporal argument labeled ZeitP (a DP with temporal interpretation), see (35). This ZeitP is modified by a restrictive relative clause.

(35) [$_{PP}$ after [$_{ZeitP}$ ZeitP$_i$ [$_{CP}$ OP$_i$ Zooey arrived t$_i$]]]
      (adapted from Demirdache & Uribe-Etxebarria 2004)

The relativization of the temporal argument involves movement of an empty temporal operator from Spec,AspP to Spec,CP where it is coindexed with the Zeit phrase. Evidence for operator movement in temporal adjunct clauses comes from a structural ambiguity (originally observed by Geis 1970) in sentences like (36) (slightly adapted, from Larson 1990):

(36) I saw Mary in New York [$_{PP}$ after [$_{CP1}$ she claimed [$_{CP2}$ that she would leave.]]]

The sentence in (36) can either mean that I saw Mary in New York after she made a certain claim, or that I saw Mary in New York after the time of her alleged departure, depending on whether the temporal operator has moved from CP1 or CP2. Swedish displays the same ambiguities in finite temporal adjunct clauses

(Larson 1990), see example (37), and can hence be assumed to have roughly the same structure for finite *efter att*-clauses as English, involving operator movement to Spec,CP.

(37)   Kalle såg Lisa i   Göteborg [efter hon sagt [att hon skulle
       Kalle saw Lisa in Gothenburg after she said that she would
       vara   där]].
       be   there
       'Kalle saw Lisa in Gothenburg after she said that she would be there.'
       (Larson 1990: 173)

There are arguments that non-finite *after*-clauses in English, involving a gerund structure, do not involve operator movement (Johnson 1988; Adler 2006), and e.g. Pires (2001, 2007) argues that gerunds in general lack a CP projection (for instance, they cannot occur with complementizers). Pires (2001, 2007) suggests that clausal gerunds are headed (at most) by a TP which carries an uninterpretable Case feature that needs to be valued, thus accounting for the nominal properties of gerunds such as their ability to occur as complements to a preposition (see Baker 2005 for a similar analysis). According to this analysis, *after*-gerunds in English could hence have a structure as in (38).

(38)   … [PP after [TP PRO talking to ~~who~~$_i$]]

There are hence arguments for assuming a reduced clausal structure for non-finite *after*-clauses in comparison to finite *after*-clauses, and, depending on how cyclic domains are defined or what approach to phases is taken, it can be assumed that extraction from the non-finite gerund structure in (38) requires fewer intermediate steps in successive-cyclic movement (hence a lower processing cost) than extraction from a finite temporal adjunct such as (35). For instance, under an approach where only *v*P and CP count as phases (Chomsky 2000, 2001), extraction from a structure such as (35), which has a CP, involves one more movement step than extraction from a structure such as (38) where movement does not have to proceed through the edge of an embedded CP.

   In contrast, non-finite temporal adjunct clauses in Swedish involve a complementizer (*att*) and an infinitive instead of a gerund and can thus be argued to project a CP, which would make them similar in structural size to their finite counterparts.[26] Extraction from these can hence be argued to require equally many movement steps and hence a similar processing cost as extraction from finite *efter*

---

[26] See, however, Johnson & Vikner (1994) for a proposal that *att* in Swedish is not in C, but in a TP-/IP-internal position.

att-clauses, which would explain why there is no statistically significant difference in ratings between extraction from finite and non-finite adjuncts in Swedish.

However, one major argument for the absence of a CP layer in English non-finite *after*-clauses is that no ambiguity of the kind we saw in the finite *after*-clauses in (36) arises with them. The only available reading in e.g. (39) is the reading with high construal of the operator, i.e. the reading that Liz left after making a certain claim (Johnson 1988: 591).

(39)   Liz left [PP after [saying [she wouldn't.]]]

This has been taken as evidence that non-finite *after*-clauses in English do not involve the same type of operator movement as their finite counterparts, possibly because non-finite temporal adjuncts do not have a CP node which could provide the necessary landing site for the moved operator. Now consider Swedish: Just like in English, non-finite *efter att*-clauses in Swedish also lack the ability to be construed with the lower reading of the operator. For example, in (40) the reading where Lisa left after the time of her alleged departure rather than after the time of her claiming is unavailable, just like in the *after*-gerund in English (39).

(40)   Lisa åkte efter att ha   sagt att hon skulle.
       Lisa left   after to have said that she would
       'Lisa left after having said that she would.'

The contrast to finite temporal adjunct clauses in Swedish in that regard is again demonstrated in (41): Two readings are available for the finite *after*-adjunct clause in (41a), one where Lisa saw the Empire State Building after the time she had made her claim about leaving, and one where she saw it after the time she claimed that she would leave New York. However, the non-finite *after*-clause in (41b) allows only for the former reading.

(41)   a. Lisa besökte Empire State Building [efter att hon hade sagt
           Lisa visited   Empire State Building   after that she had   said
           [att   hon skulle resa   från New York]].
            that she would travel from New York
           'Lisa visited the Empire State Building after claiming that she would
           leave New York. / Lisa visited the Empire State Building after the time
           that she claimed she would leave New York.'

b. Lisa besökte Empire State Building [efter att ha   sagt
   Lisa visited Empire State Building after to have said
   [att hon skulle resa   från New York]].
   that she would travel from New York
   'Lisa visited the Empire State Building after claiming that she would
   leave New York.'

Hence, the argument put forth above for the movement of a temporal operator and
accordingly for the presence of a CP in an adjunct clause is inapplicable to non-
finite *after*-adjuncts in Swedish, unless the unavailability of the lower reading in
(40) or (41b) can receive an independent explanation. Even if this was the case and
Swedish non-finite *after*-adjuncts could thus be argued to differ from their English
counterparts in involving a CP layer, another problem for this approach remains: It
can only derive a difference between non-finite but not between finite adjuncts in
Swedish and English. Hence, the proposal may have the potential to explain a
difference in acceptability for extraction from finite and non-finite adjuncts in
English (or the absence of a difference in Swedish), but not why finite adjuncts in
Swedish should allow extraction more easily than finite adjuncts in English, and
hence it leaves unexplained why Swedish seems to be more liberal with regard to
extraction from adjuncts in general.

   One way in which Wurmbrand's proposal for QR could be extended to adjunct
clause extraction that does not face these problems is to assume that finite and
non-finite temporal clauses in both languages are similar in structural size, but that
phasehood can be voided for the problematic projection (or one of the problematic
projections) by some mechanism, e.g. by an invisible Agree or feature valuation
relation, or by head movement of the relevant phase head, thereby causing phase
sliding/extension (e.g. Gallego & Uriagereka 2006; den Dikken 2007) or phase
collapsing (Bošković 2015b). Phase collapsing due to head movement has been
tentatively suggested to account for extraction from infinitival *wh*-islands
(Bošković 2015b: fn. 57). Furthermore, one would have to assume that phasehood
can be voided this way only for non-finite adjuncts in English but that the relevant
mechanism is available for both finite and non-finite adjunct clauses in Swedish.

   One factor that may be relevant is the difference between the two languages
regarding agreement morphology. While there is no agreement marking on the
finite verb in Swedish and the other MSc. languages, see (42), English has some
overt agreement marking in form of the 3rd person singular present ending *–s*, at
least in present tense forms (43). This difference, if structurally encoded for
instance in the form of an agreement head in English (possibly contributing to
phasehood), may support the hypothesis that finite adjuncts are structurally more
elaborate in English than in Swedish, explaining the presence of a finiteness effect
in adjunct island extractions in English but not in Swedish.

(42) verbal paradigm for *kasta* 'throw' in Swedish

a. present tense

	Sg.	Pl.
1st	kastar	kastar
2nd	kastar	kastar
3rd	kastar	kastar

b. past tense

	Sg.	Pl.
1st	kast-ade	kast-ade
2nd	kast-ade	kast-ade
3rd	kast-ade	kast-ade

(43) verbal paradigm for *walk* in English

a. present tense

	Sg.	Pl.
1st	walk	walk
2nd	walk	walk
3rd	walk-s	walk

b. past tense

	Sg.	Pl.
1st	walk-ed	walk-ed
2nd	walk-ed	walk-ed
3rd	walk-ed	walk-ed

The presence of an independent agreement head realizing agreement morphology has already been proposed in Pollock (1989) and Chomsky (1991), where it is assumed that agreement features project independent phrases, resulting in a "split" IP with separate functional projections for TP and Agr(eement) Phrases. Furthermore, it has been proposed that languages vary with regard to the presence or absence of Agreement Phrases in the IP, and that the presence of Agreement phrases in a language is reflected in the "richness" of agreement morphology on the finite verb (Bobaljik 1995; Thráinsson 1996; Bobaljik & Thráinsson 1998; Koeneman & Zeijlstra 2014). Thus, in languages that have sufficiently rich subject-verb agreement, the relevant agreement features are assumed to project *v*P-externally as a subject Agreement Phrase (or Argument Phrase, in Koeneman & Zeijlstra 2014), hosting the subject in its specifier and realizing subject agreement morphology. In languages that lack the relevant morphological distinctions in the verbal paradigm, the agreement features are not projected independently, resulting in a less rich functional structure.

One could thus hypothesize that the presence of some morphological agreement marking on English verbs (and the absence of such agreement marking in Swedish) reflects a structural difference between Swedish and English in terms of the presence (in English) vs. absence (in Swedish) of a subject Agreement phrase. This additional projection could explain the presence of a finiteness effect in adjunct island extractions in English, e.g. if the agreement head in English contributed to phasehood and thereby induced an additional movement step in extractions and correspondingly an additional processing cost, as assumed in Wurmbrand's (2018) proposal.

However, a proposal along these lines would require a revision of the assumptions in e.g. Bobaljik & Thráinsson (1998) and Koeneman & Zeijlstra

(2014) as to what counts as morphologically rich and poor agreement paradigms, since the MSc. and English are in these propoals usually grouped together as poor agreement languages, in opposition to e.g. Icelandic, which differs from them in exhibiting a richer agreement paradigm. The 3rd person singular –s in English is not assumed to suffice for meeting relevant criterion for "rich agreement" and thus for the presence of an independent agreement head in any of these works.

Alternatively, one may assume that the difference between Swedish and English regarding the finiteness effect in extraction is not a result of the purported structural representation of agreement, but rather that the computation of agreement morphology in finite clauses in English (but not in Swedish) intervenes more directly in the process of gap identification, making finite structures harder to process and thus causing a degradation, compared to MSc. where no agreement processing is necessary. This is predicted by accounts of processing complexity such as Hawkins (1999) where the processing of filler-gap dependencies is assumed to be easier the fewer additional processing operations have to be carried out simultaneously with gap assignment. In fact, Hawkins (1999) derives a difference between finite and non-finite domains regarding the possibility to host a gap from this proposal: Certain languages such as German and Russian allow filler-gap dependencies into non-finite but not into finite complement clauses. This contrast can according to Hawkins be blamed on the greater complexity of finite clauses (instantiated for example by the presence of morphological agreement marking), thus necessitating more processing operations. It is possible that there is a similar hierarchy for gaps in adjunct clauses, with English having its cut-off point between finite and non-finite adjunct clauses on this hierarchy.

A processing cost for the computation of subject-verb agreement can in principle be derived from standard models of agreement processing. It is usually assumed that in order to establish the subject-verb relation, agreement features of the subject noun such as person and number features have to be tracked and kept activated until the finite verb is encountered. At the verb, the subject information has to be retrieved for the purpose of checking feature consistency between the subject and verb morphology, which is associated with processing costs (see e.g. Kaan 2002; Wagers et al. 2009; Mancini 2018). This means that in languages with overt subject-verb agreement such as in English, the agreement features of the subject NP have to be maintained until the verb is encountered, whereas in MSc. style languages no agreement features need to be activated. It could be argued, based on this, that extraction from finite structures is associated with a greater processing complexity in English than in Swedish, since in English, the activation of agreement features and the processing of verbal morphology taxes working memory resources in addition to the demanding process of gap identification (whereas in MSc. there is no target for agreement processing). This increased processing complexity could be reflected in acceptability judgments for extraction from finite adjuncts in English. By hypothesis, this difference in complexity is not

detectable by acceptability judgments for filler-gap constructions that do not span islands in English, such as extraction from finite complement clauses (which is generally reported as unproblematic), but it leads to a significant degradation in structures that involve the simultaneous computation of filler-gap dependencies that are difficult to process already by themselves, such as filler-gap dependencies into adjunct islands. Note that some languages appear to have a cut-off point for the acceptability of gaps already between finite and non-finite complement clauses, as mentioned above.

Since the English verbs used in the *after*-clauses in Experiment 2 were in past tense and hence did not display any overt subject-verb agreement (see 43b for the relevant paradigm), this explanation is tied to the assumption that the agreement computation described above and the cost related to it emerges for any finite verb in English, even if morphological agreement is only realized on *be* and the 3rd person singular present tense forms in English. Another potential counterargument against this analysis is that a cost for agreement computation is primarily assumed to emerge in cases where the subject and the verb are separated by intervening material that interferes with the tracking of subject features (e.g. Kaan 2002). However, in our materials the subject and the predicate of the finite adjunct clauses were adjacent in all cases with no material intervening between them that could have affected the processing of the subject-verb relation.

An interesting prediction of any account tying the difference between MSc. and English regarding extraction possibilities to the difference between these languages regarding agreement morphology is that other languages that are similar to MSc. in lacking agreement marking on the verb should also be more permissive with regard to extraction from finite adjunct clauses. Some potential support for this hypothesis comes from Japanese, Korean, and Malayalam, which have been reported to permit extraction from certain finite adjunct clauses in Yoshida (2006). Indeed, these languages have in common with Swedish the absence of subject-verb agreement marking.

Adjunct clause extraction in Japanese is demonstrated in (44), with (44a) representing a non-extracted sentence involving a conditional clause, and (44b) showing that extraction by long scrambling of the phrase *sono cakeo* 'that cake' out of the conditional clause is possible.[27] Crucially, extraction in (44b) is from a finite clause, as signaled by the nominative case-marked subject, the verbal morphology, and the conditional adverb *mosi*, which is only licensed by a finite clause (Yoshida 2006).

---

[27] Conditional marking in Japanese realized as a suffix (here -*ra*) on the verb, and an optional conditional adverb *mosi* 'by any chance' (Yoshida 2006).

(44) a. Virginia-wa [mosi Quinn-ga   sono cake-o   tabe-ta-ra]
          Virginia-TOP mosi *Quinn-NOM that   cake-ACC eat-PAST-COND*
          naki-dasu daroo.
          cry- start   will
          'Virginia will start crying if Quinn eats that cake.'

      b. Sono cake-o$_i$ Virginia-wa [mosi Quinn-ga   _$_i$ tabe-ta-ra]
          that   cake-ACC Virginia-TOP mosi *Quinn-NOM   eat-PAST-COND*
          naki-dasu daroo.
          cry- start   will
          'Virginia will start crying if Quinn eats that cake.'
          (Yoshida 2006: 51)

Yoshida (2006) argues that the possibility of adjunct clause extraction in Japanese is not restricted to conditional adjuncts, and provides the following examples of long scrambling and relativization out of finite *after*-clauses (45) and *because*-clauses (46) in Japanese. In that, Japanese adjunct clauses differ from e.g. coordination structures, which behave like strong islands in Japanese and do not allow long scrambling or relativization (Yoshida 2006: 37, 164).

(45) a. Scrambling out of Japanese *after*-clauses
          Dono-gakusee-ni$_i$ Quinn-wa [Virginia-ga   _$_i$ present-o
          which-student-DAT Quinn-TOP Virginia-NOM   present-ACC
          ageta ato]   nakidasita-no?
          gave after cry-Q
          Lit. 'Which student did Quinn cry after Virginia gave a present to?'

      b. Relativization out of Japanese *after*-clauses
          [$_{NP}$[$_{CP}$ Quinn-ga   [Virginia-ga   _$_i$ present-o   ageta ato]
              Quinn-NOM Virginia-NOM   present-ACC gave after
          nakidasita] gakusee$_i$]
          cry   student
          Lit. 'The student who Quinn cried after Virginia gave a present to'
          (Yoshida 2006: 162)

(46) a. Scrambling out of Japanese *because*-clauses
          Dono-gakusee-ni$_i$ Quinn-wa [Virginia-ga   _$_i$ present-o
          which-student-DAT Quinn-TOP Virginia-NOM   present-ACC
          ageta-node/-kara]   nakidasita-no?
          gave-because/-because   cried-Q
          Lit. 'Which student does Quinn get angry because Virginia gave a present to?'

b. Relativization out of Japanese *because*-clauses
[$_{NP}$[$_{CP}$ Quinn-ga   [Virginia-ga   _$_i$ present-o
      Quinn-NOM Virginia-NOM   present-ACC
ageta-node/-kara]   nakidasita] gakusee $_i$]
gave-because/-because cried   student
Lit. 'The student who Quinn cried because Virginia gave a present to.'
(Yoshida 2006: 162)

The examples below demonstrate the possibility of scrambling out of conditional clauses in Korean (47) and Malayalam (48).

(47)   Scrambling out of conditional clauses in Korean
Etten-haksayng-hanthey$_i$ Quinnn-un [manyak   Virginia-ka   _$_i$
which-student-DAT   Quinn-TOP [COND.ADV Virginia-NOM
senmwul-ul   cwu-myen   wul-ul-ka?
present-ACC   gave-COND] cry-will-Q
Lit. 'Which student will Quinn cry if Virginia gives a present to?'
(Yoshida 2006: 189)

(48)   Scrambling out of conditional clauses in Malayalam
Stillman-inu$_i$ Quinn   [Virginia   _$_i$ sammaanam kodu-thaal]
Stillman-DAT Quinn.NOM   Virginia.NOM   present.ACC give-COND
karayum.
cry.will
'Quinn will cry if Virginia gives a present to Stillman.'
(Yoshida 2006: 191)

A possible avenue for future research would thus be to investigate if there is a cross-linguistic trend for the possibility of finite adjunct clause extraction to correlate with the lack of subject verb agreement marking in a language, as suggested by MSc. and these preliminary data from Japanese, Korean, and Malayalam. This would be in line with any account tying the finiteness effect in English and its absence in Swedish to the presence of agreement marking in English.

It should be noted that it is controversially debated to which extent Japanese, Korean, and Malayalam obey or disobey different island constraints. For instance, in a recent experimental study, Kim & Goodall (2014) found no evidence for island effects (as measured via significant interaction effects in a factorial design, see Chapter 3) in Korean adjunct clauses, thus indicating that Korean indeed is not sensitive to adjunct island constraints, as also claimed by Yoshida (2006). This stands in contrast to another recent study by Lee (2018), who observes that Korean does exhibit island effects (according to a factorial definition of island effects) for

adjunct clause extraction in his experiment. Further investigation is thus necessary to determine in how far the behavior of adjunct clause extraction in these languages indeed can be compared to extraction in MSc.

In regard to the hypothesis that the possibility of finite adjunct clause extraction correlates with the absence of subject-verb agreement marking, it is furthermore interesting to note that Icelandic and Faroese, languages that are closely related to Swedish, have been reported to disallow extraction from adjunct clauses, see the examples in (49) (repeated from Chapter 3).

(49) a. *Guðmund$_i$ var ég þar   [þegar þú   hittir _$_i$].
          Gudmundur was I   there when you met
          'I was there when you met Gudmundur.'
          (Icelandic; Thráinsson 1994: 185)

      b. *Bréfið$_i$ var Jón   að þvo   gólfið   [eftir að   María hafði
          letter.the was John to wash floor.the after that Mary had
          skrifað _$_i$].
          written
          'John was cleaning the floor after Mary had written the letter.'
          (Icelandic; Zaenen 1985: 137)

      c. *Tvøstið$_i$ fari eg, [tá ið Maria hevur etið   upp _$_i$].
          whale.meat.the   go I   when Mary has   eaten up
          'I will leave when Mary has finished the whale meat.'
          (Faroese; Thráinsson et al. 2004: 295)

These languages differ from Swedish and the other MSc. languages in that they exhibit agreement marking on the verb, see (50) and (51).

(50) verbal paradigm for *kasta* 'throw' in Icelandic

a. present tense

	Sg.	Pl.
1st	kasta	köst-um
2nd	kasta-r	kast-ið
3rd	kasta-r	kast-a

b. past tense

	Sg.	Pl.
1st	kasta-ð-i	köstu-ðu-m
2nd	kasta-ð-ir	köstu-ðu-ð
3rd	kasta-ð-i	köstu-ðu

(51) verbal paradigm for *kasta* 'throw' in Faroese

a. present tense

	Sg.	Pl.
1st	kast-i	kast-a
2nd	kast-ir	kast-a
3rd	kast-ir	kast-a

b. past tense

	Sg.	Pl.
1st	kasta-ð-i	kasta-ð-u
2nd	kasta-ð-i	kasta-ð-u
3rd	kasta-ð-i	kasta-ð-u

While the examples in (49) are not optimal for demonstrating the impossibility of adjunct clause extraction in Icelandic and Faroese, since the adjunct clause in these cases does not encode a plausible coherent relation with the matrix clause, the following example demonstrates that extraction from finite *after*-adjunct clauses in e.g. Icelandic is rejected even if a coherent interpretation between the matrix and adjunct clause is available. A similar sentence in Swedish received ratings on the upper end of the five-point scale scale in the survey presented in Chapter 4.

(52)   *[Þetta rauðvín]$_i$ leið mér svolítið illa [eftir að   ég
         this   red wine.ACC felt I.DAT a.little   sick   after that I
         hafði drukkið _$_i$].
         had   drunk
         'I felt a little sick after I drank that red wine.'
         (Halldór Sigurðsson, p.c.)

However, extraction from the non-finite counterpart of the adjunct clause in (52) is equally unacceptable, indicating that extraction from adjunct clauses might be generally ruled out in Icelandic:

(53)   *[Þetta rauðvín]$_i$ leið mér svolítið illa [eftir að hafa
         this red wine.ACC felt I.DAT a.little   sick   after to   have
         drukkið _$_i$].
         drunk
         'I felt a little sick after drinking that red wine.'
         (Halldór Sigurðsson, p.c.)

In that, Icelandic would differ from English, where extraction is improved when the adjunct clause is coherent and non-finite. While the absence of agreement marking might thus be a necessary condition for the absence of a finiteness effect in adjunct clause extraction in a language, we do not necessarily expect to find finiteness effects in all languages that have overt agreement marking, since some languages appear to rule out adjunct clause extraction in general. I leave the further study of these observations for future research.

5.7 Summary

In this chapter, the impact of coherence and finiteness on the acceptability of sentences involving adjunct island extraction was investigated experimentally in Swedish and English. Two acceptability experiments showed that extraction from *after*-adjunct clauses in both languages yields higher ratings when the matrix and adjunct clause can easily be interpreted to be in a causal, coherent relation, compared to when the relation is interpreted as purely temporal. Furthermore, the acceptability of sentences involving coherent adjunct extraction was found to be sensitive to finiteness, with extraction from non-finite adjuncts being more acceptable than extraction from finite adjuncts; however, this effect emerged only in English, demonstrating a case of cross-linguistic variation.

The results thus provide support for the possibility of cross-linguistic variation with regard to whether or not certain factors (here finiteness) matter for the acceptability of sentences involving island violations. At the same time, coherence was shown to increase the acceptability of sentences with extraction from *after*-adjunct clauses in both Swedish and English; moreover, extraction in both languages never yielded acceptability ratings above mid-point. These findings are hence compatible with the cross-linguistic validity of a constraint like the Adjunct Condition and the insight by Phillips (2013a) that cross-linguistic variation in island effects is limited and systematic.

The finding that the acceptability of adjunct clause extraction sentences increases in the presence of a causal, coherent relation between the adjunct and the matrix clause in both Swedish and English, and moreover that, in English, acceptability is also affected by the finiteness of the adjunct clause provided that there is a coherent relation, calls into question the hypothesis that islands are impermeable to dependency formation, as suggested in Stowe (1986) and Traxler & Pickering (1996). If dependency formation was indeed suspended in island domains, the acceptability of adjunct island extractions should not vary depending on factors such as coherence and finiteness. The next chapter investigates the availability of dependency formation in English adjunct islands with a further experiment.

6 The permeability hypothesis

Chapter 5 presented evidence that the acceptability of sentences involving adjunct clause extraction is dependent on coherence and finiteness. To the extent that adjunct clauses may be assumed to be islands, this finding suggests that integrative processes related to dependency formation are to some degree active in islands, at least in adjunct islands of the type investigated here. However, this hypothesis (here referred to as the permeability hypothesis) stands in contrast to a body of work from the processing literature which suggests that syntactic islands are impermeable to dependency formation (e.g. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015). In this chapter a follow-up experiment is presented that investigates with a self-paced reading paradigm whether integrative processes are available in at least some adjunct islands in English, by examining how coherence and finiteness affect the real-time processing of sentences involving extraction from *after*-adjunct clauses. If coherence and finiteness are found to affect reading times inside the island, this would demonstrate the online permeability of such structures in English.

Section 6.1 provides a review of key processing studies relevant to the permeability hypothesis. Section 6.2 reports on a self-paced reading experiment on English stimuli that investigates the hypothesis that both coherence and finiteness affect reading times inside the island, at the gap and/or in spillover regions, where effects related to filler-gap integration are expected to be seen, which would be suggestive of integrative processes within adjunct islands in English. English is chosen to investigate this question because only English exhibited a finiteness effect in the acceptability experiments, which in turn is particularly interesting for an investigation of integrative processes inside islands, since finiteness of the adjunct targets a feature inside of the island. The chapter closes with a summary in Section 6.3.

6.1 Processing of island constraint information

The assumption that island effects reflect syntactic constraints on movement has given rise to the question how the parser makes use of island constraint

information during the online processing of extractions. Island effects have thus been the subject of extensive research also from a processing perspective.

In the psycholinguistic literature, unbounded dependencies are commonly referred to as *filler-gap dependencies*, and the process of forming an association between the extracted element and its source position is known as *gap-filling*. This process is initiated upon identification of the filler, which will cause the parser to search for the matching gap location. Once the gap is identified, the dependency between filler and gap can be formed and the filler can be interpreted in relation to the element that subcategorizes for it (e.g. the verb). There is strong evidence suggesting that the parser employs a *first-resort strategy* (Fodor 1978) in identifying the gap, meaning that the parser will actively attempt to complete the dependency as early as possible (i.e. at the first potential gap position for the extracted element).

However, a debated question is whether the parser still employs a first-resort strategy when the dependency in question violates an island constraint. One possibility is that island constraint information is respected by the parser during online processing and thus that dependency formation is not attempted when the gap is contained in an island domain. Another possibility is that the parser may initially form dependencies that violate island constraints and that island constraint information is instead applied later as a sort of filter. A number of studies on this topic seems to support the first hypothesis, i.e. they provide evidence that syntactic island constraint information is used by the parser to immediately block filler-gap association in island structures during online parsing, suggesting that islands are impermeable for filler-gap integration (e.g. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015). Section 6.1.1 provides an overview of these studies, before Section 6.1.2 presents studies that seem to question the degree to which dependencies are actually blocked into islands, thus providing data pointing to the contrary.

6.1.1   Impermeability of islands

Stowe (1986) uses a filled-gap paradigm in a self-paced reading task to examine the processing of island constraint information. The logic of this paradigm is that the presence of a lexical noun phrase at a position where a gap can be assumed will cause reanalysis, reflected in increased reading times at that region. To examine whether gaps are hypothesized by the parser in island domains, Stowe constructed sentences involving *wh*-extraction in which the first potential gap position was located in a prepositional phrase that was either contained in a verb phrase (a non-island), see (1a), or in a subject noun phrase (an island), see (1b). Thus, in both (1a) and (1b), a gap for the extracted element *what* may temporarily be assumed in the complement of *about* (to be revised upon encountering an overt

noun phrase in that position); however, in (1b) a gap can only be assumed in this position if the island constraint information that bans dependency formation into subjects is ignored.

(1) a.   The teacher asked what$_i$ the team laughed about (_$_i$) Greg's older brother fumbling _$_i$.
     b.   The teacher asked what$_i$ the silly story about (_$_i$) Greg's older brother was supposed to mean _$_i$.

Stowe found that the overt noun phrase after *about* (viz. *Greg's*) caused an increase in reading time (a filled-gap effect) in the verb phrase condition (1a), compared to a control condition without *wh*-extraction, but not when *Greg's* was contained in a subject island (1b). Stowe concludes from this result that syntactic island constraint information is used by the parser to avoid positing a gap within a subject island, since otherwise the presence of an overt noun phrase in this potential gap position would be expected to cause difficulties similar to the way it does in the (non-island) verb phrase condition. However, note that the island and non-island sentences in this design do not form an optimal minimal pair, due to the potential dependency being embedded in a verb phrase in one case and in a noun phrase in the other. Due to this potential confound, it is not certain whether the observed differences in the rate of gap-filling attempts in this design can be attributed to the presence or absence of an island entirely.

Traxler & Pickering (1996) conducted an eye-tracking study to examine the processing of sentences involving filler-gap dependencies into relative clause islands in English. Their stimuli, demonstrated in (2)–(3), contained an extracted (relativized) noun phrase (e.g. *book/city*) followed by an embedded verb (e.g. *wrote*) which alternates in transitivity and thus provides a potential, but not certain gap site for the extracted NP. This was followed by a true gap site, which appeared later in the sentence. The potential gap was contained either in a relative clause island (3) or in a non-island domain (2) for control. In addition, Traxler & Pickering (1996) manipulated the plausibility of the potential dependency acting as a filler of the embedded verb by varying the extracted noun (e.g., *book/city*). The formation of a dependency between the nouns and the verb *wrote* thus results in a plausible interpretation for (2/3a) but an implausible one for (2/3b), since one can write a book, but not a city. Based on the assumption that implausible filler-verb pairings cause longer processing times than plausible ones, Traxler & Pickering predicted an effect of plausibility on fixation durations at the embedded verb (the potential gap site) only if the parser attempts to form the dependency.

(2) a.   We like [the **book**]$_i$ that the author wrote (_$_i$) unceasingly and with great dedication about _$_i$ while waiting for a contract.

    b.   We like [the **city**]$_i$ that the author wrote (_$_i$) unceasingly and with great dedication about _$_i$ while waiting for a contract.

(3) a.   We like [the **book**]$_i$ that the author [who wrote (_$_i$) unceasingly and with great dedication] saw _$_i$ while waiting for a contract.

    b.   We like [the **city**]$_i$ that the author [who wrote (_$_i$) unceasingly and with great dedication] saw _$_i$ while waiting for a contract.

Traxler & Pickering found such plausibility effects at the embedded verb (e.g. *wrote*) in first fixation durations and total fixation durations in the non-island conditions, but not in the relative clause islands. From this, they conclude that the parser immediately makes use of island constraint information to preclude long distance dependency formation inside the relative clause island.

    Omaki & Schulz (2011) tested whether these plausibility mismatch effects could be replicated on L2 learners of English. To this end, they compared to which extent relative clause island constraints were respected by English native speakers and advanced Spanish-speaking L2 learners of English in online sentence processing, using a self-paced reading experiment and materials that were adapted from Traxler & Pickering (1996). An acceptability judgment task was used to establish that the L2 speaker participants had knowledge of the relative clause island constraint. The results of the self-paced reading study showed that neither L1 nor L2 speakers of English exhibited plausibility effects in the expected direction at the critical verb (the potential gap site) in any of the conditions; however, both groups showed a plausibility effect in the spillover region following the verb that replicated the pattern found by Traxler & Pickering (1996): Reading times were significantly slower for implausible than for plausible filler-verb combinations in the non-island condition, whereas no such contrast was found in the island condition. Omaki & Schulz (2011) take these results to indicate that both native and non-native speakers of English apply relative clause island information during online processing to inhibit the construction of filler-gap dependencies inside relative clause islands.

    Omaki et al. (2015) conducted three reading experiments (one self-paced reading study and two eyetracking studies) that tested whether the transitivity of the embedded verb in sentences of the type used in Traxler & Pickering (1996) would affect reading times. Structures where the potential gap was embedded in a relative clause island were used as a baseline condition in their experiments to compare potential transitivity effects of the verb in filler-gap configurations to a condition in which filler-gap integration purportedly is inhibited. The results of the reading experiments overall indicated reading disruptions at the critical verb when the verb was intransitive (in line with the position that parsers create gap sites before having access to relevant verb information), but only in the non-island

conditions. No evidence for reading disruptions at intransitive verbs was found when the relevant verb was embedded in a relative clause island. In the self-paced reading experiment, both the transitive and intransitive verbs were constructed to be implausible subcategorizers for the filler. Material from Omaki & Schulz (2011) was reused for the transitive conditions. The results indicated reading time slowdowns at the critical verb across the transitive and intransitive condition in the non-island condition compared to the (relative clause) island condition. While the slowdown in the intransitive non-island condition is interpreted as reflecting a mismatch between the expected and actual transitivity of the verb, the slowdown observed for transitive (but implausible) verbs in the non-island condition relative to the island condition is interpreted as a replication of the plausibility mismatch effect found in Traxler & Pickering's (1996) study, which Omaki et al. (2015) take to confirm Traxler & Pickering's conclusions regarding the availability of dependency formation in non-island as opposed to island structures.

6.1.2   Arguments in favor of permeability

The studies presented in the previous section seem to provide evidence that parsers use syntactic information about island constraints to suspend or block integrative processes related to dependency formation in island structures during online sentence processing, suggesting that islands are impermeable for filler-gap integration. However, a couple of recent studies provide data pointing to the contrary, thus calling into question the degree to which dependencies are actually blocked into islands. For example, Phillips (2006) tested the availability of filler-gap integration in finite and non-finite complex subject NPs. Both finite and non-finite subjects are traditional island domains (see 4a and 5a), but differ in that extraction from a non-finite subject can be rescued by the presence of another, licit, gap that is linked to the same filler (4b) (forming a parasitic gap construction), whereas this is not possible for subject islands containing a finite relative clause (5b).

(4)   a. *What$_i$ did [the attempt to repair _$_i$] ultimately damage the car?
      b. What$_i$ did [the attempt to repair _$_i$] ultimately damage _$_i$?
         (Phillips 2006: 796)

(5)   a. *What$_i$ did [the reporter that criticized _$_i$] eventually praise the war?
      b. *What$_i$ did [the reporter that criticized _$_i$] eventually praise _$_i$?
         (Phillips 2006: 803)

To investigate whether parsers block dependency formation in finite and non-finite subjects alike, Phillips (2006) conducted a self-paced reading study employing a

similar plausibility manipulation as in Traxler & Pickering (1996). The stimuli, exemplified in (6)–(7), involved a *wh*-phrase (e.g. *which schools*) followed by a subject NP embedding a verb (e.g. *expand*) which provides a potential gap site for the extracted *wh*-phrase. This verb was either contained in an infinitival complement of the subject NP (6) or was the finite verb in a relative clause modifying the subject (7). In addition, plausibility was manipulated by varying the extracted *wh*-phrase such that it was either a plausible (6a and 7a) or an implausible (6b and 7b) object of the verb. Like in Traxler & Pickering's (1996) design, the potential gap was followed by a true gap site, which appeared later in the sentence (following *overburden* / *motivate* in the examples below).

(6) a. The school superintendent learned [which **schools**]$_i$ [the proposal to **expand** (_$_i$) drastically and innovatively upon the current curriculum] would overburden _$_i$ during the following semester.
     b. The school superintendent learned [which **high school students**]$_i$ [the proposal to **expand** (_$_i$) drastically and innovatively upon the current curriculum] would motivate _$_i$ during the following semester.

(7) a. The school superintendent learned [which **schools**]$_i$ [the proposal that **expanded** (_$_i$) drastically and innovatively upon the current curriculum] would overburden _$_i$ during the following semester
     b. The school superintendent learned [which **high school students**]$_i$ [the proposal that **expanded** (_$_i$) drastically and innovatively upon the current curriculum] would motivate _$_i$ during the following semester.
         (Phillips 2006: 808)

The results showed a significant slowdown in reading times for implausible compared to plausible filler-verb pairings at the embedded verb in the infinitival conditions (6), but no such plausibility effect was found in the finite conditions (7). Phillips (2006) takes this to indicate that parsers refrain from constructing gaps in finite subject islands, but that they do posit gaps in non-finite subject islands, where they can be subsequently licensed by a parasitic gap. Overall, these findings demonstrate that dependency formation is not inactivated in all island structures alike. In this particular case, the presence of gap-filling mechanisms in non-finite subject islands is likely related to the possibility of non-finite subjects to license parasitic gapping, even though the parser has not yet encountered evidence for a second, licensing gap at the point of gap integration in the subject, and even though the gap in the subject island is unacceptable in the absence of the licensing gap.

Further evidence for gap-filling inside island domains is provided in a recent eyetracking study by Tutunjian et al. (2017). In two experiments, Tutunjian et al. compared the processing of relative clause (island) extractions in Swedish to the

processing of extraction from (non-island) *that*-clauses and extraction from two different forms of uncontroversial strong island extractions. In their second experiment, which used a plausibility manipulation similar to what was used in Traxler & Pickering (1996), Tutunjian et al. found that fixation durations at embedded relative clause verbs showed sensitivity to the plausibility of the relation between the filler and the embedded verb. From this finding, Tutunjian et al. conclude that dependency formation is not suspended in Swedish relative clause islands. However, they argue that despite this apparently liberal behavior, Swedish relative clauses should not be treated as non-islands, and that they are better characterized as being weak islands. Support for this claim was derived from their first experiment in which Swedish relative clause extractions were shown to pattern in-between extraction from non-islands and extraction from uncontroversial strong islands in total fixation durations. A weak island status of Swedish relative clauses would also have the potential to explain restrictions regarding the types of elements that can be extracted from them, as pointed out in Lindahl (2017), and could explain the comparatively low ratings that relative clause extractions in Swedish receive in formal studies (Müller 2015; Tutunjian et al. 2017). Plausibility effects were even present in some measures in sentences where the relative clause was contained in a subject island. That is, even if one could object that relative clauses may not be islands in Swedish, this would not explain the presence of plausibility effects in displaced subjects, which are uncontroversial islands even in Swedish. The availability of dependency formation in Swedish relative clauses, as indicated by their sensitivity to a plausibility manipulation in Tutunjian et al. (2017), thus suggests that at least some island structures display a degree of permeability for dependency formation in Swedish.

Moreover, a number of recent studies have argued that multiple factors affect the acceptability of island extractions (e.g. Chaves 2013; Haegeman et al. 2014; Tanaka 2015). For example, it has been shown that the acceptability of extraction from nominal subject islands is dependent on several factors, some of which relate to the external syntax of subjects (e.g. whether or not the subject constituent has moved to Spec,TP), while others relate to their internal structure (e.g. whether the subject nominal is specific), or to properties of the extracted element itself (e.g. its argument status) (Haegeman et al. 2014). Further factors are mentioned in Chaves (2013), e.g. *pragmatic relevance*. To be specific, Chaves suggests that for extraction from subjects to be possible, the moved phrase must bear some pragmatic relevance to the phrase from which it is extracted and/or to the main assertion. This is the case when the concept referred to by the extraction site (i.e. by the subject) entails or presupposes the referent of the extracted phrase, or when the referent described by the extracted phrase affects the truth conditions of the predication. Relevance can thus account for contrasts such as the following:

(8) a. [Which problem]$_i$ will [a solution to _$_i$] never be found?
     b. ?[Which city]$_i$ will [the train to _$_i$] impress everyone?
         (Chaves 2013: 309)

Under Chaves' account, extraction in (8a) is relatively acceptable because the extracted phrase *which problem* is relevant for the noun phrase denoting a *solution* and the predicate *find* (since a solution always presupposes the existence of a problem). The extracted phrase *which city* in (8b), by contrast, is not relevant in the same sense for the subject phrase *the train* (trains do not presuppose the existence of a city) and extraction is therefore expected to be degraded.

The observation that the acceptability of extraction from alleged strong islands, such as subject islands, is affected by the different properties mentioned above is unexpected under the hypothesis that islands are impermeable for filler-gap integration. If the parser never attempted to form a dependency inside an island, then the acceptability of subject island extraction should not vary depending on different factors. The suggestion that factors concerning the internal structure of subject islands are relevant for extraction possibilities, e.g. the specificity of the subject nominal, or the pragmatic relevance of the extracted phrase for the concept referred to by the subject, is particularly suggestive of the presence of integrative processes inside these islands, since such effects indicate that features originating from inside the island can affect the possibility of dependency formation.

Chapter 5 presented results suggesting that the same can be claimed for adjunct island extraction: The finding from Experiment 1 and 2 that the acceptability of sentences involving adjunct clause extraction increases in the presence of a coherent relation between the adjunct and the matrix clause in Swedish and English, and moreover that, in English, acceptability is also affected by the finiteness of the adjunct clause, suggests that the conditions on extraction from adjunct clauses specifically relate to the adjunct clause verb. And yet the fact that the possibility of dependency formation with the adjunct clause verb can even vary, would seemingly go against the claim that syntactic islands are impermeable to dependency formation. Although the acceptability study design used in Experiment 1 and 2 requires participants to make a holistic judgment and thus cannot specify the actual locus of any noted rating cost, these findings nevertheless suggest that under certain conditions, adjunct islands could be shown to display some level of permeability for dependency formation during online processing if certain factors are taken into consideration. The finiteness effect identified in the English data, although derived from a small difference, is particularly interesting because it suggests that the acceptability of the alleged island violation may be affected by a feature inside the "island" (finiteness of the adjunct clause). If islands were impermeable to integrative processes, such an effect would be unexpected. However, it would be congruent with a model in which filler-gap integration is also attempted in island structures, provided that certain conditions

166

are met. I will henceforth refer to such a model as the *permeability hypothesis*. Admittedly, this line of argumentation hinges on the assumption that the adjunct clauses in question are indeed some kind of islands, since permeability is trivially expected for non-island constituents. As mentioned in Chapter 5, even though I lack a quantitative measure for the island status of these constructions, the low ratings obtained for them are at least compatible with such a position. However, I have also mentioned the possibility that (at least some) adjunct clauses in English and Swedish may be weak rather than strong islands. It may thus be possible that potential signs of permeability of the adjunct clauses investigated here could be explained by a weak island analysis of such adjuncts. In this case it would in principle be possible to maintain the position that *strong* islands are impermeable for filler-gap integration, and to restrict the scope of the permeability hypothesis to weak islands. For now, I do not take a position on the status of *after*-adjunct clauses with regard to the strong/weak island distinction, but I will return to the topic in Chapter 7.

To test the permeability hypothesis more rigorously, it was necessary to enlist a methodology which would make it possible to better pinpoint the effects of coherence and finiteness to dependency formation between the extracted filler and the embedded adjunct verb. For this reason, the use of an online paradigm, self-paced reading, was enlisted in Experiment 3.

6.2 Experiment 3 – Real-time processing of extraction in English

Experiment 2 provided evidence that two factors, coherence and finiteness, affect the overall acceptability of sentences involving adjunct island extraction in English. However, it remained unclear as to whether changes in acceptability signal that the adjunct clause (island) is actually permeable to long-distance dependency formation as the parse is built up incrementally during online processing, signaling, together with the relatively small size of the acceptability effects, that an online method would be more informative.

Experiment 3 uses a self-paced reading paradigm to investigate how coherence and finiteness affect the real-time processing of sentences involving extraction from *after*-adjunct clauses in English. This made it possible to look for effects of coherence and finiteness inside the island at the verb and/or in spillover regions (and thus also at the assumed gap site), where effects related to dependency formation are typically expected to be seen (e.g. Gibson 2000; Gibson & Ko 1998; Gibson & Warren 2004; Grodner & Gibson 2005). Finding such effects at the verb and the following region would add support to the hypothesis that at least English adjunct clauses (islands by assumption) may be permeable to long-distance

dependency formation. A finiteness effect on reading times would provide particularly strong support for the permeability hypothesis, since it would demonstrate the impact of a feature inside of the island (i.e. the finiteness of the adjunct clause) on processing times at the point of gap integration. For this reason, the experiment was run on native speakers of English, which is where support for a finiteness effect was found in acceptability ratings.

There exists a body of prior studies which used a plausibility manipulation as in Traxler & Pickering (1996) (see also Omaki & Schulz 2011; Omaki et al. 2015) or a filled-gap paradigm as in Stowe (1986) to test for dependency formation. However, adding a plausibility manipulation to the materials would have required a shift in relation between the filler and the matrix verb and thus was expected to interfere with the coherence manipulation. And both plausibility and a filled-gap design would have introduced an additional layer of ungrammaticality into what already comprised a complex set of experimental items, which always carries the risk of affecting participant trust in the task.

The approach used here more closely resembles a different body of work in which self-paced reading was used to test for dependency formation via a more direct comparison of reading times at the point of expected integration (e.g. Gibson 2000; Gibson & Ko 1998; Gibson & Warren 2004; Grodner & Gibson 2005). For example, both Gibson & Ko (1998) and Grodner & Gibson (2005) used self-paced reading to compare reading time effects at the embedded verb in subject relative clauses such as *The reporter who sent the photographer to the editor hoped for a story* and object relative clauses such as *The reporter who the photographer sent to the editor hoped for a story*. Both studies found that reading times at the embedded verb (*sent*) were slower in the object relative clause than in subject relative clause condition, and derived this effect from different integration costs resulting from dependency formation at the relevant region in subject and object relative clauses. In the object relative clause, the relative clause pronoun *who* is extracted from the object position, and at the embedded verb (*sent*), a dependency must hence be established between the extracted pronoun and the resulting gap. In the subject relative clause, *sent* must only be linked locally with the adjacent relative clause pronoun, and integration costs are correspondingly assumed to be smaller. A slow-down in reading times at the gap site in the object relative clause is hence taken to be an indicator of the difficulty of dependency formation (see also Gibson 2000). Similarly, in the current study, reading times are measured at the embedded verb in sentences involving filler-gap dependencies into adjunct clauses to examine if (and how) coherence and finiteness affect the difficulty of dependency formation in an adjunct clause. Given that the embedded verb and the region following it are the regions where filler-gap integration is expected to occur, it can be assumed that effects in reading times at these regions reflect integrative processes related to dependency formation.

The expectation was that the self-paced reading data would match the general pattern seen for acceptability judgments for English in Experiment 2 in regards to finiteness and coherence. This was expected to be manifest as longer reading times for adjunct extraction sentences in the non-coherent condition compared to the coherent condition at least at the embedded verb (the gap site), and longer reading times for finite adjunct extraction sentences compared to non-finite ones at the embedded verb (since this is where finiteness manifests itself), but only in the coherent condition. A finding along these lines, in which cost was pinpointed to the embedded verb (or following region) would demonstrate the online permeability of such structures in English and more generally corroborate the findings from the acceptability judgment experiment.

6.2.1 Method

Participants

Sixty native speakers of English participated in the study in exchange for a movie ticket voucher. All participants were aged 18–45 and were screened to be monolingual native speakers of English and to not have neurological disorders. Five participants were excluded for scoring less than 80 percent correct on the comprehension questions.

Materials

For Experiment 3, 40 sentence items of the type in (9) were created and distributed across four lists in a Latin square design so that each participant saw only one sentence from each set. The sentences were presented in a randomized order to the participants. A complete list of the critical items is provided in Appendix D.

(9)
a. coherent | non-finite
   Which beer did he stumble immediately after chugging last night?

b. coherent | finite
   Which beer did he stumble immediately after he chugged last night?

c. non-coherent | non-finite
   Which beer did he stroll a bit after chugging last night?

d. non-coherent | finite
   Which beer did he stroll a bit after he chugged last night?

The materials for this experiment were adapted from Experiment 2, with some modifications that were intended to improve the design. The main change concerned the adverbs inserted in the matrix clause in the stimuli: *immediately*, *right*, and *shortly*, which were used alternatingly in the coherent condition. Whereas in Experiment 2, the adverbs in the coherent stimuli were placed before the matrix verb and modified the matrix predicate (e.g. *Which beer did he almost stumble after chugging?*), the adverbs in Experiment 3 were placed after the matrix verb and before the *after*-clause, where they are read as modifying the temporal relation specified by the *after*-clause instead, cf. (9a) and (9b). The placement of the adverbs in this position had a threefold purpose: Firstly, it reduced the risk that the filler would be analyzed as a prepositional object of the matrix verb with a missing preposition (e.g. *Which beer did he almost stumble over?*); secondly, it enhanced the implied causal relation between the two events further in the coherent condition; and thirdly, it achieved that the adverbs occurred in the same position (i.e. after the matrix verb) in both coherent and non-coherent sentences, rendering a more streamlined design. In the non-coherent condition, three adverbs, *a little*, *a while*, and *a bit,* were alternated for use between items. The most salient interpretation of these adverbs is that they modify the matrix predicate rather than the adjunct. A tradeoff of this design is that the adjunct clauses in the coherent conditions are structurally slightly larger than those in the non-coherent conditions (due to an additional adverbial phrase modifying the adjunct); but since I expect extraction from coherent adjuncts to be easier than from non-coherent adjuncts, this asymmetry is critically biased against my hypothesis and thus can only work against my expected findings. Finally, a wrap-up phrase was added after the embedded verb in each sentence in the form of a two-word time adverbial, such as *last night* in (9).

In addition to the 40 critical items, each list contained 80 filler items. Fillers were constructed such that they masked the identity of the critical items.

Procedure

Participants completed the experiment in isolation on dedicated computers at Lund University Humanities Lab using E-Prime 3.0 as installed on a Zalman computer with a Core i7 processor running Windows 7 and viewed using an ASUS VG248QE monitor. Sentences were presented word-by-word using a moving window paradigm. The presentation of each trial started with a row of dashes on the computer screen corresponding to the characters of the words of the current sentence. Participants were instructed to press a designated button on a control pad to reveal subsequent words of the sentence. Every time the subjects pressed the button, the current word disappeared and the next word was revealed, such that only one word at a time was visible. Twenty-five percent of the sentences were followed by a yes/no comprehension question to ensure that participants attended to the trials. The comprehension questions were formulated in a way that they did

not presuppose gap-filling in the adjunct clauses in the experimental items. The experimental sentences were preceded by instructions and a practice session.

6.2.2 Analysis and results

Prior to analysis, word-by-word reading times (RTs) were aligned such that each word corresponded to one region with a single RT, the exception being the two-word adverbs in the non-coherent matrix clauses (*a little*, *a while*, and *a bit*) and the two-word time adverbs in the wrap-up region. For each of these regions, the RTs associated with the individual words were aggregated into a single RT for the corresponding region. Following Ratcliff (1993), reading times that were greater or less than the mean plus or minus (respectively) 2.5 standard deviations were classified as outliers and excluded from the analysis. Less than 3 percent of the data was affected. The remaining data was then log-transformed to improve the normality of the distribution (see Tabachnick & Fidell 2007: 251). Finally, following Ferreira & Clifton (1986), we adjusted for differences in word length via a residualization of observed scores vs. predicted scores based on character count. One experimental item was removed from the analysis on account of experimenter error in the formulation of the item. Mean log residualized RTs for each condition and region are presented in Figure 6.1.
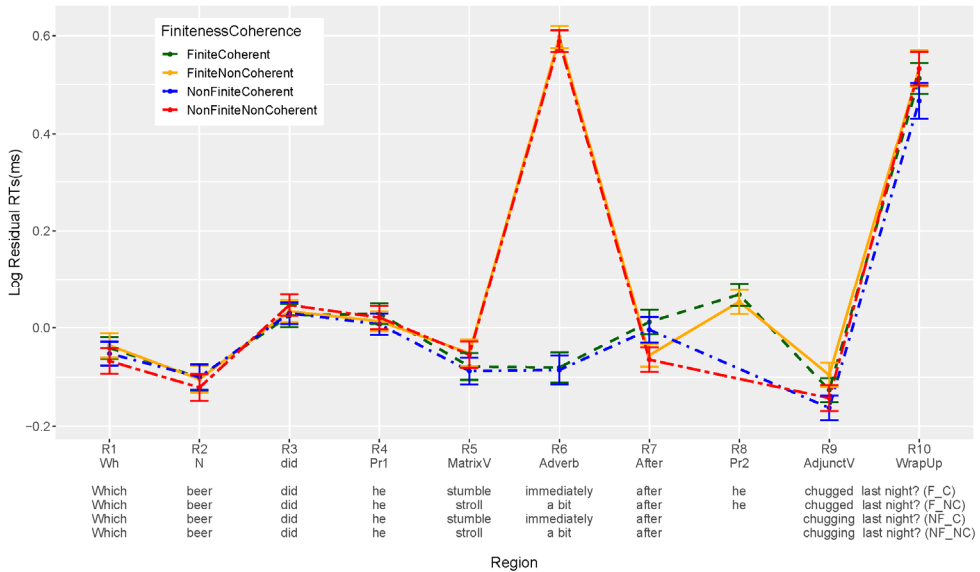
Figure 6.1: Experiment 3 mean log residualized reading times (ms) by condition and region. Error bars were calculated using the standard error of the mean.

Using an identical procedure to that outlined in Experiments 1 and 2, we conducted a linear mixed models analysis of the log residualized reading times for Regions R5–10, excluding R8 on account of the fact that this region was not present for all conditions. Random intercepts for Subject and Item were included in each model fit, and the maximum specifications for random slopes were included to the extent that the model was able to converge. All models were sum/effects coded, and thus the resulting coefficients represent a mean difference from the "grand mean".

The analysis revealed a marginally significant main effect of coherence at the matrix verb (R5), for which there were faster reading times for coherent sentences (β = -0.014, t = -1.759, p = .09). A main effect of coherence was also seen at the matrix adverb (R6), again with significantly faster times for coherent sentences (β = -0.339, t = -28.329, p < .001). At *after* (R7), there was a main effect of coherence, this time with faster reading times for non-coherent than coherent items (β = 0.0321, t = 5.076, p < .001). At the embedded verb (R9), we found a main effect of coherence: coherent faster than non-coherent (β = -0.014, t = -2.232, p < .05); and a main effect of finiteness: non-finite faster than finite (β = -0.019, t = -2.962, p < .05). At the wrap-up region (R10), there was again a main effect of coherence, with reading times significantly faster for coherent than non-coherent conditions (β =-0.0224, t = -2.517, p < .05). Moreover, we observed a trending interaction between coherence and finiteness (β = 0.011, t = 1.625, p = .10), which pairwise comparisons showed to be driven by an emergent finiteness effect in coherent structures (non-finite faster than finite, p < .05), whereas no evidence of such a finiteness effect was found in non-coherent structures (p = 0.80).

6.2.3   Discussion

The presence of a coherence effect in the matrix (a slowdown in reading times for non-coherent sentences at the matrix verb) indicates that some degree of non-coherence affects processing even before the adjunct is encountered. The incremental step through the parse can be construed as follows: After encountering the filler, which requires integration, the parser encounters an intransitive matrix verb, signaling that integration of the filler will not be possible unless an adjunct or a conjunct follows. Telic intransitives, as used in the coherent condition here, increase the probability that the matrix event and any upcoming event will be in a coherent (causal) relation to each other, thus facilitating processing at the matrix. Conversely, atelic intransitives, as used in the non-coherent condition, decrease the probability of there being an upcoming coherent relation, thus incurring a cost at the matrix. The assumption that matrix verb telicity can be used by the parser to determine the probability of certain coherence relations (and thus of a gap location) is in line with a large body of literature demonstrating that

semantic/pragmatic information and world knowledge is used as cues by comprehenders in online sentence processing (e.g. Crain & Steedman 1985; Altmann 1998; Altmann & Steedman 1988; McRae et al. 1998; Hale 2001; Kamide et al. 2003; Levy 2008; Rohde et al. 2011). Slowdown for the non-coherent sentences is again seen at the adverb (R6). We posit that the effect at the adverb reflects the contribution of the adverb to the compounding, incremental buildup of non-coherence, as well as possible spillover from the preceding matrix verb. The coherence effects in the matrix are thus interpreted as a sign that the verb and the adverb together are contributing towards overall non-coherence. This initial slow-down seen for non-coherent sentences at the matrix verb and at the following adverb region, reverts to an opposing pattern at R7, the region following the adverb (i.e. at *after*), with reading times now being faster for non-coherent than for coherent items. This could be taken to represent a self-correction cost for non-coherent conditions, as readers speed up to reach more informative parts of the sentence after encountering the prior sources of difficulty.

At the embedded verb region, the primary region of interest, a cost for non-coherence can be seen again, this time accompanied by the presence of a finiteness effect (slower reading times for finite and non-coherent adjuncts). Even though it is in principle possible that these patterns could reflect general finiteness or coherence effects on reading times not related to gap-filling, we interpret this patterning as an indication that dependency formation is attempted at the embedded clause verb. At least three general observations support this analysis: 1) There exists no claim in the literature that finite adjunct clauses are more problematic than non-finite adjunct clauses in the absence of extraction; 2) The non-coherent sentences in this experiment were constructed to be intuitively acceptable in their non-extracted forms. It can thus be assumed that something about the extraction, and thus the creation of an open dependency is likely to contribute to the cost observed for non-coherent structures at the embedded verb and wrap-up region; and 3) The initial slow-down seen for non-coherent sentences at the matrix verb over-resolved at the following region (*after*) to the opposite pattern, flipping to a speed-up for non-coherent structures. At the embedded verb, the original coherence pattern returned. This may be taken to rule out any concern that what is viewed at the embedded verb represents merely spillover from an earlier region. Given these three points and the fact that there is an open dependency at the embedded verb, it is reasonable to assume that any difficulty at that verb is at least in part due to issues with dependency formation (although a follow-up self-paced reading experiment manipulating both extraction and coherence/finiteness would be needed to fully exclude the possibility of a general coherence or finiteness effect, unrelated to the extraction). Also at the wrap-up region, a coherence effect can be found, as well as a finiteness effect for coherent sentences and a trending interaction between the two factors. We also interpret the main effects observed at the wrap-up region to reflect integration costs as well,

since it is at this region that the presence of a gap at the preceding verb is confirmed. The effects in the wrap-up region may also reflect processing costs that have accumulated from earlier regions, and hence may reflect integration processes that have occurred at the preceding verb, given that it is the final region of the sentence and wrap-up processing from the whole sentence is expected here. The faster reading times for coherent conditions at this region can thus be taken as support for the facilitatory effect that coherent relations have on processing and dependency formation in adjuncts. The trending interaction between the coherence and finiteness factor at the wrap-up region suggests that finiteness might only affect integration in the coherent conditions. This conclusion is supported by the results from the pairwise conditions indicating that reading times were slower for finite than non-finite clauses in the coherent conditions, whereas no evidence of such a finiteness difference was present in the non-coherent conditions. The presence of a finiteness effect in the coherent conditions lends support to the hypothesis that integration is not suspended when the adjunct and matrix are coherent. The slowdown in reading times for finite adjunct clauses presumably reflects an increased cost for the formation of a dependency across a finite verb in an adjunct (see Chapter 5.6 for suggestions on the source of this finiteness effect).

The lack of evidence for a slowdown due to finiteness in the non-coherent conditions suggests that integration, to the extent that it occurs, is at the very least, more facilitated in coherent adjuncts than in non-coherent adjuncts (as also indicated by the shorter reading times in coherent adjuncts overall, and the clear presence of a finiteness effect). This could be taken to indicate that the parser uses the semantics of the matrix predicate and the adjunct to anticipate a coherent relation which enhances extraction and hence supports the possibility of gap formation. Coherence can thus be said to make adjuncts more permeable to some degree.

The results bear some resemblance to Phillips' (2006) finding that parsers construct gaps inside non-finite subject islands, where they can be subsequently licensed by a parasitic gap. It is possible that in a similar manner, speakers postulate gaps inside adjunct clauses when they can be licensed by coherence relations.

The facilitative effect of coherence and non-finiteness on dependency formation in sentences involving adjunct clause extraction in English, as indicated by these patterns, can be accommodated under models measuring the complexity of long-distance filler-gap relations in terms of distance, such as Gibson's (1998, 2000) Dependency Locality Theory (DLT). According to DLT, additional discourse referents intervening between the extracted element and its source position increase the difficulty associated with dependency formation due to resource constraints on language processing. As mentioned in Chapter 5, Truswell (2011: 123) suggests that non-coherent extraction structures involve dependency formation across a more complex structure than coherent structures. In non-

coherent contexts, a multiple-event reading is triggered, with the consequence that an additional event has to be processed and crossed in order to resolve the filler-gap dependency. If he is correct and if events are also discourse referents, as suggested in Gibson (2000), the additional crossed referent would then lead to an increased processing load compared to cases with a coherent, single-event reading. The reading time disruptions observed for non-coherent structures (both at the matrix and the gap site) in Experiment 3, as well as the degraded acceptability, could thus reflect the cognitive effort associated with dependency formation across a multiple-event structure.

As mentioned in Chapter 5, the coherence effect in extraction structures could also be deduced from a syntactic account if coherence is assumed to be reflected in the syntax, for example, in terms of an Agree or Feature sharing relation between the adjunct and the matrix clause (e.g. den Dikken 2018), or in terms of a specific attachment site of the adjunct (e.g. Brown 2015, 2016, 2017). This in turn could be assumed to enhance extraction. Such syntactic accounts generally share the assumption that the presence of extraction forces a coherent reading, which in the non-coherent cases leads to an infelicitous interpretation of the sentence. The slower processing times and lower ratings observed for non-coherent structures in our experiments could thus also under such a syntactic account be assumed to reflect the cognitive effort used in an attempt to coerce a coherent reading.

Turning to the finiteness effects on reading times observed in Experiment 3, DLT could also be invoked to explain the facilitative effect of non-finiteness in English if it could be shown that the greater processing complexity of finite structures interferes in the filler-gap dependency and thereby causes disruptions at the gap site (see e.g. Hawkins 1999). As mentioned in Chapter 5, a possible factor responsible for the finiteness effect in English may be the presence of overt agreement morphology. The computation of subject-verb agreement in finite clauses in English could thus for instance intervene in the process of gap integration and thereby lead to disruptions at the gap site as stated above. The increased processing load associated with finite structures could in turn lead to subtle differences in the ratings of extraction sentences, as evidenced by the small but significant finiteness effect in English observed in Experiment 2.

6.3 Summary

A traditional assumption has been that island effects (the relative unacceptability of extraction) have a syntactic origin and that the parser uses syntactic information about island constraints to suspend integrative processes in island structures (e.g. Traxler & Pickering 1996). In this chapter, I have investigated the hypothesis that the picture is more complex than that and that integrative processes are available

to some degree in at least some adjunct islands. To this end, a self-paced reading paradigm was used in Experiment 3 to investigate how finiteness and coherence affect the real-time processing of sentences involving extraction from *after*-adjuncts in English at the point of gap integration. Self-paced reading was expected to make it possible to incrementally monitor the process of dependency formation without necessitating the use of a plausibility manipulation or filled gap (see Grodner et al. 2000; Grodner & Gibson 2005; Gibson & Warren 2004). The results showed that coherent structures involving extraction from an adjunct displayed faster reading times than non-coherent structures both at the matrix verb and adverb and at the embedded verb and wrap-up region. Furthermore, finiteness was shown to cause an overall increase in reading times at the adjunct verb and the wrap-up region, though for the latter region, the presence of a trending interaction suggests that the finiteness effect was driven by reading time increases for the coherent structures, which corroborates the finding from Experiment 2 that finiteness decreases the acceptability of coherent structures, but has no effect on non-coherent structures. In sum, the Experiment 3 self-paced reading results indicate that coherence and non-finiteness facilitate the processing of such structures at the point of filler integration, which was taken to support the hypothesis that adjunct clauses of the type investigated are permeable to integrative processes in English. The finding is compatible with what Phillips (2006) has found for subject island extractions and what Tutunjian et al. (2017) found for both relative clause island extractions and subject island extractions. As I mentioned earlier, a question raised by the findings presented in this chapter is whether the permeability of the adjunct clauses investigated here could be linked to a potential weak island analysis of such clauses. This and other more overarching questions concerning the nature of island constraints are addressed in the next chapter.

7 Summary and loose ends

The purpose of this chapter is to summarize my findings, and to tie together some loose ends remaining from the preceding chapters. Section 7.1 provides a summary of the thesis and the conclusions drawn from my investigations, whereas Sections 7.2–7.6 are dedicated to more overarching questions that have arisen from my findings. Section 7.2 discusses the status of coherent adjunct clauses in Swedish in light of the seemingly contrasting results presented in Chapters 4 and 5 in relation to the acceptability of extraction from such clauses: In the more informal study from Chapter 4, sentences with extraction from coherently interpreted temporal clauses in Swedish yielded ratings on the upper end of the scale (making it appear that such clauses are not islands for extraction in Swedish), whereas ratings for the same type of sentences remained in the lower half of the scale in Experiment 1 (compatible with the position that such clauses are islands, after all). I present arguments that can be taken to suggest that a supporting context accompanying the extraction sentences might be necessary to push ratings into the upper half of the scale. I propose that the need for a context suggests a weak island status and present further arguments in favor of this proposal. Section 7.3 explores how a potential weak island analysis for certain adjunct clauses could explain the permeability of adjunct clauses suggested in my results. Section 7.4 revisits peripheral adjunct clauses and proposes a strong island analysis of such adjuncts. Section 7.5 examines the implications of my findings for cross-linguistic variation in island effects, and Section 7.6 discusses how existing theories of islandhood can accommodate the relevant properties of the adjunct clauses investigated here. The chapter is summarized in 7.7.

7.1 Summary of findings

This thesis has been concerned with extraction from adjunct clauses in Swedish and English. The topic is of interest because adjunct clauses are traditionally considered to be strong islands for extraction across languages (the Adjunct Condition). However, the purported universality of the island status of adjuncts has been challenged by claims that Swedish and the other MSc. languages allow extraction from adjuncts, raising questions concerning the permeability of such

structures to dependency formation and the factors that may affect such permeability, and the possibility of variation between languages.

A review of the previous literature on the topic revealed that despite efforts to provide an account for the possibility to extract from certain strong islands in the MSc. languages, there is to date no agreement on how to analyze the apparent Scandinavian island violations. While most previous research has focused on extraction from relative clauses in MSc., this thesis has investigated extraction from adjunct clauses, a less studied type of island extraction, with the aim to contribute to a better understanding of the phenomenon of island extraction in MSc.

While some examples of adjunct clause extraction provided in the literature could be analyzed as involving selected clauses (possibly having argument rather than adjunct status), it was also shown in my background investigations that not all examples of extraction from adverbial clauses in Swedish can be reduced to a potential argument status of the clause in case. The apparent possibility to violate the Adjunct Condition in MSc. languages such as Swedish is hence in need of an explanation.

To investigate the extent of cross-linguistic variation in adjunct island extraction more systematically, I used an acceptability judgment study on 19 Swedish native speakers where I examined three factors that have been claimed to affect the acceptability of adjunct clause extraction sentences: (i) the degree of semantic coherence between the adjunct and the matrix clause event, (ii) the degree of syntactic integration of the adjunct clause, and (iii) the grammatical category of the extracted element (argument vs. adjunct). The results revealed that all three factors seem to affect the acceptability of sentences involving extraction from adjunct islands in Swedish: Extraction sentences tended to yield higher ratings a) when the matrix and adjunct clause event were related by a coherent relation such as causation or enablement, compared to when that was not the case, b) when the adjunct clause in question was a central (rather than a peripheral) adverbial clause which is sufficiently integrated with the main clause, both in terms of the external and internal syntax, and c) when the extracted element was an argument rather than an adjunct. Informal observations suggest that the same three factors also affect the acceptability of adjunct clause extraction sentences in English (Haegeman 2004; Truswell 2007, 2011; Tanaka 2015). Adjunct clauses in Swedish and English thus seem to behave similarly in these regards. However, the results from my acceptability survey also suggested that Swedish still stands out from a cross-linguistic perspective, in allowing extraction from (at least a subset of) finite adjunct clauses. This has been reported to be impossible in English (Manzini 1992; Truswell 2007, 2011).

To further investigate the hypothesis that finiteness might be a point of cross-linguistic variation between Swedish and English adjunct islands, two acceptability judgment experiments were run that investigate how semantic

coherence and finiteness affect acceptability in Swedish (Experiment 1) and English (Experiment 2), respectively, using sentences with extraction from (central) *after*-adjunct clauses. The results were in line with expectations, showing that the acceptability of extraction sentences increases in the presence of a causal, coherent relation between the matrix and the adjunct clause in both Swedish and English, but that finiteness has an effect an ratings only in English (with coherent adjunct extractions yielding lower ratings with finite than non-finite adjuncts clauses). Even though the differences in acceptability ratings related to the finiteness manipulation were relatively small and thus did not approach the acceptability contrasts perceived by e.g. Truswell (2007, 2011), the presence of a finiteness effect for English but not Swedish points to a possible factor of cross-linguistic variation and may be partly responsible for the variation that is claimed to exist between English and the Mainland Scandinavian languages regarding island effects in alleged island violations.

The conclusion that coherence and finiteness affect the acceptability of adjunct clause extraction sentences also allowed me to question claims that the parser uses island constraint information to suspend integrative processes related to dependency formation in island structures (e.g. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015). In Experiment 3, I therefore used self-paced reading to investigate how finiteness and coherence affect the real-time processing of sentences involving extraction from *after*-adjuncts in English at the point of gap integration. The results indicated that coherence and non-finiteness facilitate the processing of such structures at regions associated with gap integration, which speaks in favor of integrative processes related to dependency formation being active to some degree in English *after*-adjunct clauses. The claim that syntactic islands are impermeable for integrative processes thus does not carry over to adjunct clauses of the kind investigated here.

To the extent that adjunct clauses may be considered islands, the findings presented in this thesis thus suggest that

- the degree of acceptability of island violation sentences is dependent on multiple factors, which is in accordance with what has been suggested by e.g. Chaves (2013), Haegeman et al. (2014), and Tanaka (2015).
- languages may vary with regard to which factors affect the acceptability of island extraction sentences, which leads to constrained and systematic instances of variation in the transparency of syntactic islands.
- at least some island structures may be permeable for integrative processes such as dependency formation between a filler and a licensing verb.

In the remainder of this chapter, I address further theoretical implications that do not immediately follow from my findings, but nevertheless merit discussion, even though some of this discussion will be of speculative nature.

7.2 Adjunct islandhood

The consistently low ratings that extractions from peripheral and non-coherent adjuncts yielded in Swedish suggest that adjunct island constraints (traditionally: the Adjunct Condition) are obeyed for at least these types of adjunct clauses in Swedish. A remaining question is what the status of central, coherent adjunct clauses in Swedish is in terms of islandhood. In the survey results presented in Chapter 4, sentences involving extraction from this type of adjunct clause yielded ratings on the upper end of the scale, giving the impression that coherent adjunct clauses in Swedish are immune to island constraints. However, in Experiment 1, ratings for central *after*-adjunct clause extraction sentences remained below the midpoint of the scale across coherent and non-coherent conditions, even though coherence significantly improved acceptability, which seems to suggest that despite the ameliorative effect of coherence, a constraint violation is still in place in extraction from coherent adjuncts. The question whether coherent adjunct clauses in Swedish are islands, after all, is relevant because if the answer is yes, it may be possible to maintain the validity of a constraint like the Adjunct Condition. However, if coherent adjuncts are not islands at all, then this opens up for the hypothetical possibility that non-coherence is the only relevant island constraint and that the term 'Adjunct Condition' is in fact a misnomer; i.e. one could hypothesize that the island effects observed in non-coherent adjunct extractions are triggered by the absence of coherence alone and that the adjunct structure itself plays no role for the formation of islandhood. The focus in this section is mainly on Swedish and the other MSc. languages, but note that the same question can be raised for the extractions from non-finite adjuncts reported to be acceptable in English by Truswell (2007, 2011).

7.2.1 Diagnosing islandhood

The question how to measure the violation of a grammatical constraint, and in particular how to measure island sensitivity of a structure, is a debated one. As pointed out by Almeida (2014), the traditional method of diagnosing islandhood by means of a binary acceptability judgment, whereby extraction sentences classified as 'unacceptable' or 'bad' are taken to represent island violations, has been complemented with an alternative method to diagnose islandhood, viz. the factorial definition of island effects developed by Sprouse (2007) and Sprouse et al. (2012, 2016). As already mentioned in Chapter 3, Sprouse's factorial design makes it possible to quantify island effects after two important processing factors have been factored out and the effects of these factors on acceptability have thus been accounted for: the presence of a long-distance dependency, and the presence of an island configuration. Island effects are in this design identified as significant

interactions between the two factors mentioned above, which create a superadditive effect, i.e. an effect on acceptability that cannot be explained by the linearly additive effects of the processing costs imposed by the long-distance extraction and the island structure. The factorial design has been employed in several studies of island effects in different languages, including in the MSc. languages (e.g. Kush et al. 2018; Bondevik 2018). However, despite the popularity of this paradigm, there are remaining questions concerning the conclusions drawn from superadditivity effects, too. A first problem concerns the presence of so-called *subliminal island effects* (Almeida 2014): extractions that incur island effects (defined in terms of significant superadditivity effects), but are judged to be acceptable. A number of recent studies employing the factorial design have identified cases of extraction structures that are reportedly occurring in spontaneous speech and yield average ratings on the intermediate or upper end of the scale (normally reserved for grammatical sentences), but nevertheless incur superadditivity effects (indicating that an island violation is in place) (e.g. Almeida 2014; Namboodiripad & Goodall 2015; Keshev & Meltzer-Asscher 2018; Kush et al. 2018). Subliminal island effects have also been observed for sentences involving topicalization from adjunct clauses introduced by *om* 'if' and *når* 'when' in Norwegian, which like Swedish has been argued to be unusually permissive with regard to extraction from adjunct clauses (Bondevik 2018). It is not clear how such subliminal island effects should be interpreted, and whether the relevant structures should be analyzed as island violations or not. Second, a recent study by Keshev & Meltzer-Asscher (2018) observed superadditivity effects not just in island contexts, but also in cataphoric binding structures, where they cannot be the result of an island violation since cataphoric binding is not subject to island constraints. Keshev & Meltzer-Asscher use this finding to support their proposal that in certain cases, such as subliminal *wh*-island island effects in Hebrew, superadditivity effects can in fact be attributed to processing factors that are not controlled for in the original superadditivity paradigm, viz. inference effects caused by the need to maintain two dependencies in working memory simultaneously in *wh*-island extraction structures (one caused by the extraction and one by the embedded *wh*-question). Their findings demonstrate that at least for certain constructions, superadditivity tests might not be a reliable indicator of grammatical islandhood without further amendments to the original factorial design that control for the confounding processing factors.

Although this thesis investigates the acceptability of sentences involving extraction from different types of adjunct clauses, none of the studies included here provide a formal measure of island effects (such as superadditivity effects in a factorial design). Thus, to assess the potential islandhood status of coherent adjunct clauses in Swedish, I can merely examine the average ratings obtained in the acceptability judgment studies. Even though absolute acceptability ratings cannot be considered a certain diagnostic of islandhood, they may still serve as a

heuristic (Almeida 2014) and might provide some interesting insights independent of the presence of island effects as measured via superadditivity effects (see e.g. the case of subliminal island effects mentioned above). In the next section I discuss my findings in relation to islandhood.

7.2.2 Formal vs. informal judgments

As mentioned above, the results from Experiment 1, indicating below-midpoint acceptability of *after*-adjunct extraction across all conditions in Swedish, suggest that adjunct clause extraction is difficult and that even coherent adjunct clauses are islands in Swedish (as predicted by the Adjunct Condition). However, these results can be contrasted with the results from the more informal study in Chapter 4, where extraction from coherent *after*-adjunct clauses yielded ratings on the upper end of the five-point scale, which are in line with the intuitive judgments reported in the literature suggesting that extraction is acceptable at least from coherent, central adjunct clauses in Swedish (e.g. Anward 1982; Teleman et al. 1999). These informal data give the impression that coherent central adjunct clauses behave like non-islands in Swedish, in the sense that extraction from them produces acceptability judgments that are normally reserved for clearly grammatical, licit sentences.

Inconsistencies between formal and informal judgments for extraction data are not uncommon. The situation can be compared to extraction from relative clauses in Swedish which have also been reported to be intuitively acceptable, but scored unexpectedly low ratings in experimental studies, see Müller (2015); Wiklund et al. (2017); and Tutunjian et al. (2017). Surprisingly low ratings for relative clause extraction are also reported in experimental studies for Norwegian (Kush et al. 2018) and Danish (Christensen & Nyvad 2014). Various factors have been suggested in these works to explain the conflict between informal and formal judgments of MSc. island extractions, with different consequences for the question what the status of these extractions is in terms of islandhood.

As described in Chapters 3 and 6, Tutunjian et al. (2017) tested the acceptability of relative clause extraction sentences in Swedish in a norming study to their eyetracking experiment and found that relative clause extractions in Swedish received mean acceptability ratings below the midpoint of their seven-point scale. Based on their eyetracking results, which showed relative clause extractions in Swedish to pattern in-between extraction from non-islands and extraction from uncontroversial strong islands, the authors propose a weak island analysis of Swedish relative clauses (following Lindahl 2017). The relatively low acceptability ratings for extraction from relative clauses in the norming study is suggested to arise on account of the complexity of the sentences and of the absence of contextual conditioning in the stimuli, which is typically required for

successful weak island extraction. Low ratings for Swedish relative clause extraction were also found in Wiklund et al. (2017), where relative clause extractions were found to pattern with uncontroversial strong island violations (extraction from non-restrictive relative clauses) in terms of acceptability. Wiklund et al. conjecture that the unexpectedly low ratings could be explained by the circumstance that their stimuli were not presented with an accompanying context and that the extracted phrase in their materials was a bare NP preceded by an adjective (e.g. *ovanliga blommor* 'unusual flowers') and thus lacked a D-linking element (e.g. a demonstrative). Since the acceptability of weak island extraction has been known to be sensitive to these factors, they assume that their results may be compatible with a weak island analysis of Swedish relative clauses. Note that a D-linking element was present in the stimuli in Tutunjian et al.'s norming study, which still produced low ratings. Thus, the absence of such an element is not likely to be responsible for the low ratings in Wiklund et al. (2017), even if this may explain why a difference between relative clause extractions and non-restrictive relative clause extractions did not come out in that study.

In Christensen & Nyvad (2014), sentences involving extraction from relative clauses in Danish yielded significantly decreased acceptability ratings compared to the non-extracted versions of the sentences, indicating that such extraction is degraded. This can be contrasted with informal reports that relative clause extraction is acceptable in Danish. Christensen & Nyvad argue that relative clause extraction in Danish is grammatical but degraded in acceptability as a result of the relative processing complexity of the structures in question (see also Nyvad et al. 2017 – presented in Chapter 3 – for that position). The same argument is made for extraction from *wh*-islands in Danish in Christensen et al. (2013a).

An explanation in terms of processing difficulty is argued not to be applicable to the low ratings for relative clause extraction in Norwegian observed in the experiments by Kush et al. (2018). Kush et al.'s study showed super-additive island effects for complex NP islands (both with relative clauses and complement clauses) as well as for (conditional) adjunct clauses; extraction from these islands in Norwegian moreover yielded acceptability scores that were at the bottom end of the scale. Kush et al.'s results thus also appear inconsistent with previous claims that extraction from e.g. relative clauses is acceptable in Norwegian. Since the factorial design used by them factors out the influence of the most important processing factors (the presence of a long-distance dependency and the presence of an island structure), the authors question an account of the low ratings in terms of processing difficulty as suggested in Christensen et al. (2013a) and Christensen & Nyvad (2014). Kush et al. (2018) tentatively suggest that the unexpectedly low ratings for relative clause extraction could be either a result of testing *wh*-extraction rather than topicalization (since different A'-dependencies might differ in their sensitivity to islands), or of the lack of contextual cues in the stimuli which might be needed for successful extraction. The former explanation is not

applicable to the results of the acceptability experiments of this thesis (Chapter 5), since the Swedish sentences in Experiment 1 produced low ratings despite testing topicalization. Below, I discuss the latter factor.

Tutunjian et al. (2017), Wiklund et al. (2017), and Kush et al. (2018) all mention that absence of a context for the stimuli sentences in formal acceptability studies may be responsible for the unexpectedly low ratings obtained for "island" extraction sentences of the kind that has been reported to be acceptable in MSc. That is, contextual cues may be required for the felicity of these extractions. This factor is taken into consideration in an acceptability judgment study of adjunct clause extractions in Norwegian by Bondevik (2018), already mentioned in Chapter 3. Specifically, Bondevik applies the factorial design to topicalization from adjunct clauses introduced by *fordi* 'because', *når* 'when', and *om* 'if' (all of which induced a coherent interpretation in the design), and compares the results to extraction from subject islands (uncontroversial strong islands in Norwegian) and *whether*-islands. The tested sentences in Bondevik's study are preceded by a context sentence meant to license the topicalization structure. Her results indicate statistically significant superadditivity effects (taken to be diagnostic of island effects in the factorial design) for all three tested types of adjunct clause extraction; however, the size of the effect was found to differ between the three clause types: Extraction from *om*-clauses yielded a smaller island effect than extraction from *når*-clauses, which in turn yielded a smaller island effect than extraction from *fordi*-clauses. Moreover, extraction from the different types of adjunct clauses yielded significantly different average *z*-score ratings: While the average *z*-score for extraction from *fordi*-clauses remained below zero[28], the *z*-scores for extraction from *om*- and *når*-clauses were above zero, indicating according to Bondevik that extraction from these adjunct clause types is "accepted (at least to some degree)" (p. 64).[29] It is well possible that the use of topicalization instead of question formation and the presence of a context for the extraction stimuli in Bondevik's design contributed to the fact that her results for conditional adjuncts (*om*-clauses) differed from those in Kush et al.'s (2018) study, where extraction from conditional *om*-clauses yielded acceptability scores at the bottom end of the scale and comparably larger island effects.

Bondevik's results for *om*- and *når*-clauses thus seem to present another form of inconsistency, this time between significant superadditivity effects (indicating an island effect) and positive *z*-score ratings (suggesting that the structure in question is acceptable to most speakers) – a typical case of subliminal island effects

---

[28] The finding that extraction from *fordi* 'because'-clauses seems to be more difficult than extraction from conditional or coherently interpreted temporal clauses in Norwegian is not surprising in light of similar results for Swedish presented in Chapter 4.

[29] Bondevik (2018) finds some of her average acceptability ratings to be the result of inter-speaker-variation, similar to what Kush et al. (2018) found for the ratings of extraction from *whether*-islands.

(Almeida 2014). Bondevik (2018) takes these results to indicate that, despite the superadditive interaction effects, at least *om*-clauses "are not islands to extraction" (p. 84) for a large group of speakers. In other words, even though the constructions are islands according to the definition of islands in the factorial design (they induce a significant superadditivity effect), the relatively high ratings and the small size of the superadditivity effect are taken to show that at least *om*-clauses are not perceived as islands by many speakers. However, the following statement seems to imply that they are not behaving completely like non-islands either: "At the same time, it is clear that there is, in most cases, some inherent structure in the *om*-clause that separates extractions from *om*-clauses from extractions from non-island embedded clauses" (Bondevik 2018: 84). It is not clear what exactly this means for the analysis of such constructions.

The impact of context on the acceptability of the relevant island extractions has not been formally investigated here or in any of the above cited studies. However, the suggestion that the lack of contextual cues may explain surprisingly low ratings of extraction sentences in the results of formal studies can potentially be applied to explain the difference between informal and formal judgments presented in this thesis (Chapter 4 and 5, respectively). The survey in Chapter 4 presented the sentences with a supporting context and yielded ratings on the upper end of the scale for coherent adjuncts. The stimuli of Experiment 1 in contrast did not involve contextual cues and produced ratings below the midpoint of the scale for coherent adjuncts. Evidence that the presence of a supporting context can facilitate the comprehension of fronted elements is also presented in Engelkamp & Zimmer (2005: 60), investigating passivization, and Kristensen et al. (2014), investigating object fronting.

We can now return to the question of islandhood for coherent adjunct clauses. In Tutunjian et al. (2017) and Wiklund et al. (2017), the potential necessity of a context for successful relative clause extraction is suggested to be compatible with a weak island analysis of relative clauses. If coherent adjunct extraction is indeed sensitive to the presence of a context, as suggested above, this raises the question whether also coherent adjuncts in Swedish (and in extension, in English) can be characterized as weak islands (Rizzi 1990; Szabolcsi 2006). This would follow Truswell's (2011) suggestion that (at least non-finite) adjunct clauses are weak islands in English. The next section further examines the suggestion that certain adjuncts have weak island status in Swedish and English.

7.2.3 Central adjuncts as weak islands

As pointed out earlier in this thesis, the traditional diagnostic for a weak island construction is based on properties of the extracted element, to be specific on an argument/adjunct asymmetry in extraction (Huang 1982; Chomsky 1986; Cinque

1990; Lasnik & Saito 1992; Szabolcsi 2006): Whereas strong islands allow neither extraction of arguments nor of adjuncts, cf. the relative clause islands in English in (1), weak islands tend to show island effects only in the case of adjunct extractions, as demonstrated for *wh*-islands in (2).

(1)   a.   *[Which kid]$_i$ must you call [the teacher who punished $\_i$]?
         b.   *Where$_i$ must you call [the teacher who put the book $\_i$]?
            (Szabolcsi 2006: 482)

(2)   a.   [Which problem]$_i$ did John ask [how to phrase $\_i$]?
         b.   *How$_i$ did John ask [which problem to phrase $\_i$]?
            'What is the manner such that John asked which problem to phrase in
            that manner'
            (Szabolcsi 2006: 494)

To further investigate the possibility of a weak island analysis for adjunct clauses, the survey in Chapter 4 therefore contrasted extraction of arguments with extraction of adjuncts from central, coherent adjunct clauses. The results indicated that extraction sentences with adjunct extraction were relatively degraded compared to sentences with argument extraction. In that, coherent adjuncts behave differently from (non-island) complement clauses, which allow the extraction of adjuncts from inside the clause. The difference to complement clauses in that regard is again demonstrated with the more minimal pair (3a–b) below: A reading where the extracted adjunct modifies the embedded clause is only available for (3a), involving adjunct extraction from a (non-island) complement clause, but not for (3b), involving a causally interpreted and hence coherent *after*-adjunct clause.

(3)   a.   [På det kontoret]$_i$ sade hon [att hon ville få jobb $\_i$].
            at that office   said she that she wanted to.get work
            'She said that she wanted to be hired at that office.'

         b.   ?*[På det kontoret]$_i$ jublade hon [efter att hon hade
            at that office   cheered she after that she had
            fått jobb $\_i$].
            gotten work
            'She cheered after she got hired at that office.'

The finding that adjunct extraction from coherent adjuncts is more problematic than argument extraction is thus compatible with a weak island analysis of central, coherent adjunct clauses in Swedish. The same observation has been made with regard to restrictive relative clause extractions, which also have been analyzed as weak island extractions (Lindahl 2017; Tutunjian et al. 2017).

As mentioned earlier in this thesis, a similar situation seems to obtain for coherent (non-finite) adjunct clauses in English: Tanaka (2015: 90) shows that while *wh*-extraction of arguments may be accepted out of coherent adjuncts of the type investigated in Truswell (2007, 2011), adjunct extraction does not seem possible out of such constructions in English, see the contrasts in (4a/b) and (5a/b). This implies that a potential weak island analysis may extend to central, coherent adjuncts in English, in line with Truswell's (2011) suggestion that (at least non-finite) adjunct clauses in English are weak islands.[30]

(4) a. ?What$_i$ did John cut himself [trying to carve $\_i$ with a Japanese knife]?
     b. *How$_i$ did John cut himself [carving the Christmas turkey $\_i$]?
         (Tanaka 2015: 90)

(5) a. %?Which$_i$ gardening book did John redesign his garden [after reading $\_i$ with great care]?
     b. *How$_i$ did John redesign his garden [after reading The Gardeners Pocket Bible $\_i$]?
         (Tanaka 2015: 90)

In the preceding section, I moreover presented arguments suggesting that the presence of a supporting context with extraction examples alleviates central adjunct clause extractions in Swedish. A potential indicator that context has a facilitative role also for central, coherent adjuncts in English is that Tanaka's (2015) study of adjunct clause extraction in English, which presented the extraction sentences with a matching context, yielded ratings in the upper half of the scale for sentences involving extraction from coherent, non-finite *after*-adjuncts. The stimuli of my Experiment 2, by contrast, did not provide contextual cues and produced ratings below the midpoint of the scale for coherent adjuncts in English. The relevance of contextual conditioning for successful extraction is a typical indicator of weak island constructions, in the sense that the felicity of weak island extraction has been claimed to be dependent on certain interpretational properties of the extracted phrase, such as D-linking or specificity, and that a context may be needed to license the relevant (e.g. D-linked) interpretation (see e.g. Starke 2001; Szabolcsi 2006; Abrusán 2014).

---

[30] In fact, the sensitivity to the finiteness of the subordinate clause observed in coherent adjunct clause extraction in English (Experiment 2) is another behavior that adjunct islands in English share with certain classic weak island (e.g. Manzini 1992; Cinque 1990; Szabolcsi 2006; Villata et al. 2016), such as the *wh*-islands in (i), for which extraction is reported to be more acceptable when the relevant clause is non-finite.

(i) a. ??Which problem do you wonder how Bill could solve?
     b. ? Which problem do you wonder how to solve?
         (Villata et al. 2016: 77, fn. 1)

While the presence or absence of a context might also affect the acceptability of non-island extraction sentences, I speculate that coherent adjunct clauses differ from non-islands in that extraction from adjuncts might be more dependent on the presence of context than extraction from non-island complement clauses. In a norming experiment, Tutunjian et al. (2017) found that sentences involving extraction from complement clauses in Swedish yielded mean acceptability ratings of 4.85 on a seven-point scale, compared to the mean acceptability ratings of 2.50 for strong island extractions (from non-restrictive relative clauses) and 3.11 for extraction from restrictive relative clauses, which are like coherent adjunct extractions in being reported as intuitively acceptable, despite the low mean acceptability in the formal experiment (cf. Wiklund et al. 2017). Their norming experiment also did not use contextual cues in the experimental stimuli but serves to show that non-island extraction reached a mean acceptability above the mid-point of a seven-point scale despite the absence of contextual cues. This was not the case for the coherent adjunct extractions in Experiment 1 and 2, possibly indicating that these are different from non-island extractions, although no comparison was made between extraction from adjuncts and extraction from non-islands in this thesis. Moreover, even if contextual cues might have improved the acceptability of coherent adjunct extractions in Experiment 1–2 somewhat, I conjecture that even the presence of context may not suffice to lift some sort of island status of coherent adjuncts. A potential indicator of this is Bondevik's (2018) finding mentioned above: Sentences involving topicalization from coherent adjuncts in Norwegian that were presented with a supporting context yielded positive *z*-score ratings, but still produced an island effect in terms of the factorial definition of island effects (albeit the effect was of a comparatively small size).

I tentatively propose that a plausible interpretation of Bondevik's results as well as mine for coherent adjuncts is that such adjunct clauses remain at least weak islands in the MSc. languages (and English) and that acceptability ratings for extraction from such structures can be pushed in the "acceptable" range of the scale if certain conditions are fulfilled, including that the extracted element is an argument and that contextual cues are provided. In that, coherent adjuncts behave just like typical weak islands such as *wh*-islands.

However, at a closer look the situation turns out to be more complex: While the argument/adjunct asymmetry only allows for a binary distinction between strong and weak islands, it has been pointed out that further subtypes of islands can be distinguished based on whether a constituent allows extraction of both NP and PP arguments (see e.g. Cinque 1990). For instance, Tanaka (2015) argues, based on data such as (6)–(7) from Szabolcsi (2006), for at least a three-way distinction, differentiating between *strong/absolute islands* (disallowing any extraction); *selective weak islands*, which allow extraction of both NP and PP arguments but disallow adjunct extraction, such as the *wh*-islands in (6); and *non-selective weak*

islands, which only allow extraction of NPs, such as non-finite English adjunct clauses in (7).

(6) a. % [About which topic]$_i$ did John ask [whether to talk $\_i$]?
     b. [Which topic]$_i$ did John ask [whether to talk about $\_i$]?
     c. *How$_i$ did John ask [whether to behave $\_i$]?
         (Szabolcsi 2006: 481)

(7) a. *[About which topic]$_i$ did you leave [without talking $\_i$]?
     b. [Which topic]$_i$ did you leave [without talking about $\_i$]?
     c. *How$_i$ did you leave [without behaving $\_i$]?
         (Szabolcsi 2006: 481)

This would imply that at least central, non-finite adjunct clauses in English, such as those in (7), take a place between classic strong (absolute) islands and classic weak islands in terms of their selectivity, i.e. they appear to be more permissive for extraction than strong islands, but less permissive than e.g. non-finite *whether*-islands.

A consequence of these considerations is that 'weak islands' may not form a natural class (which recently has also been suggested in Boeckx 2012: 20–24; see also Szabolcsi 2006 and Szabolcsi & den Dikken 2002). The suggestion that some types of weak islands may be "stronger", i.e. more selective islands than other weak islands, also implies that different types of islands possibly occupy various points on a scale of 'island strength' (rather than falling into a binary distinction between strong and weak islands), as also implied by the analysis in Lindahl (2017) and Tutunjian et al. (2017).

The proposal that adjunct clauses may be stronger islands than traditional weak islands, in the sense that extraction from adjuncts might be more restricted than e.g. extraction from *wh*-islands, leads to another question: Can the weak island analysis proposed above for coherent, central adjuncts be extended to central, but non-coherently interpreted adjunct clauses (such as *after*-adjunct clauses conveying a purely temporal relation to their matrix clause), or should such clauses be analyzed as strong islands? Under the former option, all central adjuncts are weak islands in Swedish and English, and the acceptability of extraction is not just affected by the argument status of the extracted phrase, but also by semantic coherence. Under the latter option, the weak island category is reserved for adjuncts that yield intuitively acceptable results for argument extraction, viz. coherent adjuncts.

The answer to this question is dependent on the definition of weak islands employed. If weak island status is tied entirely to sensitivity of an extraction domain to properties of the extracted phrase (as is the case in many traditional weak island accounts), non-coherent adjuncts arguably would have to be classified

as strong islands. Even though no data are available regarding adjunct or PP extraction from non-coherent CACs, the observation that even NP argument extraction (which is supposed to be most easily available) consistently yielded ratings on the low end of the scale in the survey presented in Chapter 4 suggests that no adjunct/argument asymmetry can be observed in the case of non-coherent CACs (although it is in principle possible that a subtle difference in ratings would surface in a formal study).

However, if the definition of weak islands is widened to also include sensitivity to other features than those regarding the extracted phrase, an alternative interpretation of the data regarding coherent and non-coherent CACs is available, viz. that all central clauses in Swedish and English are weak islands, and that the requirement for a coherence relation is another condition imposed on weak island extraction (in addition to potential requirements on the function and category of the extracted phrase), as also suggested by Truswell (2011) and Tanaka (2015). In line with this position, I tentatively propose that all CACs are weak islands (at least in Swedish and in English), and that coherence (and finiteness in English) are among the factors that determine acceptability of extraction from such weak islands. The suggestion that central adjunct clauses in Swedish and English may differ from other more traditional weak islands in that not just properties of the extracted material have an impact on the felicity of extraction, but also properties of the adjunct clause and its relation to the host clause, is not necessarily problematic, considering the proposal above that weak islands may not form a natural class and thus may not be subject to the same conditions on extraction.

Instead of the traditional definition of weak islands in terms of restrictions on the extracted element, I thus advocate a broader definition of weak islands as constructions that have the ability to selectively allow or facilitate extraction under certain conditions which can relate to properties of the extracted phrase, and to features internal to the island or the relation between the island and the structure it is attached to. In a formal setting those observations are expected to be matched by an increased acceptability of the relevant weak island extraction given some condition A, compared to some other condition B. In online processing, the relevant conditions are expected to facilitate or impede the processing of such weak island extractions in regions associated with gap integration (see below for more on processing). Strong islands, by contrast, are expected to categorically disallow extraction, with no ameliorative effect of any condition on acceptability. What exactly the conditions are that facilitate weak island extraction can vary between different types of weak islands. For *wh*-islands, the main condition seems to relate to properties of the extracted element (although other factors have been mentioned to be relevant for extraction from *wh*-islands, e.g. the finiteness of the *wh*-clause, see fn. 30). For central adjunct clauses, extraction is sensitive to the function and category of the extracted phrase, and in addition, to coherence, and in some languages to finiteness of the adjunct clause. Correspondingly, we have seen

in Experiments 1–3 that coherence improves the acceptability of extraction from CACs (in Swedish and English) and facilitates the processing of such structures at the point of gap integration (in English), and that finiteness degrades the acceptability of extraction from coherent CACs and also leads to a slow-down in processing times at the point of gap integration in English.

Under the proposal that all CACs are weak islands, argument extraction from non-coherent adjuncts is thus in principle possible, however, such extraction nevertheless results in unacceptability on account of the absence of a coherent relation. Similarly, a finiteness effect on acceptability in English was presumably only found in sentences with coherent CACs, but not in the non-coherent conditions (Experiment 2), because non-coherent extraction is unacceptable to begin with. A violation of the requirement for a coherent relation thus seems to lead to straight unacceptability in extraction, with the result that the sensitivity of the hypothesized weak adjunct islands to the argument status of the extracted element or finiteness of the adjunct clause is not able to surface anymore in ratings (leaving open whether a subtle effect of argument vs. adjunct extraction or finiteness could nevertheless be detected in processing).[31]

The proposal above is in line with the suggestion in Truswell (2007, 2011) and Tanaka (2015) that all non-finite adjunct clauses in English are weak islands, and that the semantic relation between the adjunct and the host clause is a semantic factor further restricting extraction of NP arguments from such adjuncts. Specifically, Truswell (2007, 2011) suggests that non-finite adjuncts are weak islands in English in the sense that they impose restrictions on the types of elements that can be extracted (similar to other weak islands), but with NP argument extraction from such adjuncts being additionally constrained by requirements for a single-event interpretation. One difference between my proposal and Truswell's concerns the role of finiteness in islandhood. Truswell counts only non-finite, central adjuncts to the weak island category and hypothesizes that finite adjuncts are strong islands (e.g. Truswell 2011: 195). However, given the small differences in ratings associated with the finiteness effect in my results, I do not see support for finiteness having the capacity to turn weak islands intro strong islands. Rather, my results are compatible with finiteness being one of the factors that may have a subtle (probably processing-based) influence on the acceptability of weak adjunct island extractions, provided that the coherence requirement is met. Moreover, while Truswell assumes that coherence takes the shape of a semantic or processing-based factor, I pointed out in Chapter 5 that the difference between coherent and non-coherent adjuncts may correlate with

---

[31] In Experiment 3, finiteness led to a significant slow-down in reading times in both coherent and non-coherent central adjuncts at the adjunct verb, but affected only coherent and not non-coherent structures at the wrap-up region following the verb. However, the interaction between finiteness and coherence did not reach full significance in the wrap-up region and thus precludes a conclusion as to whether finiteness affects reading times in coherent adjuncts more than non-coherent ones.

a difference in the syntax. In this case, extraction from non-coherent adjuncts may be syntactically ruled out (which some may take to be more compatible with strong islandhood of non-coherent clauses), but due to the likely coercion of a coherent reading in extraction contexts, extraction from any kind of CAC still creates the effect of a weak island, with acceptability being dependent on semantic and pragmatic factors – here, to what extent a coherent interpretation is supported by the lexical and contextual cues (see also Brown 2017).

If my proposal that central adjunct clauses are weak islands is correct, it may be possible to maintain the hypothesis that all adjunct clauses are structural islands for extraction (in accordance with something like the Adjunct Condition), but that certain factors like coherence can improve the acceptability of argument extraction from these domains in some languages, including the MSc. languages and English. I will return to a discussion of the Adjunct Condition in Section 7.6. The suggestion that at least some adjunct clauses, traditionally considered to be the prototype of strong islands, may instead be a type of weak island in some languages, is in line with the increasing evidence that most domains that have been referred to as islands are not absolute islands, but are 'extractable' under certain circumstances (e.g. Cinque 1978; Postal 1998; Boeckx 2012).

My conclusion regarding central clauses raises an important question: If such adjunct clauses indeed are a type of weak island, as proposed above, could this explain the at first glance surprising permeability of such structures to filler-gap association, concluded in Chapter 6?

7.3 The permeability of central adjuncts

Above I proposed that central adjunct clauses in Swedish and English may be a species of weak islands (selectively allowing extraction under certain circumstances), rather than strong islands as traditionally assumed for all adjunct clauses. The proposal that adjuncts may be weak islands casts a new light on the findings from Experiment 3 (Chapter 6) indicating that *after*-adjunct clauses may be permeable to integrative processes related to dependency formation. Although this was shown for English alone, there is no reason to expect Swedish to behave differently, see below for discussion. While it prima facie occurs to be counterintuitive that a structure is an island for extraction but still appears to allow dependency formation between an extracted filler and an embedded verb, this permeability becomes expected once the possibility is taken into account that the relevant adjuncts may be weak islands. Domains that selectively allow extraction under certain conditions (weak islands) are also expected to be permeable to gap assignment in online processing, at least under the conditions that license weak island extraction.

Moreover, I claim that there is reason to expect that even the conditions under which weak adjunct island extraction results in unacceptable results (i.e., non-coherent CAC extraction) are not necessarily impermeable in online processing. Rather, gap assignment could be considered in all CACs, but might be relatively facilitated for coherent (and non-finite) adjuncts, because, as mentioned above, different accounts of the coherence effect tend to agree that a coherent interpretation presumably is forced in the presence of extraction. The degradation observed in extraction from non-coherent adjuncts would then result from the clash between this reading and the (non-coherent) lexical and contextual cues making such a reading unlikely. In online processing of CACs, it is thus possible that the presence of extraction leads to coercion of a coherent reading (and thus a structure expected to be permeable), which facilitates processing to the extent that this coherent reading is supported by the lexical cues obtained from the sentence. This is compatible with what was found in Experiment 3. Specifically, the data from Experiment 3 do not provide any certain evidence as to whether non-coherent adjuncts are less permeable for filler-gap integration than coherent adjuncts. The trending interaction between coherence and finiteness that was observed at the wrap-up region (which pairwise comparisons showed to be driven by an emergent finiteness effect in coherent structures, whereas no evidence of such a finiteness effect was found in non-coherent structures) could be taken as a potential indicator that some of the permeability is only visible in the coherent conditions; however, since the coherence by finiteness interaction was not significant, the effects do not serve as conclusive evidence for this point. However, the results support the conclusion that gap assignment may not be suspended in any of the tested conditions, but is relatively facilitated or impeded in the different conditions.

Correspondingly, most accounts of weak islands assume that syntactic movement is in principle possible from a weak island, but the felicity of this movement ultimately depends on the intervening structures and features that the dependency formed by the movement spans, and it may trigger a specific reading that needs to be accommodated (e.g. Starke 2001; Rizzi 2013). This is in line with *representational* rather than *derivational constraints* (see e.g. Boeckx 2012; Phillips 2013b for the distinction); weak island extractions can be generated in syntax, but are potentially problematic for the interfaces. The implication of this view for the processing of such structures is that the island effects induced by weak islands do not imply impermeability for integrative processes, but reflect the relative difficulty of filler-gap integration inside the island. Also McKinnon & Osterhout (1996) and Traxler & Pickering (1996) point out that a representational account of island constraints would be compatible with the occurrence of gap-filling mechanisms in island domains, assuming that the parser may initially form dependencies that violate island constraints and that island constraint information is instead applied later as a sort of filter affecting the acceptability of the extraction

sentence. In the case of the central adjunct clauses investigated here, it is thus possible that a structure involving an extraction dependency into the adjunct can in principle be represented by the parser. This structure would correspond to a weak island dependency, the acceptability of which I have shown is sensitive to coherence (Swedish and English) and finiteness (English).

The self-paced reading experiment was only run on English native speakers, on account of the inability to find a finiteness effect on acceptability ratings in Swedish. A remaining question is thus whether also Swedish *after*-adjunct clauses should be expected to show signs of online permeability, give that these were above suggested to be weak islands too. The presence of a coherence effect in acceptability ratings for Swedish adjunct clause extraction sentences suggests that these structures may also be permeable for dependency formation processes in Swedish; however, an online processing study similar to the self-paced reading experiment in English would be necessary to determine if the coherence effect in Swedish arises from integrative processes related to dependency formation at the gap site. Given that coherence affected reading times at regions associated with gap integration in online processing in English, the more restrictive language, my expectation would be to find a similar pattern for Swedish, which would suggest that also Swedish adjunct clauses may be permeable for dependency formation. I conjecture that a similar self-paced reading experiment on Swedish stimuli would not show a significant effect of finiteness on reading times at any region in the sentences. Importantly, this would not imply that adjunct clauses in Swedish are impermeable for filler-gap integration, since the absence of a finiteness effect could likely be explained by the general insensitivity of Swedish extractions to a finiteness manipulation, as suggested by the acceptability data (i.e. dependency formation across a finite adjunct verb is not more difficult than across a non-finite verb in Swedish). Evidence for online permeability would in that case be restricted to coherence effects for Swedish. I leave the closer investigation of this matter for Swedish for future research.

7.4 Revisiting peripheral adjuncts

So far, only central adjuncts were considered. Even though not tested formally in Experiments 1–3, in this thesis I have also been concerned with non-central adjunct clauses: PACs. While CACs were above argued to be weak islands (at least in Swedish and English), based on their ability to selectively allow or facilitate extraction under the condition that the extracted element is an NP argument and the adjunct clause is a coherent CAC, PACs are arguably strong islands under these criteria. The results of my survey presented in Chapter 4 indicate that extraction from PACs in Swedish is excluded under any condition,

since extraction from them consistently yielded ratings on the low end of the scale, despite of the sentences being presented with a supporting context. In contrast to CACs, the presence of a semantically coherent relation did not seem to have an ameliorative effect on sentences involving extraction from PACs in the survey, and the finding that even argument extraction from such clauses yielded very low ratings is a potential indicator that there may be no adjunct/argument asymmetry in extraction from PACs. This is also supported by the example pair in (8), demonstrating argument (8a) and adjunct (8b) extraction from a coherently interpreted PAC (here a result clause). Two Swedish native speaker informants judged both sentences as unacceptable.

(8) a. *[Den bussen]$_i$ sov   jag för länge [så att jag missade _$_i$].
         that bus   *slept I* *too long so that I*   *missed*
         'I slept too long so that I missed that bus.'

     b. *[Så här snabbt]$_i$ sov   jag för länge [så att   jag   fick
         so here fast   *slept I* *too long   so that I*   *must.PST*
         springa _$_i$ till bussen].
         run   *to bus.the*
         'I slept too long so that I had to run this fast to the bus.'

Even though the potential effects of these factors were not investigated formally, the observation that not even argument extraction from coherently interpreted PACs in the presence of a context seemed to be able to facilitate extraction in the survey in Chapter 4 suggests that PACs should be characterized as strong islands.

In Chapter 4, it was suggested that PACs might be opaque for any extraction because they are attached too high to be visible for the relevant probes in the main clause that trigger the movement. A potential strong island status of PACs, as argued for above, could under this account be straightforwardly derived: Even if a coherence relation is present, a structure involving extraction from a PAC can simply not be derived by the syntax.

Peripheral clauses were not tested with regard to permeability in this thesis and it is hence open whether they would show signs of online permeability in e.g. English in a reading experiment similar to Experiment 3. For completeness, I nevertheless offer some speculative thoughts here as to whether PACs – or strong islands more generally – should be expected to be permeable for integrative processes. Above I suggested that weak islands are compatible with permeability (in fact, that permeability is expected for weak islands), given that standard accounts of weak islands assume that weak island extraction can be generated in the syntax, but that the felicity of such extraction ultimately depends on the intervening structures and features, or on whether a specific reading triggered by the extraction can be accommodated in the context. Given that structures involving

movement from strong islands are in many accounts assumed not to be derivable (as is also the case in the account of PAC islands in terms of attachment height above), this line of reasoning thus leads to the expectation that permeability is connected to only weak islandhood, and that we should not see the same degree of permeability in peripheral adjunct islands. In other words, strong island constraints are in contrast to weak island constraints often perceived of as derivational constraints (constraints on structure generation), and the assumption that speakers cannot construct representations that violate the relevant island constraints leads to the expectation that the relevant dependency is not formed in online processing either. The impermeability hypothesis put forward by e.g. Traxler & Pickering (1996) could in this case be maintained for strong islands.

It may, however, be possible to still see signs of permeability even in strong islands under certain conditions, such as if an alternative weak island reading can be coerced. In the case of PACs, it may in principle be possible to coerce a central reading for certain PACs, if an equivalent central clause with the same subordinator exists – see the overview of PACs and CACs in Chapter 2. In this case, permeability might be a possibility, even though the infelicity of such a reading would lead to a degradation in acceptability. If such coercion is possible for PACs is an open question. See, however, Chapter 4, where I hypothesized that the central and the peripheral reading for e.g. conditional adverbials are sufficiently similar for parsers to marginally retrieve a central parse for peripheral conditional clauses, perhaps in form of a reanalysis procedure, in order to assign an interpretation to the otherwise illicit extraction. Note that this is not an option for PACs that do not have a central counterpart, e.g. concessive clauses introduced by *although* (or *fastän* in Swedish).

Another scenario in which strong islands may potentially show signs of permeability, even in cases where a weak island reading cannot be coerced, is if gap formation and integration is *forced* in the relevant design. Consider e.g. the design used in Experiment 3 in contrast to Traxler & Pickering's (1996) study. In Traxler & Pickering's design, the verb embedded in the relative clause island provided only a potential, but not certain gap site for the filler and was followed by a true gap site, which appeared later in the sentence. Integration of the filler was thus strictly speaking not necessary at the verb inside the relative clause island to resolve the filler-gap dependency. By contrast, in the stimuli in my Experiment 3, the verb in the adjunct clause islands provided the actual and only possible gap site, and crucially, at the adjunct clause verb, there is no possible continuation of the sentence in which the filler could still be integrated in the main clause. Also, in contrast to subject islands (see the description of Phillips' (2006) study in Chapter 6), the option of subsequent licensing of an adjunct clause gap by a parasitic gap construction is excluded, since in parasitic gap constructions involving postverbal adjunct clause, the licensing gap would have to precede the parasitic gap inside the adjunct clause island. When the parser reaches the adjunct clause verb in sentences

of the type used in Experiment 3, parasitic gapping is thus no longer an option. Only CACs (argued to be weak islands here) were tested in Experiment 3, and the permeability of these indicated in my results can be straightforwardly explained under a weak island account of such adjuncts, as argued above. However, if a similar design was used to test the processing of (strong island) PACs, it may in principle be possible that due to the absence of another potential gap in the design, the parser would force integration of the filler inside the strong island. Since it was argued that a structure involving movement from a PAC cannot be derived, such forced integration would not necessarily be expected to represent an accurate syntactic representation of the dependency. Instead, the filler may just be locally associated with the verb (based on semantic heuristics), as in 'Good Enough' approaches to language processing (e.g. Christianson et al. 2001; Ferreira et al. 2002, 2009; Sanford & Sturt 2002; Ferreira & Patson 2007; Karimi & Ferreira 2016). See also Tutunjian et al. (2017) for the suggestion that forced integration in islands may not represent syntactic integration, but just a superficial relation between the filler and the verb. I leave the further testing of these hypotheses for future research.

7.5 Cross-linguistic variation in island effects

My investigations concerning the impact of coherence, finiteness, and the degree of syntactic integration on the acceptability of adjunct clause extraction sentences have also allowed me to determine which factors have a similar impact on adjunct island extraction sentences in Swedish and English, and which factors show signs of potential variation between these languages. My results add to the evidence that a view according to which Swedish freely allows extraction from adjunct clauses whereas English categorically bans such extractions is too simplistic and should be replaced by a more differentiated picture. In formal settings, Swedish and English adjunct islands behave similarly in many regards, whereas cross-linguistic variation seems to be limited to variation with regard to the impact of finiteness on ratings for adjunct clause extraction sentences.

To be specific, Swedish and English appear to be similar with regard to the role that the degree of syntactic integration of the adjunct clause plays in extraction sentences: The results from the study in Chapter 4 indicated that extraction from PACs, which are only marginally integrated with their host clause, is always degraded in Swedish, whereas extraction from CACs seems to be acceptable under certain conditions. Even though this effect has not been tested formally in English, the observations by Haegeman (2004) suggest that the distinction between central and peripheral clauses also matters here, in the sense that extraction from CACs is sometimes reported to be acceptable for a few speakers of English and occurs in

spontaneous speech, whereas extraction from PACs is unattested and leads to a considerably stronger degradation in constructed examples (see Chapter 2). I moreover showed in Experiments 1 and 2 that semantic coherence seems to exert a similar influence on sentences involving extraction from CACs in Swedish and English: In both languages, sentences with extraction from *after*-adjunct clauses yielded higher ratings when the matrix and adjunct clause could easily be interpreted to be in a causal, coherent relation, compared to when the relation was interpreted as purely temporal. The finding that adjunct clause extraction sentences in Swedish and English seem to show a similar behavior with regard to the impact of at least two factors (coherence and syntactic integration) on the acceptability of such extractions is an indication that the extent of cross-linguistic variation in this regard may have been exaggerated: Even though Swedish appears to be overall more permissive for extraction from adjunct islands than English, extraction is not unrestricted in Swedish.

At the same time, Experiments 1 and 2 allowed me to identify one factor that seems to show signs of potential variation between Swedish and English, viz. finiteness. In English, but not in Swedish, coherent adjunct extractions were found to yield lower ratings with finite than non-finite adjuncts clauses. The finiteness difference in English although significant, was relatively small, and thus prevents a clear conclusion in regard to perceivable shifts in acceptability between finite and non-finite extraction. And yet, the presence of a finiteness effect for English but not Swedish, points to a possible locus of cross-linguistic variation and may be partly responsible for the variation that is claimed to exist between these languages regarding island effects in alleged island violations. I have proposed that this particular variation can be explained without invoking variability in the island constraints themselves, if the difference between Swedish and English can be attributed to independent differences in the finiteness system between these two languages (see Chapter 5 for discussion).

The existence of such variation, if correct, would not comprise an isolated case. Interestingly, Truswell (2011) observes that a number of languages (including French, Dutch, Greek) appear to disallow extraction from adjuncts in general, including from coherent adjuncts, while still allowing extraction from complement clauses. In Chapter 5, we saw that Icelandic might also belong to this group, as adjunct clause extraction in Icelandic yielded unacceptable results even with coherent and non-finite adjuncts. One possible avenue for future research would be to investigate the hypothesis that the Adjunct Condition is stronger (less violable) in these languages, meaning that adjuncts are always strong islands, in contrast to languages like English and Swedish, which have both strong (PACs) and weak adjunct islands (CACs).[32] Even though languages like French, Dutch,

---

[32] Presumably, PACs are invariably strong islands. Even though claims have been made about further languages that permit extraction from adverbial clauses, the examples practically never involve peripheral clauses; see e.g. Yoshida's (2006) examples of adjunct clause extraction in Korean,

and Greek have not been tested formally with regard to the presence of coherence effects, it is possible that coherence is unable to facilitate extraction from CACs in those languages, which would then be reflected as absence of a coherence effect in the acceptability judgments, indicating that even CACs are strong islands. In Swedish and English, by contrast, some adjuncts (specifically, CACs) can be weak islands, as indicated by the facilitative effect of e.g. coherence on extraction. Within the latter group of languages, there is potential for further variation with regard to whether or not finiteness affects acceptability and processing of central adjunct clause extraction sentences. If supported, this would suggest a classification of languages in relation to factors that may affect acceptability and processing of adjunct clause extraction, as in Table 7.1 below.

Table 7.1: Classification of languages by factors related to acceptability of adjunct clause extraction

Factors	Exemplar Languages
Strong Adjunct Condition Languages in which adjuncts are always strong islands. We do not expect to find coherence effects.	French, Dutch, Greek
Weak Adjunct Condition Languages in which adjuncts can be strong (PACs) or weak islands (CACs). We find coherence effects in CACs; coherence facilitates extraction. This group can be further sub-classified into languages being subject to:	Swedish, English
Finite condition Finiteness affects acceptability and processing of central adjunct clause extraction sentences.	English
No finite condition Finiteness does not affect acceptability and processing of central adjunct clause extraction sentences.	Swedish

The classification suggested above is only a preliminary suggestion and further research is necessary to confirm this picture. However, it serves to demonstrate

---

Japanese, and Malayalam (also presented in Chapter 5) that involve conditional and temporal clauses (both typically CACs) and causal clauses (argued to be CACs with regard to their external syntax in Chapter 4, even though they may have the interal complexity of PACs). Also Truswell (2011) speculates that there may be a universal ban on extraction from adjuncts which attach too high in the tree: "Such prohibitions on extraction should be universal to the extent that the classes of adjuncts in question are syntactically and semantically similar across languages" (p. 200).

that the interplay of "blocking factors" which create various degrees of opacity, and "helping factors" which create various degrees of transparency creates a system of variation, which is in line with Phillips' (2013a) observation that cross-linguistic variation in island effects is systematic and limited.

Possibly, a constraint like the Adjunct Condition (referring to structural islandhood of adjuncts) holds universally. However, if the picture presented above is correct, it implies that the Adjunct Condition seems to differ in strength or violability across languages. In some languages such as Swedish and English, the Adjunct Condition seems to be a weak constraint, in the sense that some adjuncts in these languages can be weak islands and allow or facilitate extraction under certain conditions (visible as improved ratings for extraction under these conditions). In other languages such as French, Dutch, or Greek, however, the Adjunct Condition may be strong such that all adjuncts are strong islands, categorically disallowing extraction, with no facilitative effect from factors such as coherence. Whether adjunct clauses in this case would also be impermeable for filler-gap integration in these languages is another open question.

If the Adjunct Condition indeed corresponds to a weak constraint (compatible with weak island status of some adjuncts) in some languages and to a stronger constraint (excluding the existence of weak adjunct) in other languages, a remaining question in this case would be how this difference regarding a weak or strong Adjunct Condition across languages can be derived. In their multiple-constraints account of subject islands, Haegeman et al. (2014) suggest that constraints may vary across languages with regard to strength and violability, such that a given constraint may for instance be inviolable in one language but violable in another, or that a violable constraint may be stronger in some languages than others, with different acceptability penalties as a result. However, it is left open what this means exactly in formal terms. Possibly, the availability of some specific mechanism or structure is needed in a grammar to allow some languages to violate the Adjunct Condition (i.e. to have weak adjunct islands) under certain conditions (see Truswell 2011 for a similar remark). Brown (2017: 35) suggests (based on Phase Theory and a proposal by Willis 2011) that the relevant property lies in the feature make-up of the phase head P which is heading adjunct constructions. Specifically, Brown assumes that due to the phasality of P, extraction from an adjunct PP can only take place via an escape hatch in Spec,PP. The possibility of movement via that escape hatch in turn is tied to the presence of an EPP diacritic on the *wh*-feature of P, since the EPP diacritic is necessary to trigger movement of a phrase contained in the adjunct to Spec,PP, from where it can undergo further extraction. Cross-linguistic variation in the availability of adjunct clause extraction is achieved by assuming parametric variation with regard to the distribution of such an EPP diacritic. Brown points out that her account predicts a correlation between the availability of preposition stranding (P-stranding) in PP complements and the availability of extraction from adjunct PPs in a language: Extraction in

both cases is only possible if the *wh*-feature on P in that language is equipped with an EPP movement trigger, thus enabling the P head to attract phrases to its specifier. This prediction seems to be met for the languages mentioned in Table 7.1. While Swedish and English, languages with weak adjunct islands, do allow P-stranding, P-stranding is not possible in standard French, Dutch, and Greek (see e.g. Truswell 2009).[33] However, a potential counterexample to this generalization is Spanish, which has been reported to allow extraction at least from certain gerund adjuncts, but is not a P-stranding language. Note, though, that the gerund adjunct extractions in Spanish can possibly be explained by a complementation analysis (Fábregas & Jiménez-Fernández 2016), which is not available for e.g. the Swedish and English *after*-clause extractions discussed in this thesis (see Chapter 5). I leave the further testing of an account like the one suggested in Brown (2017) to derive the difference between languages displaying a weak Adjunct Condition and languages with a strong Adjunct Condition for future research.

7.6 Consequences for theories of adjunct islands

Adjuncts are traditionally considered to be strong islands for extraction (the Adjunct Condition). I have suggested in this chapter that extraction data from Swedish and English call for a more differentiated picture taking differences among types of adjunct clauses into consideration. Specifically, I suggested that only PACs are invariably strong islands, whereas central types of adjunct clauses are a type of weak islands in Swedish and English, in the sense that extraction from them leads to acceptable results when certain conditions are fulfilled. However, CACs differ from other more traditional weak islands in that not just properties of the extracted element determine the acceptability of extraction, but also the semantic relation between the adjunct clause and the host clause (and in English, finiteness of the adjunct clause). Extraction from central adjunct clauses is thus subject to more restrictions than extraction from e.g. *wh*-islands. A remaining question is how these weak island properties of CACs can be derived, and what consequences these findings have for theories of adjunct islands.

   An account of any weak island construction generally requires a connection between the property assumed to induce weak islandhood and the properties that extraction from the relevant weak island is sensitive to. Given that extraction from CACs was shown to be sensitive to the multiple conditions mentioned above, the challenge for an account of the weak islandhood of CACs thus lies in developing an analysis that captures both the properties that CACs have in common with other

---

[33] Dutch appears to allow P-stranding in a very restricted set of constructions; however, it has been questioned whether these cases involve genuine movement from the PP (van Riemsdijk 1978; Abels 2003; Truswell 2009).

weak islands, viz. the restriction to argument extraction, and the additional restriction to coherent extraction.[34] It is not certain whether these different types of restrictions can be related to the same island-inducing factor. Truswell (2007, 2011), for example, hypothesizes that the restriction on the type of extracted element in adjunct clause extraction has a different explanation than the restriction on a coherent, single-event interpretation. Below, I review first whether a classic approach of other weak islands, Relativized Minimality, can also account for the weak island properties of CACs. I turn then to the question what consequences the findings have for the nature of the Adjunct Condition, traditionally assumed to cover the islandhood of all adjuncts.

7.6.1 Intervention effects

A natural first step is to seek for an explanation of the weak island properties of central adjunct clauses in the accounts that have been proposed to derive traditional weak islands, such as *wh*-islands. Weak islands are typically accounted for by a version of Relativized Minimality (RM) in terms of intervention effects (Rizzi 1990): An element cannot be extracted if the movement path crosses an intervening element that is of the same structural type as the extracted element. For example, movement of an adjunct *wh*-phrase (*how*) to an A'-position is blocked in the following case, since the movement path crosses another A'-element (*which problem*).

(9)   *How_i do you wonder [**which problem** to solve $\_i$]? (Rizzi 1990: 8)

While RM in its original form is unlikely to account for adjunct islands, because adjunct clauses do not host visible interveners for A'-relations (see e.g. Rizzi 1990: 112, fn. 6), recent incarnations of RM called *featural RM* (e.g. Starke 2001; Rizzi 2013; Villata et al. 2016) seem to be able to account for a wider range of phenomena, possibly including adjunct island effects. Under featural RM, the relative acceptability of a weak island extraction depends on the featural specifications of the involved elements. Extraction of a constituent can be blocked by an intervening c-commanding element that has identical relevant morphosyntactic features as the moved element, where the relevant features in a movement dependency are those triggering the movement. The observation that complex argument NPs of the type *which NP*, which favor a D-linked interpretation, are easier to extract from weak islands than bare NPs or adjuncts is accounted for under the assumption that these phrases are more richly specified than the potential intervener (i.e. they have an additional feature that can help to

---

[34] I will leave the finiteness factor out of the current discussion, due to the likely processing-based nature of this factor in adjunct clause extraction.

overcome the intervention effect). Roughly, "a more richly specified element can be extracted from the domain of a less richly specified element, but not vice versa" (Rizzi 2013: 178).

   To take a specific case, classic weak islands such as *whether*-islands are accounted for in featural RM under the assumption that *wh*-phrases are associated with a question operator feature, i.e. their featural specification is (at least) [+Op]. Extraction of a non-argumental *wh*-element like *how* in (10a) or an argumental but bare *wh*-phrase like *what* in (10b) across a c-commanding *whether* leads therefore to an intervention effect, because *how*/*what* and the intervening *whether* share the operator feature [+Op].[35] However, the intervention effect can be overcome or at least considerably weakened in (10c), because the extracted *wh*-phrase is argumental and, because of its lexical specification (*problem*), favors a D-linked interpretation. Therefore, the complex *wh*-phrase *which problem* in (10c) can be assumed to be associated with at least two features: [+Op] and a referential feature, which may be represented as [+N].[36] The extractable phrase *which problem* in (10c) is hence more richly specified than the intervener (which only has the [+Op] feature, but not the [+N] feature) and can therefore extract more easily than an adjunct or a bare *wh*-phrase which lack the additional [+N] feature.

(10)   a.   *How$_i$ do you wonder [whether John could solve the problem _$_i$]?
       b.   *What$_i$ do you wonder [whether John could solve _$_i$ (in this way)]?
       c.   ?? [Which problem]$_i$ do you wonder [whether John could solve _$_i$ (in this way)]?
            (Villata et al. 2016: 76–77)

A feature-based intervention account along the lines outlined above could potentially also be applied to weak adjunct islands, given a number of suggestions that some adjunct clauses are derived by movement of an operator from the TP domain to the left periphery of the adjunct clause (e.g. Geis 1970; Larson 1990; Demirdache & Uribe-Etxebarria 2004; Haegeman 2010, 2012). An operator movement analysis is available for at least two types of central adjunct clauses that were investigated in this thesis, viz. temporal and conditional adjunct clauses. One implementation of the operator movement analysis for temporal clauses is Demirdache & Uribe-Etxebarria's (2004) proposal already presented in Chapter 5,

---

[35] Of relevance for the cases of topicalization in Swedish investigated here, also topic fronting can be assumed to involve operator features of the same type as those of *wh*-phrases, see Boeckx & Jeong (2004); Haegeman (2010).

[36] The discriminating feature responsible for the amelioration observed with extraction of complex *wh*-phrases from weak islands has been related to different concepts in the literature, among others D-linking, argument status, referentiality, and specificity.

according to which temporal clauses involve leftward movement of an empty temporal operator from Spec,AspP to Spec,CP, as in (11).

(11)   [$_{PP}$ after [$_{ZeitP}$ ZeitP$_i$ [$_{CP}$ OP$_i$ Zooey arrived t$_i$]]]

As already reviewed in Chapter 5, evidence for operator movement in temporal adjunct clauses comes from the possibility of low construal readings in sentences like (12), which can either mean that I saw Mary in New York after she made a certain claim, or that I saw Mary in New York after the time of her alleged departure, depending on whether the temporal operator has moved from CP1 or CP2 (Geis 1970; Larson 1990).

(12)   I saw Mary in New York [$_{PP}$ after [$_{CP1}$ she claimed [$_{CP2}$ that she would leave.]]]

Similarly, conditional *if*-clauses have been analyzed as free relatives with a null operator in their Spec,CP binding a possible world variable (Bhatt & Pancheva 2006a), see (13b). [37]

(13)   a.   if John arrives late
       b.   [$_{CP}$ Op$_w$ C [John arrives late in w]]

Considering these proposals, it might thus be possible to account at least for the argument/adjunct asymmetry in extraction from e.g. central conditional and temporal adjunct clauses under featural RM, if the relevant temporal or possible world operator in the left periphery of the adjunct clause creates an intervention effect for *wh*-movement or topicalization across it. A proposal along these lines has also been made by Sprouse et al. (2016) and Bondevik (2018). Such an account could also explain the purported sensitivity of judgments to the presence of a context (see Section 7.2), which may be needed to license the relevant D-linked interpretation of a [+N] phrase.

   A potential complication for such an account is that (as we saw in Chapter 5) there is no evidence from structural ambiguities like the one in (12) for operator movement in non-finite temporal adjunct clauses in English or in Swedish, which would hence leave unexplained why e.g. also non-finite adjunct clauses in English are reported to be sensitive to the argument/adjunct asymmetry in extraction, see Section 7.2. I leave it for future research whether an operator intervention account

---

[37] A possible counterargument against an operator movement analysis of conditionals is the absence of a structural ambiguity of the type in (12) with conditional clauses (e.g. Geis 1970; Bhatt & Pancheva 2006a); however, see Bhatt & Pancheva (2006a) for an alternative account of the unavailability of a low construal of the operator in conditionals that allows them to maintain the analysis presented in (13b).

of the argument restriction in weak adjunct island extractions could be rescued e.g. by an alternative explanation of the absence of low construal readings in non-finite clauses (as it has been suggested for conditional clauses, see fn. 37), or whether an alternative account of traditional weak islands (e.g. Scope Theory, Szabolcsi 2006; Szabolcsi & Zwarts 1993, 1997) could have a better chance of explaining the sensitivity of weak adjunct island extraction to the argument status of the extracted element.

Abstracting away from such problems, it is worth pointing out that RM as well as most other existing accounts of traditional weak islands may have the potential to explain an argument/adjunct asymmetry in extraction from adjunct islands, but these approaches do not seem very apt to capture why extraction from CACs is also sensitive to the degree of coherence between the adjunct and matrix clause event. The reason is that existing accounts of the argument restriction in weak island extractions, e.g. RM, commonly deduce this restriction from intervention effects caused by features or structure internal to the adjunct. Such an account, however, is unlikely to account for the coherence requirement in weak adjunct island extraction, which is derived from the way the adjunct relates (semantically, and possibly, syntactically) to the host clause, or from more general processing factors, rather than from the internal structure of adjuncts (see Chapter 5). It may thus be the case that a unified account of both restrictions in weak adjunct island extraction is not possible. This raises questions for the nature of the Adjunct Condition, addressed below.

7.6.2   The Adjunct Condition

As reviewed in Chapter 2, most existing accounts seem to agree that the Adjunct Condition can be derived from the special structural status or tree-geometrical position of adjuncts, thereby capturing the intuition that adjuncts are not as integrated into the derivation as complements are, and therefore are not accessible for certain operations. Under these accounts, the islandhood of adjuncts thus results from the structural position of adjuncts within the host clause.

However, the possibility that the different restrictions on extraction from weak adjunct islands have different sources (mentioned above) raises the question whether the Adjunct Condition could be reduced to a number of more general constraints not specific to adjuncts (cf. Haegeman et al. 2014 for a similar reduction of the Subject Condition). To be specific, the argument/adjunct asymmetry in extraction from CACs (which was taken to be indicative of weak islandhood of even coherent adjunct clauses) could result from a form of intervention effect of the same type we have seen in *wh*-islands, whereas the coherence requirement could be derived from a more general requirement for an Agree relation between an extraction domain and a phase head (as suggested in

Rackowski & Richards 2005), or from more general processing factors (Truswell 2011). Also the strong islandhood of PACs was earlier suggested to be a result of their attachment height, rather than of their adjunct status. One could thus argue that the original Adjunct Condition (referring to a constraint banning extraction from adjunct constituents) could be dispensed with and replaced by a list of independent constraints, including a constraint on extraction from non-coherent structures, a constraint on extraction from constituents that are attached too high, and a constraint on extracting adjuncts or non-D-linked elements across intervening operators, meaning that the adjunct structure is not an island-inducing factor per se. This view implies that constituents are non-islands by default, and that a list of constraints explains why extraction is blocked in different configurations.

However, this view does not appear very intuitive in light of the current data, because it seems to miss some higher-order generalization about adjuncts: Some of the above mentioned constraints only become relevant in the case of adjunct, but not complement constituents, because only adjunct constituents are independent enough to violate these constraints. For instance, only adjuncts are in a position where they can violate the coherence or single-event requirement in the first place. (Non-island) complements, by contrast, are selected and events described by them are hence automatically dependent on matrix predicates and embedded in them, as also suggested by Truswell (2011). Furthermore, only non-complements can be attached high enough to be invisible for probes triggering movement in the left periphery of the main clause. Moreover, we have seen indications in the preceding section that even coherent adjuncts might be strong islands in some languages, suggesting that extraction from adjunct clauses is categorically excluded in such languages.

I argue that the above observations are most compatible with the view that the factor traditionally referred to by the Adjunct Condition (i.e. the structural relation between the adjunct and its host) still plays a role in explaining the relative intransparency of adjunct constituents, but rather than operating as a specific constraint, the structural status of adjuncts is the reason why certain requirements on extraction (such as coherence or a certain attachment height) are not automatically satisfied in adjunct constituents, and hence why a number of conditions must be fulfilled for extraction to become acceptable. What is traditionally termed 'Adjunct Condition' refers under this view to the overall relative independence (both semantic and syntactic) of adjunct constituents compared to complements, which is responsible for the fact that adjuncts are opaque for extraction by default, unless a number of conditions are met.

Instead of a view under which non-islandhood is the default state and extraction is restricted by a list of constraints, I thus take my results as support for an alternative view according to which constituents (in this case: adjuncts) are islands by default (but certain factors can improve extraction), as recently suggested by

Progovac (2009, 2015). Progovac criticizes the assumption underlying most syntactic accounts of islandhood that islands can be explained in unified terms by a specific principle (e.g. Subjacency) that restricts movement. Instead, Progovac argues (supported by arguments from evolution) for an alternative approach according to which islandhood is not due to a specific principle but rather is the default option, whereas movement is only exceptionally possible out of some privileged constructions.[38] Under this view, a unification of island constraints is not expected since islands do not form a natural class. However, the class of elements that allows extraction is restricted to a subset of complements which are maximally integrated. Adjuncts are thus islands because, similar to conjuncts and specifiers, they are not fully integrated into the syntactic structure (in Progovac's terms, they are *semi-integrated*).

Progovac (2015: 138, fn. 9) points out that her account also has the capacity to accommodate degrees of islandhood, possibly including weak islands, under the assumption that constructions may fall between the two extremes of being completely independent (unintegrated) expressions and being syntactically fully integrated, with different degrees of transparency as a result. As a case in point, Progovac (2015: 120–121) mentions in fact the possibility that the relative level of integration of an adjunct clause may depend on the semantic relation with the host clause expressed by it. This proposal thus captures the behavior of the adjunct islands investigated here. Due to their semi-integrated structural status, adjuncts are islands by default; however they can become more transparent (extraction can be improved) when certain relations or dependencies are added through which they become more integrated into the derivation. Peripheral adjuncts represent according to this view the default state; they are minimally integrated into the structure they attach to (for instance, they can be assumed to be only inside one CP segment of the associated clause) and hence are strong islands. Central adjuncts represent a higher level of integration than PACs, since they share more structure with the host clause, which thus explains their potential to be only weak islands in some languages. For central adjuncts in turn, coherence relations with the matrix clause may lead to even further integration (e.g. by means of labeling under Agree).

Interestingly, coherence may lead to a higher degree of integration (by adding an additional relation between the adjunct and the host clause), but even coherent, central adjuncts maintain their structural (semi-integrated) position in the tree. That is, adjuncts will never be maximally integrated like complements since they

---

[38] Progovac is not the first to suggest that islandhood, rather than movement, is the default option: Similarly, already Cinque (1978), Gazdar (1981), and Postal (1998) have suggested that categories are islands by default and that instead the possibility of movement is in need of an explanation (see also Boeckx 2012). Also Bošković (2015a,b) treats extraction as only exceptionally possible in a very limited number of configurations, viz. only from the complements of non-ergative verbs, although he derives this from a phase-based account.

are not subordinated. It is possible that the semi-integrated structural position of adjuncts could for instance explain why even argument extraction from coherent adjuncts still appears to be more restricted than argument extraction from e.g. *wh*-clauses (see Section 7.2, where I showed that only NP, but not PP argument extraction seems to be possible from coherent adjuncts), or why even argument extraction from coherent adjuncts was found to induce superadditive island effects in Norwegian in Bondevik's (2018) study. The suggestion that extraction from a constituent in an adjunct position is always more difficult than extraction from a complement structure goes hand in hand with suggestions by e.g. Tanaka (2015) and Wurmbrand (2018) that movement across a (weak island) adjunct also imposes a considerably stronger processing burden than movement along the main spine of the clause, possibly contributing to a higher penalty on acceptability for adjunct clause extraction compared to complement extraction.

In sum, with Progovac's approach we can capture the traditional assumption that the structural (non-integrated) position of adjuncts plays a role in the formation of adjunct islandhood, however, without the necessity to derive the impact of this factor as a specific constraint, since islandhood is simply the default state in Progovac's system – what requires an explanation is instead the possibility of movement under certain conditions.

It should be noted that both the effect of attachment height and coherence on adjunct clause extraction can be captured under this model, but the proposal cannot as straightforwardly explain why argument extraction from coherent adjuncts seems to be easier than adjunct extraction. I leave it for future investigation whether the account outlined above needs to be complemented with an additional theory that accounts for potential restrictions on the type of extracted element, or if also this restriction can be subsumed under a more general 'integration principle', e.g. if extraction of adjuncts in some way can be shown to impede a coherence interpretation.

7.7 Summary

While the investigations in this thesis have demonstrated that at least peripheral and non-coherent adjunct clauses seem to obey island constraints in Swedish, the status of coherent, central adjuncts in terms of islandhood has been less clear. In this chapter I have presented arguments suggesting that coherent, central adjunct clauses in Swedish and English can be characterized as a type of weak islands, in the sense that extraction from these clauses yields acceptable ratings only when the extracted element is an argument and the extraction sentences are accompanied by a supporting context. In extension, I suggested that all central adjunct clauses are weak islands in Swedish and English, and that the coherence effect in

extraction from such clauses represents an additional constraint on weak adjunct island extraction. A weak island analysis of central adjunct clauses was also shown to be compatible with the online permeability of such adjunct clauses for filler-gap integration as suggested by the results of Experiment 3. Peripheral clauses, by contrast, were proposed to be strong islands for extraction. Moreover, I have shown that if even central adjunct clauses remain weak islands in Swedish and English, it may be possible to maintain the universal validity of a constraint like the Adjunct Condition (referring to the structural islandhood of adjuncts); however, languages might differ in displaying either a strong Adjunct Condition (meaning that all adjuncts are strong islands) or a weak Adjunct Condition (meaning that some adjuncts are weak islands). Swedish and English would in this case belong to the latter group. Between Swedish and English, further variation exists with regard to whether or not finiteness affects the acceptability of adjunct clause extraction sentences.

In discussing the theoretical implications of my findings for adjunct island constraints, I argued that the hypothesized strong islandhood of PACs as well as the weak islandhood of CACs in some languages fall out as natural consequences under Progovac's (2009, 2015) proposal that semi-integrated constituents such as adjuncts are islands by default, but that factors which cause increased integration of such constituents can lead to increased degrees of transparency. The proposal that adjuncts are islands by default on account of their structural position also makes it possible to maintain a principle like the Adjunct Condition, however, not in the form of a specific constraint on extraction, but rather as referring to the relative independence of adjunct constituents, due to which factors such as coherence and attachment height become relevant in extraction.

Sammanfattning på svenska

Denna avhandling undersöker extraktion ur adverbiella bisatser, även kallat satsfläta med adverbiell bisats, i svenska och engelska. Konstruktionstypen illustreras med hjälp av ett svenskt exempel i (1). I denna mening tolkas frasen *sportspegeln* tematiskt inuti den adverbiella bisatsen som inleds med *om* eller *när*, men den nämnda frasen realiseras utanför den adverbiella bisatsen i meningsinitial position.

(1)   Sportspegeln$_i$ somnar jag [om/när jag ser $\_i$]. (Anward 1982: 74)

Man säger även att frasen *sportspegeln* är ett satsled som har extraherats ur den adverbiella bisatsen. Relationen mellan det extraherade ledet och luckan som den lämnar i bisatsen markeras med koindexering ($_i$).

Satsfläta med adverbiell bisats är av intresse inom syntaxforskning eftersom adverbiella bisatser vanligen anses vara syntaktiska öar (*islands*), och sådana tillåter vanligtvis inte extraktion. Exempelvis verkar engelska inte tillåta satsfläta med adverbiell bisats, se (2) nedan.

(2)   *Who$_i$ did Mary cry [after John hit $\_i$]? (Huang 1982: 503)

Det traditionella antagandet inom syntaxforskningen är att extraktioner ur syntaktiska öar, såsom den i (2) ovan, är blockerade av universella syntaktiska restriktioner, s.k. örestriktioner (*island constraints*). Restriktionen som blockerar satsfläta med adverbiell bisats kallas *the Adjunct Condition*. Svenska och de andra fastlandskandinaviska språken verkar dock tillåta satsfläta med adverbiella bisatser, se (1), vilket ifrågasätter antagandet att *the Adjunct Condition* är universell. Dessa extraktioner ger också upphov till frågor angående genomskådligheten av sådana strukturer vid dependensformering och de faktorer som kan tänkas påverka denna genomskådlighet, samt frågor angående möjlig variation mellan språk.

En granskning av tidigare forskning om ämnet visar att trots ansträngningar att förklara möjligheten att extrahera ur syntaktiska öar i fastlandskandinaviska språk finns det hittills ingen konsensus om hur man ska analysera de oväntade satsflätorna. Merparten av de tidigare studierna har dock fokuserat på satsfläta med relativsats i fastlandskandinaviskan, och i den här avhandlingen undersöks

istället satsfläta med adverbiell bisats i svenska, vilket syftar till att bidra till ökad kunskap om extraktioner och syntaktiska öar i fastlandskandinaviskan.

Bakgrundsundersökningarna i avhandlingen visar att vissa av de exempel på satsfläta med adverbiell bisats i fastlandskandinaviska som kan hittas i litteraturen kan anses vara bildade med selekterade satser (som möjligtvis fungerar som argument till matrisverbet snarare än som fritt adverbial i den överordnade satsen), men att detta inte gäller alla exempel. Alla fall av satsfläta med adverbiell bisats kan således inte reduceras till en potentiell argumentsfunktion hos bisatsen i fråga, vilket innebär att det som ser ut att vara brott mot *the Adjunct Condition* i fastlandskandinaviska språk kräver en annan förklaring.

För att undersöka möjligheten att extrahera ur adverbiell bisats mer systematiskt använder jag mig av en acceptabilitetsbedömningsstudie genomförd med 19 svenska modersmålstalare, där jag undersöker tre faktorer som har hävdats kunna påverka acceptabiliteten av satsfläta med adverbiell bisats: (i) graden av semantisk koherens mellan eventet som beskrivs i den adverbiella bisatsen och det som beskrivs i matrissatsen, (ii) graden av syntaktisk integration av den adverbiella bisatsen, och (iii) den grammatiska funktionen av det extraherade elementet. Resultaten visar att alla tre faktorer verkar påverka acceptabiliteten av satsflätekonstruktioner med adverbiell bisats i svenska. Meningar med extraktion resulterar i bättre bedömningar

a) när matrissatsen och den adverbiella bisatsen förknippas med en koherent relation (t.ex. ett kausalt samband), jämfört med när så inte är fallet,
b) när den adverbiella bisatsen i fråga är en central (snarare än perifer) bisats, som är tillräckligt integrerad i huvudsatsen (både när det gäller den externa och den interna syntaxen), och
c) när det extraherade ledet uppfyller argumentsfunktion, snarare än adverbiell funktion i bisatsen.

Informella observationer tyder på att dessa tre faktorer också påverkar acceptabiliteten av satsfläta med adverbiell bisats i engelska (Haegeman 2004; Truswell 2007, 2011; Tanaka 2015). Adverbiella bisatser i svenska och engelska verkar därmed bete sig likadant i dessa avseenden. Resultaten från acceptabilitetsstudien tyder dock också på att svenska är speciell ur ett tvärspråkligt perspektiv, såtillvida att svenska tillåter extraktion ur (åtminstone vissa) finita adverbiella bisatser. Detta har påståtts vara omöjligt i engelska (Manzini 1992; Truswell 2007, 2011).

För att undersöka hypotesen att finithet är en betydande faktor bakom den tvärspråkliga variationen mellan svenska och engelska öar genomfördes två acceptabilitetsbedömningsexperiment, där jag undersöker hur semantisk koherens och finithet påverkar acceptabiliteten i svenska (Experiment 1) respektive engelska (Experiment 2). Meningar med extraktion ur (centrala) *efter att*-bisatser användes för detta ändamål. Resultaten visar, i linje med förväntningarna, att

acceptabiliteten av extraktionsmeningar ökar i både svenska och engelska när det finns ett kausalt, koherent samband mellan matrissatsen och den adverbiella bisatsen, men att finithet endast har en effekt på acceptabilitetsbedömningarna i engelska. Närmare bestämt får koherent extraktion lägre bedömningar med finita än med icke-finita adverbiella bisatser i engelska. Även om skillnaderna i acceptabilitetsbedömningarna som påträffades i samband med finithets-manipulationen är relativt små och därmed inte når upp till acceptabilitets-kontrasten som beskrivs i t.ex. Truswell (2007, 2011), pekar närvaron av en finithetseffekt i engelska men inte i svenska på att finithet är en möjlig faktor av tvärspråklig variation. Finithet skulle således kunna vara delvis ansvarig för variationen som har påståtts existera mellan engelska och de fastlandskandinaviska språken när det när gäller möjligheten att bryta mot örestriktioner.

Iakttagelsen att koherens och finithet påverkar acceptabiliteten av satsflätekonstruktioner med adverbiell bisats ifrågasätter även påståenden att språkanvändare utnyttjar information om örestriktioner för att upphäva integrativa processer förknippade med dependensformering i östrukturer (t.ex. Stowe 1986; Traxler & Pickering 1996; Omaki & Schulz 2011; Omaki et al. 2015), dvs. att processer genom vilka det extraherade ledet associeras med den tillhörande luckan i bisatsen inte är aktiva i syntaktiska öar. I Experiment 3 användes därför self-paced reading för att undersöka hur finithet och koherens påverkar språkbearbetningen av satsfläta med *efter att*-satser i engelska i realtid. Resultaten tyder på att koherens och icke-finithet underlättar processandet av sådana strukturer i regioner som associeras med integrering av det extraherade ledet, vilket stödjer hypotesen att integrativa processer som är förknippade med dependensformering i viss utsträckning är aktiva i engelska *efter att*-satser. Påståendet att syntaktiska öar är ogenomskådliga vid integrativa processer håller därmed inte för adverbiella bisatser av den typ som undersökts här.

I den mån adverbiella bisatser kan anses vara syntaktiska öar indikerar resultaten som påträffats i denna avhandling därmed

- att acceptabilitetsgraden av meningar som bryter mot örestriktioner är avhängig flera faktorer, vilket överensstämmer med vad som föreslagits i t.ex. Chaves (2013), Haegeman et al. (2014), och Tanaka (2015),
- att språk kan variera när det gäller vilka faktorer som påverkar acceptabiliteten av satsfläta ur syntaktiska öar, vilket resulterar i begränsade om än systematiska förekomster av variation när det gäller extraktion,
- att åtminstone vissa östrukturer kan vara genomskådliga vid integrativa processer såsom dependensformering mellan ett extraherat led och ett tillhörande verb.

I samband med en diskussion av de teoretiska implikationerna av mina resultat föreslås att centrala adverbiella bisatser i svenska och engelska kan klassificeras

som en typ av *weak islands*, i den bemärkelsen att extraktion leder till varierande acceptabilitet beroende på faktorer såsom koherens och grammatisk funktion av det extraherade ledet. En analys i termer av *weak islands* visar sig dessutom vara kompatibel med genomskådligheten av sådana adverbiella bisatser i samband med integrering av ett extraherat led som undersöktes i Experiment 3. Jag argumenterar vidare för att en princip som *the Adjunct Condition* möjligtvis kan upprätthållas för alla språk, men att språk i så fall verkar kunna variera mellan att ha en *strong Adjunct Condition* (dvs. alla adverbiella bisatser är strong islands i sådana språk) och att ha en *weak Adjunct Condition* (dvs. vissa adverbiella bisatser är weak islands i sådana språk).

References

Abels, Klaus. 2003. *Successive cyclicity, anti-locality and adposition stranding*. Storrs: University of Connecticut dissertation.

Abrusán, Márta. 2007. *Contradiction and grammar: The case of weak islands*. Cambridge, MA: MIT dissertation.

Abrusán, Márta. 2011a. Presuppositional and negative islands: A semantic account. *Natural Language Semantics* 19. 257–321.

Abrusán, Márta. 2011b. *Wh*-islands in degree questions: A semantic approach. *Semantics and Pragmatics* 4. 1–44.

Abrusán, Márta. 2014. *Weak Island Semantics*. Oxford University Press.

Adger, David. 2003. *Core syntax. A Minimalist approach*. Oxford: Oxford University Press.

Adger, David. 2007. Three domains of finiteness: A minimalist perspective. In Irina Nikolaeva (ed.), *Finiteness: Theoretical and empirical foundations*, 23–58. Oxford: Oxford University Press.

Adger, David. 2013. *A Syntax of substance*. Cambridge, MA: MIT Press.

Adler, Allison N. 2006. *Syntax and discourse in the acquisition of adjunct control*. Cambridge, MA: MIT dissertation.

Allwood, Jens S. 1982. The complex NP constraint in Swedish. In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian languages*, 15–32. Stockholm: Almqvist & Wiksell.

Almeida, Diogo. 2014. Subliminal wh-islands in Brazilian Portuguese and the consequences for syntactic theory. *Revista da ABRALIN* 13(2). 55–93.

Alrenga, Peter. 2005. A sentential subject asymmetry in English and its implications for complement selection. *Syntax* 8(3). 175–207.

Altmann, Gerry T. M. 1998. Ambiguity in sentence processing. *Trends in Cognitive Science* 2(4). 146–152. DOI: https://doi.org/10.1016/S1364-6613(98)01153-X.

Altmann, Gerry T. M. & Mark Steedman. 1988. Interaction with context during human sentence processing. *Cognition* 30(3). 191–238. DOI: https://doi.org/10.1016/0010-0277(88)90020-0.

Andersson, Erik. 1994. Swedish. In Ekkehard König & Johan van der Auwera (eds.), *The Germanic languages*, 271–312. London: Routledge.

Andersson, Lars-Gunnar. 1975. *Form and function of subordinate clauses*. Gothenburg: University of Gothenburg dissertation.

Anward, Jan. 1982. Basic Swedish. In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian languages*, 47–75. Stockholm: Almqvist & Wiksell.

Askedal, John O. 1994. Norwegian. In Ekkehard König & Johan van der Auwera (eds.), *The Germanic languages*, 219–270. London: Routledge.

Atkinson, Emily, Aaron Apple, Kyle Rawlins & Akira Omaki. 2016. Similarity of *wh*-phrases and acceptability variation in *wh*-Islands. *Frontiers in Psychology* 6:2048. DOI: https://doi:10.3389/fpsyg.2015.02048.

Authier, J.-Marc & Liliane Haegeman. 2014. Rescue by PF deletion and the intervention vs. truncation debate. In Robert E. Santana-LaBarge (ed.), *Proceedings of the 31st West Coast Conference on Formal Linguistics*, 31–40. Somerville, MA: Cascadilla Proceedings Project.

Baker, Mark C. 2005. *On gerunds and the theory of categories*. Ms., Rutgers University.

Barr, Dale J., Roger Levy, Christoph Scheepers & Harry J. Tilyc. 2013. Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68. 255–278. DOI: https://doi.org/10.1016/j.jml.2012.11.001.

Bates, Douglas, Martin Maechler, Ben Bolker & Steven Walker. 2014. *lme4: Linear Mixed-Effects Models Using Eigen and s4. R Package Version*, 1(7).

Bayer, Josef. 2001. Asymmetry in emphatic topicalization. In Caroline Féry & Wolfgang Sternefeld (eds.), *Audiatur vox sapientiae*, 15–47. Berlin: Akademie Verlag.

Bentzen, Kristine & Carline Heycock. 2010. *Embedded V2 and extraction in Faroese and Norwegian: Results from parallel experiments*. Talk given at the workshop Verb Movement: Its Nature, Triggers, and Effects, University of Amsterdam, December 11–12.

Bentzen, Kristine, Gunnar Hrafn Hrafnbjargarson, Þorbjörg Hróarsdottir & Anna Lena Wiklund. 2007. The Tromsø guide to the Force behind V2. *Working papers in Scandinavian Syntax* 79. 99–118.

Berwick, Robert C. & Amy S. Weinberg. 1984. *The grammatical basis of linguistic performance*. Cambridge, MA: MIT Press.

Bhatt, Rajesh & Roumyana Pancheva. 2006a. Conditionals. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, 638–687. Oxford and Boston: Blackwell Publishing.

Bhatt, Rajesh & Roumyana Pancheva. 2006b. Implicit arguments. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, vol. 2, 558–588. Malden, MA: Blackwell Publishing.

Bianchi, Valentina. 1997. On the structural position of time clauses. *Quaderni del Laboratorio di Linguistica della Scuola Normale Superiore* 11. 66–90.

Bianchi, Valentina. 2000. On time adverbials. *Rivista di Linguistica/Italian Journal of Linguistics* 12. 77–106.

Bianchi, Valentina. 2003. On finiteness as logophoric anchoring. In Jacqueline Guéron & Liliane Tasmowski (eds.), *Temps et point de vue/Time and point of view*, 213–246. Université Paris X.

Blümel, Andreas. 2017. Exocentric root declaratives: Evidence from V2. In Leah Bauke & Andreas Blümel (eds.), *Labels and Roots*, 263–290. Berlin, Boston: De Gruyter. DOI: https://doi.org/10.1515/9781501502118-011.

Bobaljik, Jonathan D. 1995. *Morphosyntax: The syntax of verbal inflection*. Cambridge, MA: MIT dissertation.

Bobaljik, Jonathan D. & Höskuldur Thráinsson. 1998. Two heads aren't always better than one. *Syntax* 1(1). 37–71.

Bobaljik, Jonathan D. & Susi Wurmbrand. 2005. The domain of agreement. *Natural Language & Linguistic Theory* 23(4). 809–865.

Boeckx, Cedric. 2003. *Islands and chains. Resumption as stranding*. Amsterdam: John Benjamins.

Boeckx, Cedric. 2008. *Bare Syntax*. Oxford: Oxford University Press.

Boeckx, Cedric. 2012. *Syntactic islands*. Cambridge: Cambridge University Press.

Boeckx, Cedric. 2014. *Elementary syntactic structures: Prospects of a feature-free syntax*. Cambridge: Cambridge University Press.

Boeckx, Cedric & Kleanthes K. Grohmann. 2007. Remark: Putting phases in perspective. *Syntax* 10(2). 204–222.

Boeckx, Cedric & Youngmi Jeong. 2004. The fine structure of intervention in syntax. In Chungja Kwon & Wonbin Lee (eds.), *Issues in Current Linguistic Theory: A Festschrift for Hong Bae Le*, 83–116. Seoul: Kyungchin.

Bondevik, Ingrid. 2018. *Investigating the universality of adjunct islands through formal acceptability experiments. A comparative study of English and Norwegian.* M.A. thesis, Norwegian University of Science and Technology.

Bošković, Željko. 2015a. Deducing the Generalized XP Constraint from phasal spell-out. In Markéta Ziková, Pavel Caha & Mojmír Dočekal (eds.), *Slavic Languages in the Perspective of Formal Grammar: Proceedings of FDSL 10.5, Brno 2014*, 79–100. Bern: Peter Lang.

Bošković, Željko. 2015b. From the Complex NP Constraint to everything: On deep extractions across categories. *The Linguistic Review* 32(4). 603–669. DOI: https://doi.org/10.1515/tlr-2015-0006.

Bošković, Željko. 2016. On the timing of labeling: Deducing comp-trace effects, the subject condition, the adjunct condition and tucking in from labeling. *The Linguistic Review* 33(1). 17–66. DOI: https://doi.org/10.1515/tlr-2015-0013.

Bošković, Željko. 2018. On movement out of moved elements, labels, and phases. *Linguistic Inquiry* 49(2). 247–282.

Brody, Michael. 1995. *Lexico-Logical Form*. Cambridge, MA: MIT Press.

Brown, Jessica M. 2015. Apparently semantically-motivated extraction in an autonomous syntax. *Cambridge Occasional Papers in Linguistics* 8. 6–22.

Brown, Jessica M. 2016. Blackholes and subextraction from adjuncts in English and Norwegian. *Chicago Linguistic Society (CLS)* 51. 67–81.

Brown, Jessica M. 2017. *Heads and adjuncts. An experimental study of subextraction from participials and coordination.* Cambridge, University of Cambridge doctoral thesis.

Carifio, James & Rocco Perla. 2008. Resolving the 50-year debate around using and misusing Likert scales. *Medical Education* 42(12). 1150–1152. DOI: https://doi.org/10.1111/j.1365-2923.2008.03172.x.

Carston, Robyn. 1993. Conjunction, explanation and relevance. *Lingua* 90. 151–165.

Cattell, Ray. 1976. Constraints on movement rules. *Language* 52. 18–50.

Cecchetto, Carlo & Caterina Donati. 2015. *(Re)labeling*. Cambridge, MA: MIT Press.

Chametzky, Robert A. 2000. *Phrase structure: From GB to Minimalism* (Generative Syntax 4). Cambridge, MA: Blackwell.

Chametzky, Robert A. 2003. Phrase Structure. In Randall Hendrick (ed.), *Minimalist Syntax*, 192–22. Oxford: Blackwell.

Chaves, Rui. 2013. An expectation-based account of subject islands and parasitism. *Journal of Linguistics* 49. 285–327. DOI: https://doi.org/10.1017/S0022226712000357.

Chomsky, Noam. 1964. *Current issues in linguistic theory*. The Hague: Mouton.

Chomsky, Noam. 1970. Remarks on nominalization. In Roderick A. Jacobs & Peter S. Rosenbaum (eds.), *Readings in English transformational grammar*, 184–221. Waltham, MA: Ginn.

Chomsky, Noam. 1973. Conditions on transformations. In Stephen Anderson & Paul Kiparsky (eds.), *A Festschrift for Morris Halle*, 232–286. New York: Holt, Rinehart & Winston.

Chomsky, Noam. 1977. On wh-movement. In Peter Culicover, Thomas Wasow & Adrian Akmajian (eds.), *Formal syntax*, 71–132. New York: Academic Press.

Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. In Kenneth Hale & Samuel J. Keyser (eds.), *The view from Building 20*, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by Step: essays on Minimalist syntax in honour of Howard Lasnik*, 89–115. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2004. Beyond explanatory adequacy. In Adriana Belletti (ed.), *Structures and beyond*, 104–131. New York: Oxford University Press.

Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36(1). 1–22.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos P. Otero & Maria-Luisa Zubizarreta (eds.), *Foundational issues in linguistic theory*, 133–166. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262062787.003.0007.

Chomsky, Noam. 2013. Problems of Projections. *Lingua* 130. 33–49.

Christensen, Ken Ramshøj, Johannes Kizach & Anne Mette Nyvad. 2013a. Escape from the island. Grammaticality and (reduced) acceptability of wh-island violations in Danish. *Journal of Psycholinguistic Research* 42(1). 51–70.

Christensen, Ken Ramshøj, Johannes Kizach & Anne Mette Nyvad. 2013b. The processing of syntactic islands - an fMRI study. *Journal of Neurolinguistic* 26(2). 239–251.

Christensen, Ken Ramshøj & Anne Mette Nyvad. 2014. On the nature of escapable relative islands. *Nordic Journal of Linguistics* 37(1). 29–45.

Christianson, Kiel, Andrew Hollingworth, John F. Halliwell & Fernanda Ferreira. 2001. Thematic roles assigned along the garden path linger. *Cognitive Psychology* 42(4). 368–407. DOI: https://doi.org/10.1006/cogp.2001.0752.

Chung, Sandra. 1994. Wh-agreement and "referentiality" in Chamorro. *Linguistic Inquiry* 25. 1–44.

Cinque, Guglielmo. 1978. Towards a unified treatment of island constraints. In Wolfgang U. Dressler & Wolfgang Meid (eds.), *Proceedings of the 12th International Congress of Linguistics*, 344–348. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Cinque, Guglielmo. 1990. *Types of A'-Dependencies*. Cambridge, MA: MIT Press.

Cinque, Guglielmo. 1999. *Adverbs and functional heads*. Oxford: Oxford University Press.

Cinque, Guglielmo. 2004. Issues in adverbial syntax. *Lingua* 114. 683–710.

Cinque, Guglielmo. 2013. Cognition, universal Grammar, and typological generalizations. *Lingua* 130. 50–65.

Clausen, David R. 2010. *Processing factors influencing acceptability in extractions from complex subjects.* Ms., Stanford University.

Crain, Stephen & Mark Steedman. 1985. On not being led up the garden path: The use of context by the psychological syntax processor. In David R. Dowty, Lauri Karttunen & Arnold M. Zwicky (eds.), *Natural language parsing: Psychological, computational, and theoretical perspectives*, 320–358. Cambridge: Cambridge University Press.

Culicover, Peter. 2001. Parasitic gaps: A history. In Peter Culicover & Paul Postal (eds.), *Parasitic gaps*, 3–68. Cambridge, MA: MIT Press.

Dal Farra, Chiara. 2019. The case of adjunct islands in Italian. In Astrid van Alem, Anastasiia Ionova & Cora Pots (eds.), *Proceedings of the 26th Conference of the Student Organization of Linguistics in Europe*, 264–278. Leiden: Leiden University Centre for Linguistics.

Deane, Paul. 1991. Limits to attention: A cognitive theory of island phenomena. *Cognitive Linguistics* 2. 1–63.

Demirdache, Hamida & Myriam Uribe-Etxebarria. 2004. The syntax of time adverbs. In Jaqueline Guéron & Jacqueline Lecarme (eds.), *The syntax of time*, 143–180. Cambridge, MA: MIT Press.

Demirdache, Hamida & Myriam Uribe-Etxebarria. 2007. The syntax of time arguments. In *Lingua* 117. 330–366. DOI: https://doi.org/10.1016/j.lingua.2005.07.006.

den Dikken, Marcel. 2007. Phase Extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33(1). 1–41. DOI: https://doi.org/10.1515/TL.2007.001.

den Dikken, Marcel. 2018. *Dependency and directionality*. Cambridge, United Kingdom; New York, NY: Cambridge University Press. DOI: https://doi.org/10.1017/9781316822821.

Dillon, Brian & Norbert Hornstein. 2013. On the structural nature of island constraints. In Jon Sprouse & Norbert Hornstein (eds.), *Experimental syntax and island effects*, 208–220. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139035309.011.

Ekerot, Lars-Johan. 2011. *Ordföljd, tempus, bestämdhet: Föreläsningar om svenska som andraspråk* [Word order, tense, definiteness: Lectures on Swedish as a second language], 2nd edn. Malmö: Gleerup.

Emonds, Joseph. 2009. Valuing V features and N features: What adjuncts tell us about case, agreement, and syntax in general. In José M.Brucart, Anna Gavarró & Jaume Solà (eds.), *Merging Features: Computation, Interpretation, and Acquisition*, 194–214. Oxford: Oxford University Press.

Engdahl, Elisabeth. 1982. Restrictions on Unbounded Dependencies in Swedish. In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian languages*, 151–174. Stockholm: Almqvist & Wiksell.

Engdahl, Elisabeth. 1983. Parasitic gaps. *Linguistics and Philosophy* 6. 5–34.

Engdahl, Elisabeth. 1997. Relative clause extractions in context. *Working Papers in Scandinavian Syntax* 60. 59–86.

Engdahl, Elisabeth & Eva Ejerhed (eds.). 1982. *Readings on unbounded dependencies in Scandinavian languages*. Stockholm: Almqvist & Wiksell.

Engelkamp, Johannes & Hubert Zimmer. 2005. *Dynamic aspects of language processing: Focus and presupposition*. New York: Springer.

Epstein, Samuel D., Hisatsugu Kitahara & Daniel Seely. 2012. Structure building that can't be. In Myriam Uribe-Etxebarria & Vidal Valmala (eds.), *Ways of Structure Building*, 253–270. Oxford: Oxford University Press.

Ernst, Thomas. 2002. *The Syntax of Adjuncts*. Cambridge: Cambridge University Press.

Erteschik-Shir, Nomi. 1973. *On the nature of island constraints.* Cambridge, MA: MIT dissertation.

Erteschik-Shir, Nomi. 1982. Extrability in Danish and the pragmatic principle of dominance. In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian languages*, 175–191. Stockholm: Almqvist & Wiksell.

Faarlund, Jan Terje. 1992. *Norsk syntaks i funksjonel perspektiv* [Norwegian syntax in a functional perspective]. Oslo: Universitetsforlaget.

Faarlund, Jan Terje, Svein Lie & Kjell Ivar Vannebo. 1997. *Norsk referansegrammatikk* [Norwegian reference grammar]. Oslo: Universitetsforlaget.

Fábregas, Antonio & Ángel L. Jiménez-Fernández. 2016. Extraction from gerunds and the internal syntax of verbs. *Linguistics* 54(6). 1307–1354. DOI: https://doi.org/10.1515/ling-2016-0029.

Fanselow, Gisbert, Matthias Schlesewsky, Ralf Vogel & Thomas Weskott. 2011. Animacy effects on crossing wh-movement in German. *Language* 494. 657–683.

Ferreira, Fernanda, Karl G. D. Bailey & Vittoria Ferraro. 2002. Good enough representations in language comprehension. *Current Directions in Psychological Science* 11(1). 11–15. DOI: https://doi.org/10.1111/1467-8721.00158.

Ferreira, Fernanda & Charles Clifton, Jr. 1986. The independence of syntactic processing. *Journal of Memory and Language* 25(3). 348–368.

Ferreira, Fernanda, Paul E. Engelhardt & Manon W. Jones. 2009. Good enough language processing: A satisficing approach. In Niels A. Taatgen, Hedderik van Rijn, John Nerbonne & Lambert Schomaker (eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society*, 413–418. Austin, TX: Cognitive Science Society.

Ferreira, Fernanda & Nikole D. Patson. 2007. The 'good enough' approach to language comprehension. *Language and Linguistics Compass* 1(1–2). 71–83. DOI: https://doi.org/10.1111/j.1749-818X.2007.00007.x.

Fodor, Janet D. 1978. Parsing strategies and constraints on transformations. *Linguistic Inquiry* 9. 427–473.

Fodor, Janet D. 1983. Phrase structure parsing and the island constraints. *Linguistics and Philosophy* 6. 163–223.

Frey, Werner. 2003. Syntactic conditions on adjunct classes. In Ewald Lang, Claudia Maienborn & Cathrine Fabricius-Hansen (eds.), *Modifying Adjuncts*, 163–209. Berlin: Mouton de Gruyter.

Frey, Werner. 2011. Peripheral adverbial clauses, their licensing and the prefield in German. In Eva Breindl, Gisella Ferraresi & Anna Volodina (eds.), *Satzverknüpfung – zur Interaktion von Form, Bedeutung und Diskursfunktion*, 41–77. Berlin: de Gruyter.

Frey, Werner. 2012. On two types of adverbial clauses allowing root-phenomena. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.), *Main Clause phenomena: New horizons*, 405–429. Amsterdam: Benjamins.

Frey, Werner & Hubert Truckenbrodt. 2015. Syntactic and prosodic integration and disintegration in peripheral adverbial clauses and in right dislocation/afterthought. In Andreas Trotzke & Josef Bayer (eds.), *Syntactic Complexity across Interfaces*, 75–106. Berlin: Mouton de Gruyter.

Gallego, Ángel J. 2010. *Phase theory*. Amsterdam, Philadelphia: John Benjamins.

Gallego, Ángel J. & Juan Uriagereka. 2006. *Sub-extraction from subjects*. Ms., University of Barcelona and University of Maryland.

Gazdar, Gerald. 1981. Unbounded dependencies and coordinate structures. *Linguistic Inquiry* 12. 155–184.

Geis, Michael L. 1970. *Adverbial subordinate clauses in English.* Cambridge, MA: MIT dissertation.

Gibson, Edward. 1998. Linguistic complexity: Locality of syntactic dependencies. *Cognition* 68(1). 1–76.

Gibson, Edward. 2000. The dependency locality theory: A distance-based theory of linguistic complexity. In Alec P. Marantz, Yasushi Miyashita & Wayne O'Neil (eds.), *Image, Language, Brain*, 95–126. Cambridge, MA: MIT Press.

Gibson, Edward & K. Ko. 1998. *An integration-based theory of computational resources insentence comprehension*. Paper presented at the Fourth Architectures and Mechanisms in Language Processing Conference, University of Freiburg, Germany.

Gibson, Edward & Tessa Warren. 2004. Reading-time evidence for intermediate linguistic structure in long-distance dependencies. *Syntax* 7. 55–78.

Gillon, Brendan. 2006. *English relational words, context sensitivity and implicit arguments*. Ms., McGill University.

Goldberg, Adele. 2006. *Constructions at work. The nature of generalization in language*. New York: Oxford University Press.

Goldberg, Adele. 2013. Backgrounded constituents cannot be extracted. In Jon Sprouse & Norbert Hornstein (eds.), *Experimental syntax and island effects*, 221–238. Cambridge: Cambridge University Press.

Goodall, Grant. 2015. The D-linking effect on extraction from islands and non-islands. *Frontiers in Psychology* 5:1493. DOI: https://doi:10.3389/fpsyg.2014.01493.

Graf, Thomas. 2013. *The Syntactic Algebra of Adjuncts*. Talk given at CLS 49, April 18–20, University of Chicago, Chicago, IL.

Green, Jeffrey J. 2018. *Adjunct control: Syntax and processing.* College Park: University of Maryland dissertation.

Grodner, Daniel & Edward Gibson. 2005. Consequences of the serial nature of linguistic input for sentenial complexity. *Cognitive Science* 29(2). 261–290. DOI: https://doi.org/10.1207/s15516709cog0000_7.

Haegeman, Liliane. 1991/2009. Parenthetical adverbials: the radical orphanage approach. In Shuki Chiba, Akira Ogawa, Yasuaki Fuiwara, Norio Yamada, Osamu Koma & Takao Yagi (eds.), *Aspects of modern English linguistics: Papers presented to Masatomo Ukaji on his 60th Birthday*, 232–254. Tokyo: Kaitakushi. Republished in Benjamin Shaer, Philippa Cook, Werner Frey & Claudia Maienborn (eds.), *Dislocated elements in discourse*, 331–347. London: Routledge.

Haegeman, Liliane. 2003. Conditional clauses: External and internal syntax. *Mind & Language* 18(4). 317–339.

Haegeman, Liliane. 2004. The syntax of adverbial clauses and its consequences for topicalisation. In Martine Coene, Gretel De Cuyper & Yves D'hulst (eds.), *Current Studies in Comparative Romance Linguistics*, 61–90. Antwerp: University of Antwerp.

Haegeman, Liliane. 2006a. Argument fronting in English, Romance CLLD and the left periphery. In Raffaella Zanuttini, Héctor Campos, Elena Herburger & Paul Portner (eds.), *Cross-linguistic research in syntax and semantics: negation, tense and clausal architecture*, 27–52. Washington, DC: Georgetown University Press.

Haegeman, Liliane. 2006b. Clitic climbing and the dual status of *sembrare*. *Linguistic Inquiry* 37. 484–501.

Haegeman, Liliane. 2006c. Conditionals, factives and the left periphery. *Lingua* 116. 1651–1669.

Haegeman, Liliane. 2010. The internal syntax of adverbial clauses. *Lingua* 120. 628–648.

Haegeman, Liliane. 2012. *Adverbial Clauses, Main Clause Phenomena, and the Composition of the Left Periphery*. Oxford: Oxford University Press.

Haegeman, Liliane, Ángel L. Jiménez-Fernández & Andrew Radford. 2014. Deconstructing the subject condition: Cumulative constraint violation and tolerance thresholds. *The Linguistic Review* 31. 73–150. DOI: https://doi.org/10.1515/tlr-2013-0022.

Hagström, Björn. 1976. Om satsflätans förutsättningar. En skiss [On the conditions for subextraction. A sketch]. In Lars Svensson, Anne Marie Wieselgren & Åke Hansson (eds.), *Nordiska studier i filologi och lingvistik. Festskrift tillägnad Gösta Holm på 60-årsdagen den 8 juli 1976*, 138–150. Lund: Studentlitteratur.

Haider, Hubert. 2000. Adverb placement – convergence of structure and licensing. *Theoretical Linguistics* 26. 95–134.

Hale, John. 2001. A probabilistic Earley parser as a psycholinguistic model. In *Proceedings of the second meeting of the North American Chapter of the Association for Computational Linguistics on Language technologies*, 159–166. Morristown, NJ: Association for Computational Linguistics.

Hansen, Erik & Lars Heltoft. 2011. *Grammatik over det danske sprog* [Danish reference grammar], vol. 3. København: Det danske Sprog- og Litteraturselskab: Syddansk universitetsforlag (komissionær).

Hawkins, John A. 1999. Processing complexity and filler-gap dependencies across grammars. *Language* 75(2). 244–285.

Heinat, Fredrik & Anna-Lena Wiklund. 2015. Scandinavian relative clause extraction. Apparent restrictions. *Working Papers in Scandinavian Syntax* 94. 36–50.

Hobbs, Jerry R. 1979. Coherence and coreference. *Cognitive Science* 3(1). 67–90.

Hofmeister, Philip & Ivan Sag. 2010. Cognitive constraints and island effects. *Language* 86. 366–415.

Hofmeister, Philip, Ivan Sag & Laura Staum Casasanto. 2012. How do individual cognitive differences relate to acceptability judgments? A reply to Sprouse, Wagers, & Phillips. *Language* 88(2). 390–400.

Hofmeister, Philip, Laura Staum Casasanto & Ivan Sag. 2013. *Islands in the grammar? Standards of evidence*. In Jon Sprouse & Norbert Hornstein (eds.), *Experimental syntax and island effects,* 42–63. Cambridge: Cambridge University Press.

Holmberg, Anders. 2015. Verb second. In Artemis Alexiadou & Tibor Kiss (eds.), *Syntax: An International Handbook of Contemporary Syntactic Research*, 2nd edn., 343–384. Berlin: Walter de Gruyter.

Hooper, Joan B. & Sandra A. Thompson. 1973. On the Applicability of Root Transformations. *Linguistic Inquiry* 4. 465–497.

Hornstein, Norbert. 1990. *As Time Goes By*: *Tense and Universal Grammar*. Cambridge, MA: The MIT Press.

Hornstein, Norbert. 2009. *A theory of syntax: Minimal operations and Universal Grammar*. Cambridge; New York: Cambridge University Press.

Hornstein, Nobert & Jairo Nunes. 2008. Adjunction, labeling, and Bare Phrase Structure. *Biolinguistics* 2(1). 57–86.

Hrafnbjargarson, Gunnar Hrafn, Kristine Bentzen & Anna-Lena Wiklund. 2010. Observations on extraction from V2 clauses in Scandinavian. *Nordic Journal of Linguistics* 33. 299–309.

Huang, James C.-T. 1982. *Logical relations in Chinese and the theory of grammar.* Cambridge, MA: MIT dissertation.

Hunter, Tim. 2010. *Relating movement and adjunction in syntax and semantics.* College Park: University of Maryland dissertation.

Hunter, Tim & Robert Frank. 2014. Eliminating rightward movement: Extraposition as flexible linearization of adjuncts. *Linguistic Inquiry* 45(2). 227–267.

Iatridou, Sabine. 1991. *Topics in Conditionals.* Cambridge, MA: MIT dissertation.

Jackendoff, Ray. 1977. *X-bar Syntax: A Study of Phrase Structure*. Cambridge, MA: MIT Press.

Jackendoff, Ray. 2007. *Language, consciousness, culture: Essays on mental structure.* Cambridge, MA: MIT Press.

Jensen, Anne. 1998. *Knudekonstruktioner - en syntaktisk, semantisk og pragmatisk analyse av sætningsknuder i dansk.* Copenhagen: Københavns Universitet M.A. Thesis.

Jensen, Anne. 2001. Sentence intertwining in Danish. In Elisabeth Engberg-Pedersen & Peter Harder (eds.), *Ikonicitet og struktur*, 23–39. Copenhagen: Netværk for Funktionel Lingvistik, Department of English, University of Copenhagen.

Jin, Dawei. 2014. Coherence and extraction from adjuncts in Chinese. In Ronald de Haan (ed.), *Proceedings of the ESSLLI 2014 Student Session*, 88–98.

Jin, Dawei. 2015. Coherence relation and clause linkage: Towards a discourse approach to adjunct islands in Chinese. *Studies in Language* 39(2). 424–458. DOI: https://doi.org/10.1075/sl.39.2.05jin.

Johnson, Kyle. 1988. Clausal gerunds, the ECP and government. *Linguistic Inquiry* 19. 583–609.

Johnson, Kyle. 2003. Towards an etiology of adjunct islands. *Nordlyd* 31. 187–215.

Johnson, Kyle & Sten Vikner. 1994. The position of the verb in Scandinavian infinitives. *Working Papers in Scandinavian Syntax* 53. 61–84.

Johnston, Michael. 1994. *The syntax and semantics of adverbial adjuncts*. Santa Cruz: University of California dissertation.

Julien, Marit. 2015. The force of V2 revisited. *The Journal of Comparative Germanic Linguistics* 18(2). 139–181.

Jurka, Johannes. 2010. *The importance of being a complement: CED effects revisited.* College Park: University of Maryland dissertation.

Kaan, Edith. 2002. Investigating the effects of distance and number interference in processing subject-verb dependencies: an ERP study. *Journal of Psycholinguistic Research* 31. 165–193.

Kamide, Yuki, Gerry T. M. Altmann & Sarah L. Haywood. 2003. The time-course of prediction in incremental sentence processing: Evidence from anticipatory eye movements. *Journal of Memory and Language* 49(1). 133–156. DOI: https://doi.org/10.1016/S0749-596X(03)00023-8.

Karimi, Hossein & Fernanda Ferreira. 2016. Good-enough linguistic representations and online cognitive equilibrium in language processing. *Quarterly Journal of Experimental Psychology* 69(5). 1013–1040. DOI: https://doi.org/10.1080/17470218.2015.1053951.

Kehler, Andrew. 2002. *Coherence, reference, and the theory of grammar*. Stanford, CA: CSLI Publications.

Keshev, Maayan & Aya Meltzer-Asscher. 2018. A processing-based account of subliminal wh-island effects. *Natural Language & Linguistic Theory*. DOI: https://doi.org/10.1007/s11049-018-9416-1.

Kim, Boyoung & Grant Goodall. 2014. An experimental investigation of island effects in Korean. In Michael Kenstowicz, Theodore Levin & Ryo Masuda (eds.), *Japanese/Korean Linguistics*, vol. 23, 55–70. Stanford, CA: CSLI.

Kluender, Robert. 1991. *Cognitive constraints on variables in syntax*. San Diego: University of California dissertation.

Kluender, Robert. 1992. Deriving island constraints from principles of predication. In Helen Goodluck & Michel Rochemont (eds.), *Island constraints*, 223–258. Dordrecht: Kluwer.

Kluender, Robert. 1998. On the distinction between strong islands and weak islands: A processing perspective. In Peter W. Culicover & Louise McNally (eds.), *The limits of syntax* (Syntax and Semantics 29), 241–279. New York: Academic Press.

Kluender, Robert. 2004. Are subject islands subject to a processing account? In Vineeta Chand, Ann Kelleher, Angelo J. Rodríguez & Benjamin Schmeiser (eds.), *Proceedings of the 23rd West Coast Conference on Linguistics*, 475–499. Somerville, MA: Cascadilla Proceedings Project.

Kluender, Robert & Marta Kutas. 1993. Subjacency as a processing phenomenon. *Language and Cognitive Processes* 8. 573–633.

Koeneman, Olaf & Hedde Zeijlstra. 2014. The Rich Agreement Hypothesis Rehabilitated. *Linguistic Inquiry* 45(4). 571–615. DOI: https://doi.org/10.1162/LING_a_00167.

Koster, Jan. 1978. Why subject sentences don't exist. In Samuel J. Keyser (ed.), *Recent transformational studies in European languages*, 53–64. Cambridge, MA: MIT Press.

Kristensen, Line B., Engberg-Pedersen, Elisabeth & Poulsen, Mads. 2014: Context improves comprehension of fronted objects. *Journal of Psycholinguistic Research* 43(2). 125–140. DOI: https://doi.org/10.1007/s10936-013-9241-y.

Kush, Dave, Terje Lohndal & Jon Sprouse. 2018. Investigating variation in island effects: A case study of Norwegian Wh-extraction. *Natural Language & Linguistic Theory* 36(3). 743–779. DOI: https://doi.org/10.1007/s11049-017-9390-z.

Landau, Idan. 1999. Psych-adjectives and semantic selection. *The Linguistic Review* 16. 333–358.

Landau, Idan. 2000. *Elements of Control: Structure and meaning in infinitival constructions*. Dordrecht: Kluwer.

Landau, Idan. 2001. Control and extraposition: the case of Super-Equi. *Natural Language & Linguistic Theory* 19. 109–152. DOI: https://doi.org/10.1023/A:1006485514817.

Landau, Idan. 2004. The scale of finiteness and the calculus of control. *Natural Language & Linguistic Theory* 22. 811–877. DOI: https://doi.org/10.1007/s11049-004-4265-5.

Landau, Idan. 2010. The explicit syntax of implicit arguments. *Linguistic Inquiry* 41 (3). 357–388. DOI: https://doi.org/10.1162/LING_a_00001.

Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19. 335–391.

Larson, Richard K. 1990. Extraction and multiple selection in PP. *The Linguistic Review* 7. 169–182.

Larson, Richard K. & Miyuki Sawada. 2012. Root transformations & quantificational structure. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.), *Main Clause Phenomena: New Horizons*, 47–77. Amsterdam: John Benjamins.

Lasnik, Howard & Mamoru Saito. 1992. *Move α. Conditions on Its Applications and Output*. Cambridge, MA: MIT Press.

Lasnik, Howard, Juan Uriagereka & Cedric Boeckx. 2005. *A Course in Minimalist Syntax*. Oxford: Blackwell.

Lee, Yong-hun. 2018. Scrambling and island constraints in Korean: An experimental approach. *Linguistic Research* 35(3). 483–511. DOI: http://dx.doi.org/10.17250/khisli.35.3.201812.003.

Levy, Roger. 2008. Expectation-based syntactic comprehension. *Cognition* 106(3). 1126–1177. DOI: https://doi.org/10.1016/j.cognition.2007.05.006.

Lie, Svein. 1982. Discontinuous questions and subjacency in Norwegian. In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian language*, 193–203. Stockholm: Almqvist & Wiksell.

Lindahl, Filippa. 2014. Relative clauses are not always strong islands. *Working Papers in Scandinavian Syntax* 93. 1–25.

Lindahl, Filippa. 2017. *Extraction from relative clauses in Swedish*. Gothenburg: University of Gothenburg dissertation.

Lindstedt, Torvald. 1926. Om satssammanflätning i svenskan. *Nysvenska studier* 6. 1–20.

Lobo, Maria. 2002. On the structural position of non-peripheral adjunct clauses. *Journal of Portuguese Linguistics* 1(1). 83–118. DOI: http://doi.org/10.5334/jpl.49.

Lohndal, Terje. 2014. Sentential subjects: Topics or real subjects? In Robert E. Santana-LaBarge (ed.), *Proceedings of the 31st West Coast Conference on Formal Linguistics*, 315–324. Somerville, MA: Cascadilla Proceedings Project.

Maling, Joan. 1978. An asymmetry with respect to Wh-islands. *Linguistic Inquiry* 9(1). 75–89.

Maling, Joan & Annie Zaenen. 1982. A phrase structure account of Scandinavian extraction phenomena. In Pauline Jacobson & Geoffrey K. Pullum (eds.), *The nature of syntactic representation*, 229–282. Dordrecht: Reidel.

Mancini, Simona. 2018. *Features and processing in agreement*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Manzini, Maria R. 1992. *Locality: A theory and some of its empirical consequences*. Cambridge: MIT Press.

Manzini, Maria R. 1995. *Adjuncts and the theory of phrase structure*. Ms., University of Florence.

McFadden, Thomas & Sandhya Sundaresan. 2014. Finiteness in South Asian languages: an introduction. *Natural Language & Linguistic Theory* 32(1). 1–27. DOI: https://doi.org/10.1007/s11049-013-9215-7.

McKinnon, Richard & Lee Osterhout 1996. Constraints on movement phenomena in sentence processing: Evidence from event-related potentials. *Language and Cognitive Processes* 11. 495–523.

McRae, Ken, Michael J. Spivey-Knowlton & Michael K.Tanenhaus. 1998. Modeling the effect of thematic fit (and other constraints) in on-line sentence comprehension. *Journal of Memory and Language* 38(3). 283–312. DOI: https://doi.org/10.1006/jmla.1997.2543

Merchant, Jason. 2001. *The syntax of silence*. Oxford: Oxford University Press.

Miyamoto, Yoichi. 2012. On transparent adjuncts in Japanese. In Myriam Uribe-Etxebarria & Vidal Valmala (eds.), *Ways of Structure Building*, 330–336. Oxford: Oxford University Press.

Moens, Marc & Mark Steedman. 1988. Temporal ontology and temporal reference. *Computational Linguistics* 14. 15–28.

Moro, Andrea. 2000. *Dynamic antisymmetry*. Cambridge, MA: MIT Press.

Müller, Christiane. 2015. Against the Small Clause Hypothesis: Evidence from Swedish relative clause extractions. *Nordic Journal of Linguistics* 38(1). 67–92. DOI: https://doi.org/10.1017/S0332586515000062.

Müller, Gereon. 1995. *A-bar Syntax. A study in movement types*. Berlin: Mouton de Gruyter.

Müller, Gereon. 2010. On deriving CED effects from the PIC. *Linguistic Inquiry* 41(1). 35–82.

Namboodiripad, Savithry & Grant Goodall. 2015. *On the universality of adjunct islands: Evidence from Malayalam*. Poster presented at 28th Annual CUNY Conference on Human Sentence Processing. Los Angeles, California.

Narita, Hiroki. 2011. *Phasing in full interpretation.* Cambridge, MA: Harvard dissertation.

Needham, Stephanie & Ida Toivonen. 2011. Derived arguments. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG11 Conference*, 401–421. Stanford, CA: CSLI Publications.

Nissenbaum, Jonathan W. 2000. *Investigations of covert phrase movement*. Cambridge, MA: MIT dissertation.

Norman, Geoff. 2010. Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education* 15(5). 625–632. DOI: https://doi.org/10.1007/s10459-010-9222-y.

Nunes, Jairo & Juan Uriagereka. 2000. Cyclicity and extraction domains. *Syntax* 3(1). 20–43.

Nyvad, Anne Mette, Ken Ramshøj Christensen & Sten Vikner. 2017. CP-recursion in Danish: A cP/CP-analysis. *The Linguistic Review* 34(3). 449–477. DOI: https://doi.org/10.1515/tlr-2017-0008.

Omaki, Akira, Ellen F. Lau, Imogen Davidson White, Myles L. Dakan, Aaron Apple & Colin Phillips. 2015. Hyper-active gap filling. *Frontiers in Psychology* 6. 384. DOI: https://doi.org/10.3389/fpsyg.2015.00384.

Omaki, Akira & Barbara Schulz. 2011. Filler-gap dependencies and island constraints in second-language sentence processing. *Studies in Second Language Acquisition* 33(4). 563–588. DOI: https://doi.org/10.1017/S0272263111000313.

Oseki, Yohei. 2015. Eliminating Pair-Merge. In Ulrike Steindl et al. (eds.), *Proceedings of the 32nd West Coast Conference on Formal Linguistics*, 303–312. Somerville, MA: Cascadilla Proceedings Project.

Pell, Godfrey. 2005. Use and misuse of Likert scales. *Medical Education* 39(9), 970–970. DOI: https://doi.org/10.1111/j.1365-2929.2005.02237.x.

Pesetsky, David. 1987. *Wh*-in-situ: Movement and unselective binding. In Eric J. Reuland & Alice ter Meulen (eds.), *The representation of (in)definiteness*, 98–129. Cambridge, MA: MIT Press.

Pesetsky, David. 1995. *Zero syntax*. Cambridge, MA: MIT Press.

Phillips, Colin. 2006. The real-time status of island phenomena. *Language* 82(4). 795–823. DOI: https://doi.org/10.1353/lan.2006.0217.

Phillips, Colin. 2013a. On the nature of island constraints. I: Language processing and reductionist accounts. In Jon Sprouse & Norbert Hornstein (eds.), *Experimental syntax and island effects*, 64–108. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139035309.005.

Phillips, Colin. 2013b. Some arguments and non-arguments for reductionist accounts of syntactic phenomena. *Language and Cognitive Processes* 28. 156–187.

Pietroski, Paul. 2005. *Events and Semantic Interpretation*. Oxford: Oxford University Press.

Pires, Acrisio. 2001. Clausal and TP-defective gerunds: Control without Tense. In Minjoo Kim & Uri Strauss (eds.), *Proceedings of NELS 31*, 384–406. Amherst: GLSA.

Pires, Acrisio. 2007. The derivation of clausal gerunds. *Syntax* 10(2). 165–203.

Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20. 365–424.

Poole, Ethan. 2017. *Movement and the semantic type of traces*. Amherst: University of Massachusetts dissertation.

Postal, Paul M. 1998. *Three investigations of extraction*. Cambridge, MA: MIT Press.

Poulsen, Mads. 2008. Acceptability and processing of long-distance dependencies in Danish. *Nordic Journal of Linguistics* 31(1). 73–107.

Pritchett, Bradley L. 1991. Subjacency in a principle-based parser. In Robert C. Berwick, Steven P. Abney & Carol Tenny (eds.), *Principle-based parsing: Computation and psycholinguistics*, 301–345. Dordrecht: Kluwer.

Progovac, Ljiljana. 2003. Structure for coordination. In Lisa Cheng & Rint Sybesma (eds.), *The Second GLOT International State-of-the-Article Book: The Latest in Linguistics*, 241–88. The Hague: de Gruyter.

Progovac, Ljiljana. 2009. Sex and syntax: Subjacency revisited. *Biolinguistics* 3(2–3). 305–336.

Progovac, Ljiljana. 2015. *Evolutionary Syntax*. Oxford: Oxford University Press.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A comprehensive grammar of the English language.* London/New York: Longman.

Rackowski, Andrea & Norvin Richards. 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry* 36(4). 565–599. DOI: https://doi.org/10.1162/002438905774464368.

Ramchand, Gillian. 2008. *Verb meaning and the lexicon*. Cambridge: Cambridge University Press.

Raposo, Eduardo. 2002. Nominal gaps with prepositional modifiers in Portuguese and Spanish: A case for Quick Spell-Out. *Cuadernos de Lingüística del I. U. Ortega y Gasset* 9. 127–144.

Ratcliff, Roger. 1993. Methods for dealing with reaction time outliers. *Psychological Bulletin* 114(3). 510–532.

Reeve, Matthew. 2019. An agreement-based analysis of extraction from nominals. *Natural Language & Linguistic Theory* 37(1), 263–314. DOI: https://doi.org/10.1007/s11049-018-9406-3.

Richards, Norvin. 1998. The Principle of Minimal Compliance. *Linguistic Inquiry* 29. 599–629.

Richards, Norvin. 2001. *Movement in language: interactions and architectures*. Oxford: Oxford University Press.

Rizzi, Luigi. 1982. *Issues in Italian syntax.* Dordrecht: Foris.

Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, MA: MIT Press.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.), *Elements of Grammar. Handbook in Generative Syntax*, 281–337. Dordrecht: Kluwer.

Rizzi, Luigi. 2013. Locality. *Lingua* 130. 169–186.

Rohde, Hannah. 2008. *Coherence-driven effects in sentence and discourse processing.* San Diego: UC San Diego dissertation.

Rohde, Hannah, Roger Levy & Andrew Kehler. 2011. Anticipating explanations in relative clause processing. *Cognition* 118(3). 339–358. DOI: https://doi.org/10.1016/j.cognition.2010.10.016.

Ros, Hannah. 2005. *Functional phrase structure: integrating functional ideas in generative adverbial syntax.* Ghent: Ghent University dissertation.

Ross, John R. 1967. *Constraints on variables in syntax.* Cambridge, MA: MIT Ph.D. thesis.

Safir, Kenneth. 1985. *Syntactic Chains*. Cambridge: Cambridge University Press.

Sanford, Anthony J. & Patrick Sturt. 2002. Depth of processing in language comprehension: not noticing the evidence. *Trends in Cognitive Science* 6(9). 382–386. DOI: https://doi.org/10.1016/S1364-6613(02)01958-7.

Sawada, Miyuki & Richard K. Larson. 2004. Presupposition & root transforms in adjunct clauses. In Matthew Wolf & Keir Moulton (eds.), *Proceedings of NELS 34*. 517–528. Amherst, MA: GLSA.

Sheehan, Michelle. 2013. The resuscitation of CED. In Seda Kan, Claire Moore-Cantwell & Robert Staubs (eds.), *Proceedings of NELS 40*, 135–150. Amherst: GLSA.

Sheehan, Michelle & Wolfram Hinzen. 2011. Moving towards the edge. *Linguistic Analysis* 37. 405–458.

Sigurðsson, Halldór Ármann. 2004. The syntax of person, tense, and speech features. *Italian Journal of Linguistics/Rivista di Linguistica* 16. 219–251. [Special issue, edited by Valentina Bianchi and Ken Safir.]

Singmann, Henrik, Ben Bolker, Jake Westfall & Frederik Aust. 2018. *afex: Analysis of Factorial Experiments. R package version*, 0.20-2.

Speas, Maggy & Carol Tenny. 2003. Configurational properties of point of view roles. In Anna-Maria di Sciullo (ed.), *Asymmetry in grammar, vol. 1: syntax and semantics*, 315–344. Amsterdam: Benjamins.

Sprouse, Jon. 2007. *A program for experimental syntax: Finding the relationship between acceptability and grammatical knowledge*. College Park, MD: University of Maryland dissertation.

Sprouse, Jon, Ivano Caponigro, Ciro Greco & Carlo Cecchetto. 2016. Experimental syntax and the variation of island effects in English and Italian. *Natural Language & Linguistic Theory* 34. 307–344. DOI: https://doi.org/10.1007/s11049-015-9286-8.

Sprouse, Jon, Matthew W. Wagers & Colin Phillips. 2012. A test of the relation between working memory capacity and syntactic island effects. *Language* 88. 82–123.

Starke, Michal. 2001. *Move dissolves into merge: A theory of locality*. Geneva: University of Geneva Dissertation.

Stepanov, Arthur. 2001. Late adjunction and minimalist phrase structure. *Syntax* 4. 94–125.

Stepanov, Arthur. 2007. The end of CED? Minimalism and extraction domains. *Syntax*. 10(1). 80–126.

Stowe, Laurie A. 1986. Parsing WH-constructions: evidence for on-line gap-location. *Language and Cognitive Processes* 1(3). 227–245.

Stowell, Tim. 1981. *Origins of Phrase Structure*. Cambridge, MA: MIT Ph.D. thesis.

Stroik, Thomas. 1990. Adverbs as V-sisters. *Linguistic Inquiry* 21. 654–661.

Sundaresan, Sandhya & Thomas McFadden. 2009. Subject distribution in Tamil and other languages: Selection vs. Case. *Journal of South Asian Linguistics* 2(1). 5–34.

Szabolcsi, Anna. 2006. Strong vs. weak islands. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, 479–531. Oxford: Blackwell.

Szabolcsi, Anna & Marcel den Dikken. 2002. Islands. In Lisa Cheng & Rint Sybesma (eds.), *The Second Glot International State-of-the-Article Book*, 213–24. Berlin: Mouton de Gruyter.

Szabolcsi, Anna & Frans Zwarts. 1993. Weak islands and an algebraic semantics of scope taking. *Natural Language Semantics* 1(3). 235–284.

Szabolcsi, Anna & Frans Zwarts. 1997. Weak islands and an algebraic semantics for scope taking. In Anna Szabolcsi (ed.), *Ways of Scope Taking*, 217–262. Dordrecht: Kluwer.

Tabachnick, Barbara G. & Linda S. Fidell. 2007. *Using multivariate statistics*, 5th edn. Boston, MA: Allyn & Bacon.

Takahashi, Shoichi. 2010. The hidden side of clausal complements. *Natural Language & Linguistic Theory* 28. 343–380.

Talmy, Leonard. 1988. Force dynamics in language and cognition. *Cognitive Science 12*. 49–100.

Tanaka, Misako. 2015. *Scoping out of adjuncts. Evidence for the parallelism between QR and wh-movement.* London: UCL Doctoral thesis.

Taraldsen, Knut T. 1982. Extraction from relative clauses in Norwegian. In In Elisabeth Engdahl & Eva Ejerhed (eds.), *Readings on unbounded dependencies in Scandinavian languages*, 205–222. Stockholm: Almqvist & Wiksell.

Teleman, Ulf. 1967. Bisatser i talad svenska [Subordinate clauses in spoken Swedish]. In Gösta Holm (ed.), *Svenskt talspråk: fem studier*, 160–203. Stockholm: Almqvist & Wiksell.

Teleman, Ulf, Staffan Hellberg & Erik Andersson. 1999. *Svenska Akademiens Grammatik* [Swedish reference grammar], vol. 4. Stockholm: Svenska akademien.

Tellier, Christine. 1991. *Licensing Theory and French Parasitic Gaps*. Dordrecht: Kluwer.

Temme, Anne. 2014. German psych-adjectives. In Antonio Machicao y Priemer, Andreas Nolda & Athina Sioupi (eds.), *Zwischen Kern und Peripherie. Untersuchungen zu Randbereichen in Sprache und Grammatik*, 131–156. Berlin: De Gruyter.

Thorell, Olof. 1977. *Svensk grammatik* [Swedish grammar], 2nd edn. Stockholm: Esselte studium.

Thráinsson, Höskuldur. 1994. Icelandic. In Ekkehard König & Johan van der Auwera (eds.), *The Germanic languages*, 142–187. London: Routledge.

Thráinsson, Höskuldur. 1996. On the (non)-universality of functional projections. In Werner Abraham, Samuel D. Epstein, Höskuldur Thráinsson & Jan-Wouter Zwart (eds.), *Minimal ideas: Syntactic studies in the Minimalist framework*, 253–281. Amsterdam: John Benjamins.

Thráinsson, Höskuldur, Hjalmar P. Petersen, Jógvan í Lon Jacobsen & Zakaris Svabo Hansen. 2004. *Faroese. An overview and reference grammar*. Tórshavn: Føroya Fróðskaparfelag.

Traxler, Matthew J. & Martin J. Pickering. 1996. Plausibility and the processing of unbounded dependencies: An eye-tracking study. *Journal of Memory and Language* 35(3). 454–475.

Truswell, Robert. 2007. *Locality of Wh-Movement and the individuation of events.* London: UCL dissertation.

Truswell, Robert. 2009. Preposition stranding, passivisation, and extraction from adjuncts in Germanic. In Jeroen Van Craenenbroeck & Johan Rooryck (eds.), *Linguistic Variation Yearbook*, vol. 8, 131–177. Amsterdam: John Benjamins.

Truswell, Robert. 2011. *Events, phrases and questions*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199577774.001.0001.

Tutunjian, Damon, Fredrik Heinat, Eva Klingvall & Anna-Lena Wiklund. 2017. Processing relative clause extractions in Swedish. *Frontiers in Psychology* 8:2118. DOI: https://doi.org/10.3389/fpsyg.2017.02118.

Uriagereka, Juan. 1999. Multiple spell-out. In Samuel D. Epstein & Norbert Hornstein (eds.), *Working minimalism*, 251–282. Cambridge, MA: MIT Press.

Valmala, Vidal. 2009. On the position of central adverbial clauses. *ASJU* 43(1–2). 951–970.

van Riemsdijk, Henk C. 1978. *A Case Study in Syntactic Markedness: The binding nature of prepositional phrases*. Dordrecht: Foris.

Van Valin, Robert D. 1994. Extraction restrictions, competing theories and the argument from the poverty of the stimulus. In Susan D. Lima, Roberta L. Corrigan & Gregory K. Iverson (eds.), *The reality of linguistic rules* (Studies in Language Companion Series 26), 243–259. Philadelphia: Benjamins.

Van Valin, Robert D. 1996. Toward a functionalist account of so-called extraction constraints. In Betty Devrient, Louis Goossens & Johan van der Auwera (eds.), *Complex structures. A functionalist perspective*, 29–60. Berlin/New York: De Gruyter.

Van Valin, Robert D. 2005. *Exploring the syntax-semantics interface*. Cambridge: Cambridge University Press.

Van Valin, Robert D., Jr. & Randy J. LaPolla. 1997. *Syntax: Structure, meaning and function*. Cambridge: Cambridge University Press.

Vikner, Sten. 1995. *Verb movement and expletive subjects in the Germanic languages*. New York: Oxford University Press.

Vikner, Sten. 2017. CP-recursion and the derivation of verb second in Germanic main and embedded clauses. In Constantin Freitag, Oliver Bott & Fabian Schlotterbeck (eds.), *Two perspectives on V2. The invited talks of the DGfS 2016 workshop "V2 in grammar and processing: Its causes and its consequences"*, 1–26. Konstanz: Universität Konstanz.

Villata, Sandra, Luigi Rizzi & Julie Franck. 2016. Intervention effects and Relativized Minimality: New experimental evidence from graded judgments. *Lingua* 179. 76–96.

Wagers, Matthew W., Ellen Lau & Colin Phillips. 2009. Agreement attraction in comprehension: Representations and processes. *Journal of Memory and Language* 61(2). 206–237.

Wellander, Erik. 1948. *Riktig svenska: En handledning i svenska språkets vård* [Correct Swedish], 3rd edn. Stockholm: Norstedt.

Wessén, Elias. 1968. *Vårt svenska språk* [Our Swedish language]. Stockholm: Almqvist & Wiksell.

Wiklund, Anna-Lena. 2007. *The Syntax of Tenselessness: Tense/Mood/Aspect-Agreeing Infinitivals* (Studies in Generative Grammar 92). Berlin/New York: Mouton de Gruyter.

Wiklund, Anna-Lena, Kristine Bentzen, Gunnar H. Hrafnbjargarson & Þorbjörg Hróarsdóttir. 2009. On the distribution and illocution of V2 in Scandinavian that-clauses. *Lingua* 119. 1914–1938.

Wiklund, Anna-Lena, Fredrik Heinat, Eva Klingvall & Damon Tutunjian. 2017. An acceptability study of long-distance extractions in Swedish. In Linda Escobar, Vincenç Torrens, Teresa Parodi (eds.), *Language processing and disorders*, 103–120. Newcastle upon Tyne: Cambridge Scholars Publishing.

Williams, Alexander. 2015. *Arguments in syntax and semantics*. Cambridge: Cambridge University Press.

Williams, Edwin. 1994. *Thematic Structure in Syntax*. Cambridge, MA: MIT Press.

Willis, David. 2011. The limits of resumption in Welsh *wh*-dependencies. In Alain Rouveret (ed.), *Resumptive Pronouns at the Interfaces*, 189–222. Amsterdam: John Benjamins.

Wilson, Deirdre & Dan Sperber. 1998. Pragmatics and time. In Robyn Carston & Seiji Uchida (eds.), *Relevance theory: Applications and implications*, 1–22. Amsterdam: John Benjamins.

Wolf, Florian & Edward Gibson. 2006. *Coherence in natural language: Data structures and applications*. Cambridge, MA: MIT Press.

Wolff, Phillip. 2003. Direct causation in the linguistic coding and individuation of causal events. *Cognition* 88. 1–48. DOI: https://doi.org/10.1016/S0010-0277(03)00004-0.

Wurmbrand, Susi. 2001. *Infinitives: restructuring and clause structure*. Berlin: Mouton de Gruyter.

Wurmbrand, Susi. 2013. QR and selection: Covert evidence for phasehood. In Stefan Keine & Shayne Sloggett (eds.), *Proceedings of NELS 42*, 619–632. Amherst: GLSA.

Wurmbrand, Susi. 2014. Tense and Aspect in English Infinitives. *Linguistic Inquiry* 45(3). 403–447.

Wurmbrand, Susi. 2018. The cost of raising quantifiers. *Glossa* 3(1), 19. DOI: http://doi.org/10.5334/gjgl.329.

Yoshida, Masaya. 2006. *Constraints and mechanisms in long-distance dependency formation*. College Park: University of Maryland dissertation.

Zaenen, Annie. 1985. *Extraction rules in Icelandic*. New York: Garland.

Zagona, Karen. 2007. On the syntactic features of epistemic and root modals. In Luis Eguren & Olga Fernández-Soriano (eds.), *Coreference, modality and focus*, 221–236. Amsterdam: Benjamins.

Zyman, Erik. 2018. Quantifier Float as Stranding: Evidence from Janitzio P'urhepecha. *Natural Language & Linguistic Theory* 36(3). 991–1034. DOI: https://doi.org/10.1007/s11049-017-9393-9.

Appendix A. Questionnaire

Tack för att du vill delta i den här undersökningen!

Genom att svara på denna enkät bidrar du med data till en studie som jag genomför inom ramen för mitt doktorandprojekt. Innan du börjar med testet får du instruktioner om vad du ska göra.

Varje exempel i det här testet börjar med en kort beskrivning av en situation, följd av en liten dialog där dialogdeltagarna kallas A och B. Du ska bedöma om den *sista* meningen i varje dialog (den mening som är *kursiverad*) låter som en acceptabel mening i svenska, dvs. om en modersmålstalare av svenska skulle kunna säga en sådan mening. Du bedömmer meningarna på en skala från 1-5, där 1 motsvarar en mening som känns oacceptabel på svenska, och 5 motsvarar en mening som låter helt okej på svenska. 2, 3 och 4 motsvarar graderna av acceptabilitet mellan det mest oacceptabla (1) och det mest acceptabla (5). Du kan mata in ditt svar (ett värde mellan 1-5) där det står **"Bedömning:"**.

Du ska INTE bedöma meningarnas betydelse eller innehåll, utan bara om meningen låter möjlig på svenska eller inte. Till exempel beskriver mening b) nere en mycket sannolik situation, men de flesta svensktalande tycker att den är oacceptabel (i motsats till mening a)–och skulle inte använda den. Den skulle kunna bedömmas som en tvåa på den fem-gradiga skalan. Exempel c) däremot beskriver en osannolik och konstig situation, men om man skulle behöva beskriva en sådan märklig situation (t.ex. i en science fiction-roman), skulle man kunna använda c) utan problem. Eftersom det finns sammanhang där mening c) skulle vara helt okej bör man bedöma den som 5.

a) Barnen dekorerade julgranen med små flaggor.
   (dålig) 1 2 3 4 **5** (bra)   (Bedömningen bör vara 5)
b) Barnen dekorerade små flaggor på julgranen.
   (dålig) 1 **2** 3 4 5 (bra)   (Bedömningen är exempelvis 2)
c) Den rosa elefanten spelade schack med den arga flodhästen.
   (dålig) 1 2 3 4 **5** (bra)   (Bedömningen bör vara 5)

Du ska INTE heller bedöma om meningarna är korrekta enligt "skolgrammatiken", alltså enligt reglerna som du kanske har lärt dig på gymnasiet. Du ska BARA bedöma om meningen låter som naturlig svenska som du eller andra svensktalande

skulle kunna använda (även om det kanske är mer sannolikt att man hör en sådan mening i talat språk än att man ser den i skriftspråket). Till exempel har du kanske lärt dig att ordet efter "gillar" i mening d) nedan borde vara "honom". Ändå är det ganska vanligt att säga "han" istället för "honom" och många svensktalande tycker att d) är en naturlig mening. Om man tycker att den låter okej men inte perfekt skulle bedömningen kunna vara 4.

d) Lisa sa att hon inte gillar han.
   (dålig) 1 2 3 **4** 5 (bra)   (Svaret skulle vara 4)

Slutligen: Vissa meningar i svenska är fullständigt acceptabla, även om de är ganska långa och komplexa. Mening e) nedan verkar kanske lite komplicerad först (och man kunde säkert ha uttryckt samma innhåll på ett enklare sätt), men du kommer förmodligen resonera att det är en möjlig mening i svenska (även om den är ganska lång) och bedöma den med 4 eller 5 (i motsats till b) ovan som är rätt kort, men helt klart dålig i svenska).

e) Presidenten förväntades att förklara vem säkerhetstjänsten trodde att nationen är hotad av när han anlände på en presskonferens i Mellanöstern.

Innan du börjar med testet får du ett exempel på hur en testenhet kan se ut (du behöver inte skriva en bedömning till den):

EXEMPEL
2 kompisar pratar om en konsert.
A: Jag vill gärna gå på den här konserten, har du lust att följa med? De spelar på fredag och på lördag!
B: Ja, gärna! Men jag tror att det får bli fredag i så fall. *Min syster sade att hon hade hört att konserten på lördag redan var slutsåld.*

Bedömning:

(Man ska alltså bedöma den kursiverade meningen "Min syster sade att hon hade hört att konserten på lördag redan var slutsåld" genom att ge den ett värde mellan 1 och 5)

2 vänner är på en gemensam semester i alperna och funderar på vilket berg de ska bestiga. Person A har ett förslag och pekar på ett berg på en karta:

A: Jag är lite sugen på att testa det här, det ser lite mer spännande ut än de andra bergen.

B: Tror du inte det blir för svårt? Du hörde väl vad guiden sa igår: *Det här berget måste man träna mycket för att man ska kunna bestiga!*

Bedömning:

En person berättar om en filmkväll för sin kompis.

A: Igår hade jag filmkväll med några kompisar. Först kollade vi på en disneyfilm och sen såg vi den nya filmen med Johnny Depp.

B: Vad trevligt! Tittade ni på någon mer film efter det?

A: Johnny-Depp-filmen slutade först klockan tio, och min sista buss gick kvart över tio. Så *den filmen fick jag gå hem efter att vi hade sett.*

Bedömning:

----

2 studenter pratar om sina läxor.

A: Jag tyckte de här övningarna var jättesvåra. Jag kunde inte alls göra dem.

B: Men har vi inte fått några hjälpmedel till dem?

A: Nej, här står det bara någonting om en bok som ska vara relevant. *Men den boken kunde jag inte lösa uppgifterna fastän jag hade läst.*

Bedömning:

----

2 personer sjunger väldigt högt på en fest hos A.

A: Vi får vara lite tystare. *Så här högt kommer mina grannar klaga om vi sjunger*!

Bedömning:

----

2 personer planerar en spellista med musik för en fest.

A: Tycker du vi ska ha denna låt efter huvudrätten?

B: Nej, *den där låten blir det alltid dålig stämning eftersom ingen gillar.*

Bedömning:

Person A beundrar en antik fåtölj som hans kompis B har köpt.

A: Den här ser väldigt unik ut, det måste ha varit svårt att få tag i den!

B: Ja, *den här fåtöljen fick vi åka till Göteborg för att jag skulle kunna köpa.*

----

2 elever pluggar för en tenta.

A: Det här förstår jag inte riktigt, kan du förklara det för mig igen?

B: Men vi hade ju jättemånga exempel på det här, kommer du inte ihåg?

A: Nej, *de här exemplen blev jag så uttråkad när vi gick igenom, så jag slutade lyssna*.

----

2 personer står i en affär och provar kläder.

A: Vad tycker du om de här byxorna? Tycker du jag ska köpa dem?

B: Helst inte! *De där byxorna kommer folk att skratta åt dig om du har på dig*!

----

2 personer pratar om en gemensam vän som har sökt jobb på en välrenommerad institution.

A: Jag hoppas verkligen att hon lyckas med ansökan; det vore ju perfekt för henne att bli anställd just där.

B: Ja, *där kommer hon jubla om hon får jobbet!*

----

2 personer pratar om en gemensam vän.

A: Annars berättar Lisa allting för mig, men jag vet fortfarande inte varför hon bara försvann i fredags!

B: Ja, *orsaken till det verkar det finnas en hemlighet eftersom hon inte vill berätta*.

----

2 personer har förfest och pratar om vilket vin de ska dricka.

A: Vilket vin ska vi dricka ikväll? Det vita eller det röda vinet som du har kvar?

B: Hellre det vita. *Det där röda vinet mådde jag lite illa efter att jag hade druckit sist.*

Bedömning:

----

2 vänner pratar om trädgårdskunskaper.
A: Jag vill så gärna bli bättre på att odla växter, men jag känner att jag fortfarande vet för lite.
B: Men har du läst den där boken om trädgårdstips som du fick låna av mig?
A: Ja, det har jag.
B: *Den boken borde du veta allt om plantor om du har läst!*

Bedömning:

----

2 personer ska ha filmkväll och försöker bestämma vilken film de ska titta på.
A: Ska vi titta på Titanic?
B: Helst inte... Jag är redan så nedstämd, och *den filmen börjar man alltid gråta efter att man har sett.*

Bedömning:

Person A ska flytta till en ny lägenhet o diskuterar inredningen med sin vän B.
B: Vet ni redan var ni ska ställa det stora vitrinskåpet?
A: Tyvärr inte… Jag tror att *det skåpet är det nya vardagsrummet för litet så att vi måste sälja.*

Bedömning:

Person A och B ska ta bussen på middag, men när de väl ska åka börjar det bli lite sent att hinna med bussen, så de bestämmer sig för att ta bilen.
A: Jag hoppas att vi hinner fram i tid. Jag vill inte gärna missa förrätten. Vilken tid stod det i inbjudan att middagen skulle börja? Var det klockan sju eller halv åtta?
B: Halv åtta tror jag.
A: Perfekt! *Klockan sju hade jag varit tvungen att köra som en dåre om vi skulle börja äta.*

Bedömning:

----

2 personer pratar om gårdagens biblioteksbesök med barnen och det faktum att nästan alla böcker av Astrid Lingdgren var utlånade.

A: Olle blev ju så himla ledsen. Emil i Lönneberga efterfrågade han inte ens men *Mio min Mio grät han eftersom han inte fick låna.*

Bedömning:

----

2 kollegor pratar om när de åker till jobbet på morgonen.

A: Du åker väl alltid med bussen kvart över sju? Det skulle vara alldeles för tidigt för mig...

B: Egentligen är det också för tidigt för mig. – *Den där bussen måste jag springa varje morgon för att jag ska hinna med.*

Bedömning:

----

2 elever pluggar för en tenta.

A: Det här förstår jag inte riktigt, kan du förklara det för mig igen?

B: Men vi hade ju jättemånga exempel på det här, kommer du inte ihåg?

A: Nej, *de här exemplen var jag sjuk när vi gick igenom*; så jag missade dem.

Bedömning:

Person A klagar på det regniga vädret, men hans kompis B håller inte med:

B: Jag gillar faktiskt regnväder, jag tycker det är ganska mysigt.

A: På allvar? *Det här vädret borde du bo i Norge om du gillar!*

Bedömning:

Person A klagar på att hennes plantor alltid dör.

B: Men har du testat det där gödningsmedlet som jag rekommenderade för dig?

A: Ja, men *det medlet dog mina blommor fastän de hade fått*!

Bedömning:

Person A är på en bal och försöker förklara för sin danspartner att det går för snabbt:

A: *Så här snabbt blir jag helt yr om du dansar med mig*!

----

2 personer har förfest och pratar om vilket vin de ska dricka
A: Vilket vin ska vi dricka ikväll? Det vita eller det röda vinet som du har kvar?
B: Vi kanske ska börja med det vita. *Det röda kan vi ju gå ut på stan efter att vi har druckit.*

Bedömning:

En person diskuterar med en vän vilken kaka han ska baka.
A: Jag är ansvarig för fredagskakan på jobbet imorgon; jag funderar fortfarande på vad jag ska baka.
B: Kanske den där chokladkakan som du gjorde för ett år sen?
A: Oh ja, vilken bra idé! *Den kakan blir jag väldigt populär om jag bakar igen.*

Bedömning:

----

2 studenter pratar om en föreläsning
A: Var du på föreläsningen imorse? Kan jag få dina anteckningar i så fall?
B: Nej, tyvärr… *Den föreläsningen sov jag för länge så att jag missade.*

Bedömning:

Person A är ansvarig för fredagsfikat på jobbet och frågar en vän var han borde köpa kaka:
A: Jag ska ta med kaka till fikat imorgon och tänkte köpa lite tårta på det nya konditoriet vid stationstorget. Tror du att det är en bra idé?
B: Absolut, gör det. De har så goda tårtor – *där blir du jättepopulär på jobbet om du köper tårta!*

Bedömning:

Person A undrar hur han ska köra för att komma till en viss stadsdel och frågar person B.
A: Kan man köra Södergatan?
B: Nej, *den gatan måste det ha hänt en bilolycka eftersom de har stängt av.*

Bedömning:

Appendix B. Critical items for Experiment 1

The following abbreviations are used in Appendices B–D:
C = coherent, NC = non-coherent, F = finite, NF = non-finite

Item	Coherence	Finiteness	Sentence
1	C	F	Den filmen rymde hon tydligen efter att hon hade kollat på. that movie-the ran-away she apparently after that she had watched on That movie, she apparently ran away after she had watched.
1	C	NF	Den filmen rymde hon tydligen efter att ha kollat på. that movie-the ran-away she apparently after to have watched on That movie, she apparently ran away after watching.
1	NC	F	Den filmen cyklade hon lite efter att hon hade kollat på. that movie-the biked she little after that she had watched on That movie, she biked a little after she had watched.
1	NC	NF	Den filmen cyklade hon lite efter att ha kollat på. that movie-the biked she little after to have watched on That movie, she biked a little after watching.
2	C	F	Det vinet ramlade hon rejält efter att hon hade druckit. that wine-the fall she sharply after that she had drunk That wine, she fell sharply after she had drunk.
2	C	NF	Det vinet ramlade hon rejält efter att ha druckit. that wine-the fell-over she sharply after to have drunk That wine, she fell over sharply after drinking.

2	NC	F	Det vinet badade hon lite efter att hon hade druckit. that wine-the bathed she little after that she had drunk That wine, she bathed a little after she had drunk.
2	NC	NF	Det vinet badade hon lite efter att ha druckit. that wine-the bathed she little after to have drunk That wine, she bathed a little after drinking.
3	C	F	Den ölen snubblade han dessvärre efter att han hade svept. that beer-the stumbled he unfortunately after that he had chugged That beer, unfortunately he stumbled after he had chugged.
3	C	NF	Den ölen snubblade han dessvärre efter att ha svept. that beer-the stumbled he unfortunately after to have chugged That beer, unfortunately he stumbled after chugging.
3	NC	F	Den ölen flanerade han lite efter att han hade svept. that beer-the strolled he little after that he had chugged That beer, he strolled a little after he had chugged.
3	NC	NF	Den ölen flanerade han lite efter att ha svept. that beer-the strolled he little after to have chugged That beer, he strolled a little after chugging.
4	C	F	Det problemet somnade hon faktiskt efter att hon hade löst. that problem-the fell-asleep she actually after that she had solved That problem, she actually fell asleep after she had solved.
4	C	NF	Det problemet somnade hon faktiskt efter att ha löst. that problem-the fell-asleep she actually after to have solved That problem, she actually fell asleep after solving.
4	NC	F	Det problemet sov hon lite efter att hon hade löst. that problem-the sleep she little after that she had solved That problem, he slept a little after she had solved.

4	NC	NF	Det problemet sov hon lite efter att ha löst.
			that problem-the slept she little after to have solved
			That problem, she slept a little after solving.
5	C	F	Den medicinen däckade han alltid efter att han hade tagit.
			that medicine-the fell-asleep he always after that he had taken
			That medicine, he always fell asleep after that he had taken.
5	C	NF	Den medicinen däckade han alltid efter att ha tagit.
			that medicine-the fell-asleep he always after to have taken
			That medicine, he always fell asleep after taking.
5	NC	F	Den medicinen stannade han lite efter att han hade tagit.
			that medicine-the stayed he little after that he had taken
			That medicine, he stayed for a while after he had taken.
5	NC	NF	Den medicinen stannade han lite efter att ha tagit.
			that medicine-the stayed he little after to have taken
			That medicine, he stayed for a while after taking.
6	C	F	Den artikeln försvann han faktiskt efter att han hade publicerat.
			that article-the disappeared he actually after that he had published
			That article, he actually disappeared after he had published.
6	C	NF	Den artikeln försvann han faktiskt efter att ha publicerat.
			that article-the disappeared he actually after to have published
			That article, he actually disappeared after publishing.
6	NC	F	Den artikeln solade han lite efter att han hade publicerat.
			that article-the sunbathed he little after that he had published
			That article, he sunbathed a little after he had published.

6	NC	NF	Den artikeln solade han lite efter att ha publicerat.
			that article-the sunbathed he little after to have published
			That article, he sunbathed a little after publishing.
7	C	F	Den behandlingen dog han faktiskt efter att han hade genomgått.
			that treatment-the died he actually after that he had gone-through
			That treatment, he actually died after he had gone through.
7	C	NF	Den behandlingen dog han faktiskt efter att ha genomgått.
			that treatment-the died he actually after to have gone-through
			That treatment, he actually died after going through.
7	NC	F	Den behandlingen dammsög han lite efter att han hade genomgått.
			that treatment-the vacuumed he little after that he had gone-through
			That treatment, he vacuumed a little after he had gone through.
7	NC	NF	Den behandlingen dammsög han lite efter att ha genomgått.
			that treatment-the vacuumed he little after to have gone-through
			That treatment, he vacuumed a little after going through.
8	C	F	Det programmet tystnade hon verkligen efter att hon hade hört.
			that program-the became-silent she really after that she had heard
			That program, she really became silent after she had heard.
8	C	NF	Det programmet tystnade hon verkligen efter att ha hört.
			that program-the became-silent she really after to have heard
			That program, she really became silent after hearing.
8	NC	F	Det programmet pluggade hon lite efter att hon hade hört.
			that program-the studied she little after that she had heard
			That program, she studied a little after she had heard.

8	NC	NF	Det programmet pluggade hon lite efter att ha hört.
			that program-the studied she little after to have heard
			That program, she studied a little after hearing.
9	C	F	Den bilen stack han såklart efter att han hade stulit.
			that car-the scrammed he of-course after that he had stolen
			That car, of course he scrammed after he had stolen.
9	C	NF	Den bilen stack han såklart efter att ha stulit.
			that car-the scrammed she of-course after to have stolen
			That car, of course he scrammed after stealing.
9	NC	F	Den bilen joggade han lite efter att han hade stulit.
			that car-the jogged he little after that he had stolen
			That car, he jogged a little after he had stolen.
9	NC	NF	Den bilen joggade han lite efter att ha stulit.
			that car-the jogged he little after to have stolen
			That car, he jogged a little after stealing.
10	C	F	Den matchen avvek hon tydligen efter att hon hade förlorat.
			that match-the departed she apparently after that she had lost
			That match, she apparently departed after she had lost.
10	C	NF	Den matchen avvek hon tydligen efter att ha förlorat.
			that match-the departed she aparently after to have lost
			That match, apparently she departed after losing.
10	NC	F	Den matchen tränade hon lite efter att hon hade förlorat.
			that match-the practiced she little after that she had lost
			That match, she practiced a little after she had lost.
10	NC	NF	Den matchen tränade hon lite efter att ha förlorat.
			that match-the practiced she little after to have lost
			That match, she practiced a little after losing.
11	C	F	Det förloppet exploderade han liksom efter att han hade genomlidit.
			that process-the exploded he like after that he had suffered-through
			That process, he like exploded after he had suffered through.

11	C	NF	Det förloppet exploderade han liksom efter att ha genomlidit.
			that process-the exploded he like after to have suffered-through
			That process, he like exploded after suffering through.
11	NC	F	Det förloppet skrev han lite efter att han hade genomlidit.
			that process-the wrote he little after that he had suffered-through
			That process, he wrote a little after he had suffered through.
11	NC	NF	Det förloppet skrev han lite efter att ha genomlidit.
			that process-the wrote he little after to have suffered-through
			That process, he wrote a little after suffering through.
12	C	F	Den rundan svimmade han dessvärre efter att han hade sprungit.
			that round-the fainted he unfortunately after that he had run
			That round, he unfortunately fainted after he had run.
12	C	NF	Den rundan svimmade han dessvärre efter att ha sprungit.
			that round-the fainted he unfortunately after to have run
			That round, he unfortunately fainted after running.
12	NC	F	Den rundan fikade han lite efter att han hade sprungit.
			tha round-the had-coffee he little after that he had run
			That round, he had some coffee after he had run.
12	NC	NF	Den rundan fikade han lite efter att ha sprungit.
			that round-the have-coffee he little after to have run
			That round, he had some coffee after running.
13	C	F	Det meddelandet veknade han faktiskt efter att han hade mottagit.
			that message-the softened he actually after that he had received
			That message, he actually softened after he had received.

13	C	NF	Det meddelandet veknade han faktiskt efter att ha mottagit. that message-the softened he actually after to have received That message, he actually softened after having receiving.
13	NC	F	Det meddelandet minglade han lite efter att han hade mottagit. that message-the mingled he little after that he had received That message, he mingled a little after he had received.
13	NC	NF	Det meddelandet minglade han lite efter att ha mottagit. that message-the mingled he little after to have received That message, he mingled a little after receiving.
14	C	F	Den fakturan bleknade hon tydligen efter att hon hade betalat. that bill-the turn-pale she apparently after that she had paid That bill, apparently she turned pale after she had paid.
14	C	NF	Den fakturan bleknade hon tydligen efter att ha betalat. that bill-the turn-pale she apparently after to have paid That bill, apparently she turned pale after paying.
14	NC	F	Den fakturan chattade hon lite efter att hon hade betalat. that bill-the chatted she little after that she had paid That bill, she chatted a little after she had paid.
14	NC	NF	Den fakturan chattade hon lite efter att ha betalat. that bill-the chatted she little after to have paid That bill, she chatted a little after paying.
15	C	F	Det kaffet vaknade han tydligen efter att han hade njutit. that coffee-the woke-up he apparently after to have enjoyed That coffee, apparently he woke up after he had enjoyed.
15	C	NF	Det kaffet vaknade han tydligen efter att ha njutit. that coffee-the woke-up he apparently after to have enjoyed That coffee, apparently he woke up after enjoying.

15	NC	F	Det kaffet mediterade han lite efter att han hade njutit.
			that coffee-the meditated he little after that he had enjoyed
			That coffee, he meditated a little after he had enjoyed.
15	NC	NF	Det kaffet mediterade han lite efter att ha njutit.
			that coffee-the meditated he little after to have enjoyed
			That coffee, he meditated a little after enjoying.
16	C	F	Den hemligheten rodnade hon faktiskt efter att hon hade berättat.
			that secret-the blushed she actually after that she had told
			That secret, she actually blushed after she had told.
16	C	NF	Den hemligheten rodnade hon faktiskt efter att ha berättat.
			that secret-the blushed she actually after to have told
			That secret, she actually blushed after telling.
16	NC	F	Den hemligheten bastade hon lite efter att hon hade berättat.
			that secret-the took-sauna she little after that she had told
			That secret, she took a sauna for a while after she had told.
16	NC	NF	Den hemligheten bastade hon lite efter att ha berättat.
			that secret-the took-sauna she little after to have told
			That secret, she took a sauna for a while after telling.
17	C	F	Den terapin tillfrisknade hon faktiskt efter att hon hade avslutat.
			that therapy-the recovered she actually after that she had finished
			That therapy, she actually recovered after she had finished.
17	C	NF	Den terapin tillfrisknade hon faktiskt efter att ha avslutat.
			that therapy-the recovered she actually after to have finished
			That therapy, she actually recovered after finishing.

17	NC	F	Den terapin reste hon lite efter att hon hade avslutat.
			that therapy-the travelled she little after that she had finished
			That therapy, she travelled a little after she had finished.
17	NC	NF	Den terapin reste hon lite efter att ha avslutat.
			that therapy-the travelled she little after to have finished
			That therapy, she travelled a little after finishing.
18	C	F	Den omröstningen avgick han tydligen efter att han hade sumpat.
			that vote-the resigned he apparently after that he had blown
			That vote, apparently he resigned after he had blown.
18	C	NF	Den omröstningen avgick han tydligen efter att ha sumpat.
			that vote-the resigned he apparently after to have blown
			That vote, she apparently resigned after blowing.
18	NC	F	Den omröstningen promenerade han lite efter att han hade sumpat.
			that vote-the strolled he little after that he had blown
			That vote, he strolled a little after he had blown.
18	NC	NF	Den omröstningen promenerade han lite efter att ha sumpat.
			that vote-the strolled he little after to have blown
			That vote, he strolled a little after blowing.
19	C	F	Det miraklet häpnade han verkligen efter att han hade upplevt.
			that miracle-the became-amazed he really after that he had experienced
			That miracle, he really became amazed after he had experienced.
19	C	NF	Det miraklet häpnade han verkligen efter att ha upplevt.
			that miracle-the became-amazed he really after to have experienced
			That miracle, he really became amazed after experiencing.

19	NC	F	Det miraklet simmade han lite efter att han hade upplevt.
			that miracle-the swam he little after he had experienced
			That miracle, she swam a little after she had experienced.
19	NC	NF	Det miraklet simmade han lite efter att ha upplevt.
			that miracle-the swam he little after to have experienced
			That miracle, she swam a little after experiencing.
20	C	F	Den vasen stack han såklart efter att han hade tappat.
			that vase-the scrammed he of-course after that he had dropped
			That vase, of course he scrammed after he had dropped.
20	C	NF	Den vasen stack han såklart efter att ha tappat.
			that vase-the scrammed he of-course after having dropped
			That vase, of course he scrammed after dropping.
20	NC	F	Den vasen chattade han lite efter att han hade tappat.
			that vase-the chatted he little after that he had dropped
			That vase, he chatted a little after he had dropped.
20	NC	NF	Den vasen chattade han lite efter att ha tappat.
			that vase-the chatted he little after to have dropped
			That vase, she chatted a little after dropping.
21	C	F	Den banan snubblade hon faktiskt efter att hon hade testat.
			that track-the stumbled she actually after that she had tested
			That track, she actually stumbled after she had testd.
21	C	NF	Den banan snubblade hon faktiskt efter att ha testat.
			that track-the stumbled she actually after to have tested
			That track, she actually stumbled after testing.
21	NC	F	Den banan simmade hon lite efter att hon hade testat.
			that track-the swam she little after that she had tested
			That track, she swam a little after she had tested.

21	NC	NF	Den banan simmade hon lite efter att ha testat.
			that track-the swam she little after to have tested
			That track, she swam a little after testing.
22	C	F	Den låten tystnade hon alltid efter att hon hade lyssnat på.
			that song-the became-silent she always after that she had listened on
			That song, she always became silent after she had listened to.
22	C	NF	Den låten tystnade hon alltid efter att ha lyssnat på.
			that song-the became-silent she always after to had listened on
			That song, she always became silent after listening to.
22	NC	F	Den låten vilade hon lite efter att hon hade lyssnat på.
			that song-the rested she little after that she had listened on
			That song, she rested a little after she had listened to.
22	NC	NF	Den låten vilade hon lite efter att ha lyssnat på.
			that song-the rested she little after having listened on
			That song, she rested a little after listening to.
23	C	F	Den idén rodnade hon verkligen efter att hon hade presenterat.
			that idea-the blushed she really after that she had presented
			That idea, she really blushed after she had presented.
23	C	NF	Den idén rodnade hon verkligen efter att ha presenterat.
			that idea-the blushed she really after to have presented
			That idea, she really blushed after presenting.
23	NC	F	Den idén flanerade hon lite efter att hon hade presenterat.
			that idea-the strolled she little after that she had presented
			That idea, she strolled a little after she had presented.
23	NC	NF	Den idén flanerade hon lite efter att ha presenterat.
			that idea-the strolled she little after to have presented
			That idea, she strolled a little after presenting.

24	C	F	Den skon ramlade hon dessvärre efter att hon hade klackat om. that shoe-the fell she unfortunately after that she had heeled about That shoe, she unfortunately fell after she had reheeled.
24	C	NF	Den skon ramlade hon dessvärre efter att ha klackat om. that shoe-the fell she unfortunately after having heeled about That shoe, she unfortunately fell after reheeling.
24	NC	F	Den skon fikade hon lite efter att hon hade klackat om. that shoe-the had-coffee she little after that she had heeled about That shoe, she had some coffee after she had reheeled.
24	NC	NF	Den skon fikade hon lite efter att ha klackat om. that shoe-the had-coffee she little after to have heeled about That shoe, she had some coffee after reheeling.
25	C	F	Det passet svimmade han ofta efter att han hade kört. that session-the fainted he often after that he had driven That session, he often fainted after he had done.
25	C	NF	Det passet svimmade han ofta efter att ha kört. that session-the fainted he often after to have driven That session, he often fainted after doing.
25	NC	F	Det passet bastade han lite efter att han hade kört. that session-the took-sauna he little after that he had driven That session, he took a sauna for a while after he had done.
25	NC	NF	Det passet bastade han lite efter att ha kört. that session-the took-sauna he little after to have driven That session, he took a sauna for a while after doing.
26	C	F	Det rummet slocknade han alltid efter att han hade städat. that room-the fell-asleep he always after that he had cleaned That room, he always fell asleep after he had cleaned.

26	C	NF	Det rummet slocknade han alltid efter att ha städat.
			that room-the fell-asleep he always after to have cleaned
			That room, he always fell asleep after cleaning.
26	NC	F	Det rummet stannade han lite efter att han hade städat.
			that room-the stayed he little after that he had cleaned
			That room, he stayed a little after he had cleaned.
26	NC	NF	Det rummet stannade han lite efter att ha städat.
			that room-the stayed he little after to have cleaned
			That room, he stayed a little after cleaning.
27	C	F	Det testet somnade han alltid efter att han hade genomfört.
			that test-the fell-asleep he always after that he had finished
			That test, he always fell asleep after he had finished.
27	C	NF	Det testet somnade han alltid efter att ha genomfört.
			that test-the fell-asleep he always after to have finished
			That test, he always fell asleep after finishing.
27	NC	F	Det testet mediterade han lite efter att han hade genomfört.
			that test-the meditated he little after that he had finished
			That test, he meditated a little after he had finished.
27	NC	NF	Det testet mediterade han lite efter att ha genomfört.
			that test-the meditated he little after to have completed
			That test, he meditated a little after completing.
28	C	F	Det mötet avgick hon tydligen efter att hon hade förstört.
			that meeting-the resigned she apparently after that she had ruined
			That meeting, apparently she resigned after she had ruined.
28	C	NF	Det mötet avgick hon tydligen efter att ha förstört.
			that meeting-the resigned she apparently after to have ruined
			That meeting, apparently she resigned after ruining.

28	NC	F	Det mötet joggade hon lite efter att hon hade förstört.
			that meeting-the jogged she little after that she had ruined
			That meeting, she jogged a little after she had ruined.
28	NC	NF	Det mötet joggade hon lite efter att ha förstört.
			that meeting-the jogged she little after to have ruined
			That meeting, she jogged a little after ruining.
29	C	F	Det brevet veknade han faktiskt efter att han hade hittat.
			that letter-the softened he actually after that he had found
			That letter, he actually softened after he had found.
29	C	NF	Det brevet veknade han faktiskt efter att ha hittat.
			that letter-the softened he actually after to have found
			That letter, he actually softened after finding.
29	NC	F	Det brevet promenerade han lite efter att han hade hittat.
			that letter-the strolled he little after that he had found
			That letter, he strolled a little after he had found.
29	NC	NF	Det brevet promenerade han lite efter att ha hittat.
			that letter-the strolled he little after to have found
			That letter, he strolled a little after finding.
30	C	F	Det gömstället häpnade hon verkligen efter att hon hade upptäckt.
			that hiding-place became-amazed she really after that she had discovered
			That hiding place, she really became amazed after she had discovered.
30	C	NF	Det gömstället häpnade hon verkligen efter att ha upptäckt.
			that hiding-place became-amazed she really after to have discovered
			That hiding place, she really became amazed after discovering.
30	NC	F	Det gömstället vilade hon lite efter att hon hade upptäckt.
			that hiding-place rested she little after that she had discovered
			That hiding place, she rested a little after she had discovered.

256

30	NC	NF	Det gömstället vilade hon lite efter att ha upptäckt.
			that hiding-place rested she little after to have discovered
			That hiding place, she rested a little after discovering.
31	C	F	Det avtalet bleknade han tydligen efter att han hade tecknat.
			that deal-the became-pale he apparently after that he had signed
			That deal, he apparently became pale after he had signed.
31	C	NF	Det avtalet bleknade han tydligen efter att ha tecknat.
			that deal-the became-pale he apparently after to have signed
			That deal, he apparently became pale after signing.
31	NC	F	Det avtalet reste han lite efter att han hade tecknat.
			that deal-the travelled he little after that he had signed
			That deal, he travelled a little after he had signed.
31	NC	NF	Det avtalet reste han lite efter att ha tecknat.
			that deal-the travelled he little after to have signed
			That deal, he travelled a little after signing.
32	C	F	Den vandringen slocknade hon säkert efter att hon hade gjort.
			that trek-the fell-asleep she surely after that she had done
			That trek, she surely fell asleep after she had done.
32	C	NF	Den vandringen slocknade hon säkert efter att ha gjort.
			that trek-the fell-asleep she surely after to have done
			That trek, she surely fell asleep after doing.
32	NC	F	Den vandringen cyklade hon lite efter att hon hade gjort.
			that trek-the biked she little after that she had done
			That trek, she biked a little after she had done.
32	NC	NF	Den vandringen cyklade hon lite efter att ha gjort.
			that trek-the biked she little after to have done
			That trek, she biked a little after doing.

33	C	F	Den sagan rymde hon alltid efter att hon hade läst.
			that fairy-tale-the ran-away she always after that she had read
			That fairy tale, she always ran away after that she had read.
33	C	NF	Den sagan rymde hon alltid efter att ha läst.
			that fairy-tale-the ran-away she always after to have read
			That fairy tale, she always ran away after reading.
33	NC	F	Den sagan badade hon lite efter att hon hade läst.
			that fairy-tale-the bathed she little after that she had read
			That fairy tale, bathed she little after she had read.
33	NC	NF	Den sagan badade hon lite efter att ha läst.
			that fairy-tale-the bathed she little after to have read
			That fairy tale, bathed she little after reading.
34	C	F	Den akten försvann hon tydligen efter att hon hade sett.
			that act-the disappeared she apparently after that she had seen
			That act, apparently she disappeared after she had seen.
34	C	NF	Den akten försvann hon tydligen efter att hon hade sett
			that act-the disappeared she apparently after that she had seen
			That act, apparently she disappeared after she had seen
34	NC	F	Den akten minglade hon lite efter att hon hade sett.
			that act-the mingled she little after that she had seen
			That act, she mingled a little after she had seen.
34	NC	NF	Den akten minglade hon lite efter att ha sett.
			that act-the mingled she little after to have seen
			That act, she mingled a little after seeing.
35	C	F	Den dieten tillfrisknade hon faktiskt efter att hon hade följt.
			that diet-the recovered she actually after that she had followed
			That diet, she actually recovered after she had followed.

35	C	NF	Den dieten tillfrisknade hon faktiskt efter att ha följt.
			that diet-the recovered she actually after to have followed
			That diet, she actually recovered after following.
35	NC	F	Den dieten tränade hon lite efter att hon hade följt.
			that diet-the trained she little after that she had followed
			That diet, she trained a little after she had followed.
35	NC	NF	Den dieten tränade hon lite efter att ha följt.
			that diet-the trained she little after to have followed
			That diet, she trained a little after following.
36	C	F	Den drinken däckade hon tydligen efter att hon hade provat.
			that drink-the passed-out she apparently after that she had tried
			That drink, apparently she passed out after she had tried.
36	C	NF	Den drinken däckade hon tydligen efter att ha provat.
			that drink-the passed-out she apparently after to have tried
			That drink, apparently she passed out after trying.
36	NC	F	Den drinken sov hon lite efter att hon hade provat.
			that drink-the slept she little after that she had tried
			That drink, she slept a little after she had tried.
36	NC	NF	Den drinken sov hon lite efter att ha provat.
			that drink-the slept she little after to have tried
			That drink, she slept a little after trying.
37	C	F	Den matteuppgiften vaknade hon verkligen efter att hon hade räknat.
			that maths-task-the woke-up she really after that she had calculated
			That maths task, she really woke up after she had calculated.
37	C	NF	Den matteuppgiften vaknade hon verkligen efter att ha räknat.
			that maths-task-the woke-up she really after to have calculated
			That maths task, she really woke up after calculating.

37	NC	F	Den matteuppgiften pluggade hon lite efter att hon hade räknat. that maths-task-the studied she little after that she had calculated That maths task, she studied a little after she had calculated.
37	NC	NF	Den matteuppgiften pluggade hon lite efter att ha räknat. that maths-task-the studied she little after to have calculated That maths task, she studied a little after calculating.
38	C	F	Den kommentaren exploderade han såklart efter att han hade noterat. that comment-the exploded he of-course after that he had noticed That comment, of course he exploded after he had noticed.
38	C	NF	Den kommentaren exploderade han såklart efter att ha noterat. that comment-the exploded he of-course after to have noticed That comment, of course he exploded after noticing.
38	NC	F	Den kommentaren solade han lite efter att han hade noterat. that comment-the sunbathed he little after he had noticed That comment, he sunbathed a little after he had noticed.
38	NC	NF	Den kommentaren solade han lite efter att ha noterat. that comment-the sunbathed he little after to have noticed That comment, he sunbathed a little after noticing.
39	C	F	Den svampen dog han faktiskt efter att han hade ätit. that mushroom-the died he actually after that he had eaten That mushroom, he actually died after he had eaten.
39	C	NF	Den svampen dog han faktiskt efter att ha ätit. that mushroom-the died he actually after to have eaten That mushroom, he actually died after eating.

39	NC	F	Den svampen dammsög han lite efter att han hade ätit. that mushroom-the vacuumed he little after that he had eaten That mushroom, he vacuumed a little after he had eaten.
39	NC	NF	Den svampen dammsög han lite efter att ha ätit. that mushroom-the vacuumed he little after to have eaten That mushroom, he vacuumed a little after eating.
40	C	F	Den domen avvek hon dessvärre efter att hon hade fått. that verdict-the absconded she unfortunately after that she had got That verdict, she unfortunately absconded after she had got.
40	C	NF	Den domen avvek hon dessvärre efter att ha fått. that verdict-the absconded she unfortunately after to have got That verdict, she unfortunately absconded after getting.
40	NC	F	Den domen skrev hon lite efter att hon hade fått. that verdict-the wrote she little after that she had got That verdict, she wrote a little after she had got.
40	NC	NF	Den domen skrev hon lite efter att ha fått. that verdict-the wrote she little after to have got That verdict, she wrote a little after getting.

Appendix C. Critical items for Experiment 2

Item	Coherence	Finiteness	Sentence
1	C	F	Which report did she suddenly vanish after she saw?
1	C	NF	Which report did she suddenly vanish after seeing?
1	NC	F	Which report did she shop a little after she saw?
1	NC	NF	Which report did she shop a little after seeing?
2	C	F	Which wine did she recently trip after she drank?
2	C	NF	Which wine did she recently trip after drinking?
2	NC	F	Which wine did she swim a little after she drank?
2	NC	NF	Which wine did she swim a little after drinking?
3	C	F	Which beer did he almost stumble after he chugged?
3	C	NF	Which beer did he almost stumble after chugging?
3	NC	F	Which beer did he stroll a little after he chugged?
3	NC	NF	Which beer did he stroll a little after chugging?
4	C	F	Which problem did she completely crash after she solved?
4	C	NF	Which problem did she completely crash after solving?
4	NC	F	Which problem did she sleep a little after she solved?
4	NC	NF	Which problem did she sleep a little after solving?
5	C	F	Which medicine did he completely blackout after he ingested?
5	C	NF	Which medicine did he completely blackout after ingesting?
5	NC	F	Which medicine did he play a little after he ingested?
5	NC	NF	Which medicine did he play a little after ingesting?

6	C	F	Which article did he suddenly disappear after he published?
6	C	NF	Which article did he suddenly disappear after publishing?
6	NC	F	Which article did he gossip a little after he published?
6	NC	NF	Which article did he gossip a little after publishing?
7	C	F	Which treatment did he suddenly die after he received?
7	C	NF	Which treatment did he suddenly die after receiving?
7	NC	F	Which treatment did he camp a little after he received?
7	NC	NF	Which treatment did he camp a little after receiving?
8	C	F	Which news did she suddenly swoon after she read?
8	C	NF	Which news did she suddenly swoon after reading?
8	NC	F	Which news did she jog a little after she read?
8	NC	NF	Which news did she jog a little after reading?
9	C	F	Which car did he abruptly vanish after he stole?
9	C	NF	Which car did he abruptly vanish after stealing?
9	NC	F	Which car did he party a little after he stole?
9	NC	NF	Which car did he party a little after stealing?
10	C	F	Which match did she briefly gasp after she won?
10	C	NF	Which match did she briefly gasp after winning?
10	NC	F	Which match did she exercise a little after she won?
10	NC	NF	Which match did she exercise a little after winning?
11	C	F	Which procedure did he practically implode after he endured?
11	C	NF	Which procedure did he practically implode after enduring?
11	NC	F	Which procedure did he relax a little after he endured?
11	NC	NF	Which procedure did he relax a little after enduring?
12	C	F	Which race did he suddenly faint after he ran?
12	C	NF	Which race did he suddenly faint after running?
12	NC	F	Which race did he snack a little after he ran?
12	NC	NF	Which race did he snack a little after running?

13	C	F	Which message did he quickly relent after he reviewed?
13	C	NF	Which message did he quickly relent after reviewing?
13	NC	F	Which message did he mingle a little after he reviewed?
13	NC	NF	Which message did he mingle a little after reviewing?
14	C	F	Which bill did she absolutely blanch after she viewed?
14	C	NF	Which bill did she absolutely blanch after viewing?
14	NC	F	Which bill did she chat a little after she viewed?
14	NC	NF	Which bill did she chat a little after viewing?
15	C	F	Which coffee did he quickly depart after he spilling?
15	C	NF	Which coffee did he quickly depart after spilling?
15	NC	F	Which coffee did he meditate a little after he enjoyed?
15	NC	NF	Which coffee did he meditate a little after enjoying?
16	C	F	Which story did she briefly blush after she told?
16	C	NF	Which story did she briefly blush after telling?
16	NC	F	Which story did she daydream a little after she told?
16	NC	NF	Which story did she daydream a little after telling?
17	C	F	Which therapy did she immediately recover after she finished?
17	C	NF	Which therapy did she immediately recover after finishing?
17	NC	F	Which therapy did she travel a little after she finished?
17	NC	NF	Which therapy did she travel a little after finishing?
18	C	F	Which vote did he immediately resign after he lost?
18	C	NF	Which vote did he immediately resign after losing?
18	NC	F	Which vote did he walk a little after he lost?
18	NC	NF	Which vote did he walk a little after losing?
19	C	F	Which phenomenon did he quickly convert after he experienced?
19	C	NF	Which phenomenon did he quickly convert after experiencing?

19	NC	F	Which phenomenon did he bathe a little after he experienced?
19	NC	NF	Which phenomenon did he bathe a little after experiencing?
20	C	F	Which vase did he quickly leave after he dropped?
20	C	NF	Which vase did he quickly leave after dropping?
20	NC	F	Which vase did he chat a little after he dropped?
20	NC	NF	Which vase did he chat a little after dropping?
21	C	F	Which weights did she briefly stumble after she lifted?
21	C	NF	Which weights did she briefly stumble after lifting?
21	NC	F	Which weights did she swim a little after she lifted?
21	NC	NF	Which weights did she swim a little after lifting?
22	C	F	Which song did she suddenly swoon after she performed?
22	C	NF	Which song did she suddenly swoon after performing?
22	NC	F	Which song did she rest a little after she performed?
22	NC	NF	Which song did she rest a little after performing?
23	C	F	Which idea did she completely blush after she presented?
23	C	NF	Which idea did she completely blush after presenting?
23	NC	F	Which idea did she stroll a little after she presented?
23	NC	NF	Which idea did she stroll a little after presenting?
24	C	F	Which shoe did she never trip after she repaired?
24	C	NF	Which shoe did she never trip after repairing?
24	NC	F	Which shoe did she snack a little after she repaired?
24	NC	NF	Which shoe did she snack a little after repairing?
25	C	F	Which activity did he practically faint after he finished?
25	C	NF	Which activity did he practically faint after finishing?
25	NC	F	Which activity did he jog a little after he finished?
25	NC	NF	Which activity did he jog a little after finishing?
26	C	F	Which room did he always collapse after he cleaned?
26	C	NF	Which room did he always collapse after cleaning?

26	NC	F	Which room did he play a little after he cleaned?
26	NC	NF	Which room did he play a little after cleaning?
27	C	F	Which task did he completely crash after he accomplished?
27	C	NF	Which task did he completely crash after accomplishing?
27	NC	F	Which task did he meditate a little after he accomplished?
27	NC	NF	Which task did he meditate a little after accomplishing?
28	C	F	Which conference did she suddenly resign after she attended?
28	C	NF	Which conference did she suddenly resign after attending?
28	NC	F	Which conference did she party a little after she attended?
28	NC	NF	Which conference did she party a little after attending?
29	C	F	Which letter did he quickly relent after he found?
29	C	NF	Which letter did he quickly relent after finding?
29	NC	F	Which letter did he walk a little after he found?
29	NC	NF	Which letter did he walk a little after finding?
30	C	F	Which cathedral did she suddenly convert after she discovered?
30	C	NF	Which cathedral did she suddenly convert after discovering?
30	NC	F	Which cathedral did she rest a little after she discovered?
30	NC	NF	Which cathedral did she rest a little after discovering?
31	C	F	Which factory did he completely blanch after he inspected?
31	C	NF	Which factory did he completely blanch after inspecting?
31	NC	F	Which factory did he travel a little after he inspected?
31	NC	NF	Which factory did he travel a little after inspecting?
32	C	F	Which trail did she recently collapse after she hiked?

32	C	NF	Which trail did she recently collapse after hiking?
32	NC	F	Which trail did she shop a little after she hiked?
32	NC	NF	Which trail did she shop a little after hiking?
33	C	F	Which tale did she immediately leave after she read?
33	C	NF	Which tale did she immediately leave after reading?
33	NC	F	Which tale did she bathe a little after she read?
33	NC	NF	Which tale did she bathe a little after reading?
34	C	F	Which event did she suddenly disappear after she witnessed?
34	C	NF	Which event did she suddenly disappear after witnessing?
34	NC	F	Which event did she mingle a little after she witnessed?
34	NC	NF	Which event did she mingle a little after witnessing?
35	C	F	Which diet did she instantly recover after she followed?
35	C	NF	Which diet did she instantly recover after following?
35	NC	F	Which diet did she exercise a little after she followed?
35	NC	NF	Which diet did she exercise a little after following?
36	C	F	Which drink did she completely blackout after she tried?
36	C	NF	Which drink did she completely blackout after trying?
36	NC	F	Which drink did she sleep a little after she tried?
36	NC	NF	Which drink did she sleep a little after trying?
37	C	F	Which assignment did she silently depart after she completed?
37	C	NF	Which assignment did she silently depart after completing?
37	NC	F	Which assignment did she daydream a little after she completed?
37	NC	NF	Which assignment did she daydream a little after completing?
38	C	F	Which mistake did he practically implode after he noticed?

38	C	NF	Which mistake did he practically implode after noticing?
38	NC	F	Which mistake did he gossip a little after he noticed?
38	NC	NF	Which mistake did he gossip a little after noticing?
39	C	F	Which mushroom did he suddenly die after he ate?
39	C	NF	Which mushroom did he suddenly die after eating?
39	NC	F	Which mushroom did he camp a little after he ate?
39	NC	NF	Which mushroom did he camp a little after eating?
40	C	F	Which rumor did she briefly gasp after she heard?
40	C	NF	Which rumor did she briefly gasp after hearing?
40	NC	F	Which rumor did she relax a little after she heard?
40	NC	NF	Which rumor did she relax a little after hearing?

Appendix D. Critical items for Experiment 3

Item	Coherence	Finiteness	English Sentence
1	C	F	Which report did she vanish shortly after she saw yesterday afternoon?
1	C	NF	Which report did she vanish shortly after seeing yesterday afternoon?
1	NC	F	Which report did she shop a little after she saw yesterday afternoon?
1	NC	NF	Which report did she shop a little after seeing yesterday afternoon?
2	C	F	Which wine did she trip right after she drank last night?
2	C	NF	Which wine did she trip right after drinking last night?
2	NC	F	Which wine did she swim a little after she drank last night?
2	NC	NF	Which wine did she swim a little after drinking last night?
3	C	F	Which beer did he stumble immediately after he chugged last night?
3	C	NF	Which beer did he stumble immediately after chugging last night?
3	NC	F	Which beer did he stroll a bit after he chugged last night?
3	NC	NF	Which beer did he stroll a bit after chugging last night?
4	C	F	Which problem did she crash immediately after she solved last night?
4	C	NF	Which problem did she crash immediately after solving last night?

4	NC	F	Which problem did she sleep a while after she solved last night?
4	NC	NF	Which problem did she sleep a while after solving last night?
5	C	F	Which medicine did he blackout right after he ingested yesterday?
5	C	NF	Which medicine did he blackout right after ingesting yesterday?
5	NC	F	Which medicine did he play a while after he ingested yesterday?
5	NC	NF	Which medicine did he play a while after ingesting yesterday?
6	C	F	Which article did he disappear shortly after he published last week?
6	C	NF	Which article did he disappear shortly after publishing last week?
6	NC	F	Which article did he gossip a bit after he published last week?
6	NC	NF	Which article did he gossip a bit after publishing last week?
7	C	F	Which treatment did he die shortly after he received in August?
7	C	NF	Which treatment did he die shortly after receiving in August?
7	NC	F	Which treatment did he camp a while after he received in August?
7	NC	NF	Which treatment did he camp a while after receiving in August?
8	C	F	Which news did she swoon immediately after she read yesterday morning?
8	C	NF	Which news did she swoon immediately after reading yesterday morning?
8	NC	F	Which news did she jog a little after she read yesterday morning?
8	NC	NF	Which news did she jog a little after reading yesterday morning?

9	C	F	Which car did he vanish shortly after he stole on Monday?
9	C	NF	Which car did he vanish shortly after stealing on Monday?
9	NC	F	Which car did he party a little after he stole on Monday?
9	NC	NF	Which car did he party a little after stealing on Monday?
10	C	F	Which match did she gasp right after she won this morning?
10	C	NF	Which match did she gasp right after winning this morning?
10	NC	F	Which match did she exercise a bit after she won this morning?
10	NC	NF	Which match did she exercise a bit after winning this morning?
11	C	F	Which procedure did he implode right after he endured yesterday?
11	C	NF	Which procedure did he implode right after enduring yesterday?
11	NC	F	Which procedure did he relax a while after he endured yesterday?
11	NC	NF	Which procedure did he relax a while after enduring yesterday?
12	C	F	Which race did he faint shortly after he ran last week?
12	C	NF	Which race did he faint shortly after running last week?
12	NC	F	Which race did he snack a little after he ran last week?
12	NC	NF	Which race did he snack a little after running last week?
13	C	F	Which message did he relent immediately after he reviewed yesterday afternoon?
13	C	NF	Which message did he relent immediately after reviewing yesterday afternoon?
13	NC	F	Which message did he mingle a while after he reviewed yesterday afternoon?

13	NC	NF	Which message did he mingle a while after reviewing yesterday afternoon?
14	C	F	Which bill did she blanch right after she viewed last night?
14	C	NF	Which bill did she blanch right after viewing last night?
14	NC	F	Which bill did she chat a bit after she viewed last night?
14	NC	NF	Which bill did she chat a bit after viewing last night?
15	C	F	Which coffee did he depart immediately after he spilled yesterday morning?
15	C	NF	Which coffee did he depart immediately after spilling yesterday morning?
15	NC	F	Which coffee did he meditate a while after he spilled yesterday morning?
15	NC	NF	Which coffee did he meditate a while after spilling yesterday morning?
16	C	F	Which story did she blush immediately after she told earlier today?
16	C	NF	Which story did she blush immediately after telling earlier today?
16	NC	F	Which story did she daydream a little after she told earlier today?
16	NC	NF	Which story did she daydream a little after telling earlier today?
17	C	F	Which therapy did she recover shortly after she finished last month?
17	C	NF	Which therapy did she recover shortly after finishing last month?
17	NC	F	Which therapy did she travel a while after she finished last month?
17	NC	NF	Which therapy did she travel a while after finishing last month?
18	C	F	Which vote did he resign shortly after he lost on Friday?
18	C	NF	Which vote did he resign shortly after losing on Friday?

18	NC	F	Which vote did he walk a little after he lost on Friday?
18	NC	NF	Which vote did he walk a little after losing on Friday?
19	C	F	Which phenomenon did he convert immediately after he experienced last Sunday?
19	C	NF	Which phenomenon did he convert immediately after experiencing last Sunday?
19	NC	F	Which phenomenon did he bathe a little after he experienced last Sunday?
19	NC	NF	Which phenomenon did he bathe a little after experiencing last Sunday?
20	C	F	Which vase did he leave immediately after he dropped yesterday afternoon?
20	C	NF	Which vase did he leave immediately after dropping yesterday afternoon?
20	NC	F	Which vase did he chat a bit after he dropped yesterday afternoon?
20	NC	NF	Which vase did he chat a bit after dropping yesterday afternoon?
21	C	F	Which weights did she stumble right after she lifted this morning?
21	C	NF	Which weights did she stumble right after lifting this morning?
21	NC	F	Which weights did she swim a while after she lifted this morning?
21	NC	NF	Which weights did she swim a while after lifting this morning?
22	C	F	Which song did she swoon shortly after she performed last night?
22	C	NF	Which song did she swoon shortly after performing last night?
22	NC	F	Which song did she rest a while after she performed last night?
22	NC	NF	Which song did she rest a while after performing last night?
23	C	F	Which idea did she blush right after she presented yesterday?

23	C	NF	Which idea did she blush right after presenting yesterday?
23	NC	F	Which idea did she stroll a bit after she presented yesterday?
23	NC	NF	Which idea did she stroll a bit after presenting yesterday?
24	C	F	Which shoe did he trip right after he repaired earlier today?
24	C	NF	Which shoe did he trip right after repairing earlier today?
24	NC	F	Which shoe did he snack a little after he repaired earlier today?
24	NC	NF	Which shoe did he snack a little after repairing earlier today?
25	C	F	Which activity did he faint immediately after he finished last night?
25	C	NF	Which activity did he faint immediately after finishing last night?
25	NC	F	Which activity did he jog a bit after he finished last night?
25	NC	NF	Which activity did he jog a bit after finishing last night?
26	C	F	Which room did he collapse immediately after he organizing on Friday?
26	C	NF	Which room did he collapse immediately after organizing on Friday?
26	NC	F	Which room did he play a while after he organizing on Friday?
26	NC	NF	Which room did he play a while after organizing on Friday?
27	C	F	Which task did he crash right after he accomplished yesterday morning?
27	C	NF	Which task did he crash right after accomplishing yesterday morning?
27	NC	F	Which task did he meditate a while after he accomplished yesterday morning?

27	NC	NF	Which task did he meditate a while after accomplishing yesterday morning?
28	C	F	Which conference did she resign immediately after she attended last month?
28	C	NF	Which conference did she resign immediately after attending last month?
28	NC	F	Which conference did she party a bit after she attended last month?
28	NC	NF	Which conference did she party a bit after attending last month?
29	C	F	Which letter did he relent right after he found yesterday?
29	C	NF	Which letter did he relent right after finding yesterday?
29	NC	F	Which letter did he walk a bit after he found yesterday?
29	NC	NF	Which letter did he walk a bit after finding yesterday?
30	C	F	Which cathedral did she convert shortly after she discovered last year?
30	C	NF	Which cathedral did she convert shortly after discovering last year?
30	NC	F	Which cathedral did she rest a bit after she discovered last year?
30	NC	NF	Which cathedral did she rest a bit after discovering last year?
31	C	F	Which factory did he blanch immediately after he inspected last week?
31	C	NF	Which factory did he blanch immediately after inspecting last week?
31	NC	F	Which factory did he travel a while after he inspected last week?
31	NC	NF	Which factory did he travel a while after inspecting last week?
32	C	F	Which trail did she collapse shortly after she hiked last weekend?
32	C	NF	Which trail did she collapse shortly after hiking last weekend?

32	NC	F	Which trail did she shop a little after she hiked last weekend?
32	NC	NF	Which trail did she shop a little after hiking last weekend?
33	C	F	Which tale did she leave shortly after she read yesterday evening?
33	C	NF	Which tale did she leave shortly after reading yesterday evening?
33	NC	F	Which tale did she bathe a while after she read yesterday evening?
33	NC	NF	Which tale did she bathe a while after reading yesterday evening?
34	C	F	Which event did she disappear right after she witnessed yesterday?
34	C	NF	Which event did she disappear right after witnessing yesterday?
34	NC	F	Which event did she mingle a bit after she witnessed yesterday?
34	NC	NF	Which event did she mingle a bit after witnessing yesterday?
35	C	F	Which diet did she recover immediately after she followed last month?
35	C	NF	Which diet did she recover immediately after following last month?
35	NC	F	Which diet did she exercise a bit after she followed last month?
35	NC	NF	Which diet did she exercise a bit after following last month?
36	C	F	Which drink did she blackout right after she tried last night?
36	C	NF	Which drink did she blackout right after trying last night?
36	NC	F	Which drink did she sleep a bit after she tried last night?
36	NC	NF	Which drink did she sleep a bit after trying last night?
37	C	F	Which assignment did she depart shortly after she completed this morning?

278

37	C	NF	Which assignment did she depart shortly after completing this morning?
37	NC	F	Which assignment did she daydream a little after she completed this morning?
37	NC	NF	Which assignment did she daydream a little after completing this morning?
38	C	F	Which mistake did he implode right after he noticed yesterday?
38	C	NF	Which mistake did he implode right after noticing yesterday?
38	NC	F	Which mistake did he gossip a little after he noticed yesterday?
38	NC	NF	Which mistake did he gossip a little after noticing yesterday?
39	C	F	Which mushroom did he die shortly after he ate last week?
39	C	NF	Which mushroom did he die shortly after eating last week?
39	NC	F	Which mushroom did he camp a while after he ate last week?
39	NC	NF	Which mushroom did he camp a while after eating last week?
40	C	F	Which rumor did she gasp immediately after she heard this morning?
40	C	NF	Which rumor did she gasp immediately after hearing this morning?
40	NC	F	Which rumor did she relax a little after she heard this morning?
40	NC	NF	Which rumor did she relax a little after hearing this morning?

Lundastudier i nordisk språkvetenskap. Serie A

Serie utgiven av Språk- och litteraturcentrum, Humanistiska och teologiska fakulteterna vid Lunds universitet. Redaktörer: Lisa Holm och Marit Julien.

38. Nils Jörgensen. Studier över syntax och textstruktur i nordiska medeltidssagor. 1987.

39. Barbro Lundin. Bisatser i små barns språk. En analys av fem barns första bisatser. 1987.

40. Carl-Erik Lundbladh. Adjektivens komparation i svenskan. En semantisk beskrivning. 1987.

41. Gertrud Pettersson (red.). Studier i svensk språkhistoria. 1988.

42. Lars-Johan Ekerot. Så-konstruktionen i svenskan. 1988.

43. Lena Ekberg. Gå till anfall och falla i sömn. En strukturell och funktionell beskrivning av abstrakta övergångsfaser. 1989.

44. Gunilla Byrman. Graviditetsuttryck i svenskan. 1989.

45. Herbert Davidsson. Han, hon, den. Genusutvecklingen i svenskan under nysvensk tid. 1990.

46. Gertrud Pettersson. Lagspråk och samhällsutveckling. Studier över svenskt lagspråk efter 1734. 1992.

47. Jan Svensson. Språk och offentlighet. Om språkbruksförändringar i den politiska offentligheten. 1993.

48. Gösta Holm. Nordiska studier. Femton uppsatser om ord, namn, dialekter, filologi, stilhistoria och syntax. Festskrift till Gösta Holm på 80-årsdagen den 8 juli 1996. Christer Platzack & Ulf Teleman (red.). 1996.

49. Cecilia Falk. Fornsvenska upplevarverb. 1997.

50. Magnus Olsson. Swedish Numerals in an International Perspective. 1997.

51. Gunlög Josefsson. On the Principles of Word Formation in Swedish. 1997.

52. Lisa Christensen. Framtidsuttrycken i svenskans temporala system. 1997.

53. Bo-A Wendt. Landslagsspråk och stadslagsspråk. Stilhistoriska undersökningar i Kristoffers landslag. 1997.

54. Per Lagerholm. Talspråk i skrift. Om muntlighetens utveckling i svensk sakprosa 1800– 1997. 1999.

55. Inger Haskå & Carin Sandqvist (red.). Alla tiders språk. En vänskrift till Gertrud Pettersson november 1999. 1999.

56. Maria Lindgren. Utvecklingssamtal mellan chefer och medarbetare. Undersökning av en samtalstyp i arbetslivet. 2001.

57. Jóhanna Barðdal. Case in Icelandic – A Synchronic, Diachronic and Comparative Approach. 2001.

58. Henrik Rahm. Journalistikens anatomi. Analyser av genrer och textmönster i fem strejkbevakningar i svensk dagspress 1879–1996. 2002.

59. Maria Mörnsjö. V1-Declaratives in Spoken Swedish. Syntax, Information Structure, and Prosodic Pattern. 2002.

60. Katarina Lundin. Small clauses in Swedish. Towards a Unified Account. 2003.

61. Lena Lötmarker. Krian i förvandling. Uppsatsämnen och skrivanvisningar för läroverkets svenska uppsatsskrivning. 2004.

62. Henrik Rosenkvist. The Emergence of Conditional Subordinators in Swedish – a Study in Grammaticalization. 2004.

63. Cecilia Falk & Lars-Olof Delsing (red.). Studier i svensk språkhistoria 8. 2005.

64. David Håkansson. Syntaktisk variation och förändring. En studie av subjektslösa satser i fornsvenska. 2008.

65. Christian Waldmann. Input och output. Ordföljd i svenska barns huvudsatser och bisatser. 2008.

66. Anna Gustafsson. Pamfletter! En diskursiv praktik och dess strategier i tidig svensk politisk offentlighet. 2009.

67. Gudrun Svensson. Diskurspartiklar hos ungdomar i mångspråkiga miljöer i Malmö. 2009.

68. Jackie Nordström. Modality and Subordinators in the Germanic Languages and beyond. 2009.

70. Piotr Garbacz. Word Order in Övdalian. A Study in Variation and Change. 2010.

71. Johan Brandtler. The Evaluability Hypothesis. The Syntax and Semantics of Polarity Item Licensing in Swedish. 2010.

72. David Petersson. The Highest Force Hypothesis. Subordination in Swedish. 2014.

73. Ulf Teleman. Nordister och nordistik i Lund – från 1860- till 1930-tal. 2015.

74. Anna W. Gustafsson, Lisa Holm, Katarina Lundin, Henrik Rahm & Mechtild Tronnier (red.). Svenskans beskrivning 34. Förhandlingar vid Trettiofjärde sammankomsten, Lund den 22–24 oktober 2014. 2016.

75. Anna W. Gustafsson & David Håkansson. Ord på prov. En studie av ordförståelse i Högskoleprovet. 2017.

76. Sanna Skärlund. Man, en och du. Generiska pronomen i svenskans historia. 2017.

77. Andreas Widoff. Hermeneutik och grammatik. Fenomenologiska undersökningar av språket som tal och teknik. 2018.

78. Katarina Lundin. Att utbildas till svensklärare i teori och praktik. 2018.

79. Pär Nilsson. Bildliga betydelser i SAOB. Om beskrivningen av betydelseutvecklingsmekanismer analyserad ur ett kognitivt semantiskt perspektiv. 2019.

Adjunct clauses are typically considered to be strong islands, meaning that they do not permit the formation of certain dependencies into them, such as extraction of a phrase contained in them to a position outside of the island domain. However, extraction from adjuncts has been reported to be possible in Swedish, Norwegian, and Danish, raising questions concerning the permeability of such structures to dependency formation and the factors that may affect such permeability, and the possibility of variation between languages. This dissertation approaches these issues by investigating factors that have been claimed to affect the acceptability of adjunct clause extraction sentences.

In a series of acceptability judgment studies, it is shown that the acceptability of sentences involving extraction from adjunct clauses in Swedish is affected by several factors which have also been claimed to be relevant for adjunct clause extraction in English, viz. the degree of semantic coherence between the adjunct and the matrix clause event, the degree of syntactic integration of the adjunct clause, and the grammatical function of the extracted element. However, the studies also provide evidence that Swedish and English differ in that finiteness degrades sentences with extraction from coherent adjuncts in English, but not in Swedish, thus pointing to a possible factor of cross-linguistic variation.

The conclusion that multiple factors affect the acceptability of adjunct clause extraction sentences also challenges claims that filler-gap association is suspended in island domains, i.e. that processes whereby the extracted material (the filler) is associated with the position of the gap are not active in syntactic islands. A self-paced reading experiment investigating the real-time processing of extraction from temporal adjuncts in English lends further support to the hypothesis that integrative processes related to dependency formation are active to some degree in adjunct clauses. To the extent that adjunct clauses may be considered islands, the findings presented in this dissertation thus suggest that languages may vary with regard to which factors affect the acceptability of island extraction sentences, and that at least some island structures may be permeable for dependency formation.