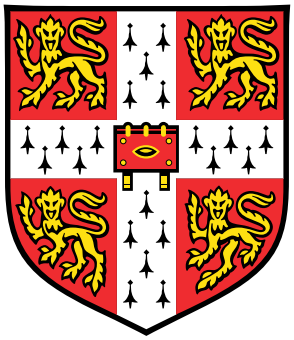
Heads and adjuncts

An experimental study of subextraction from participials and coordination

in English, German and Norwegian



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Abstract

Title:

Heads and adjuncts: an experimental study of subextraction from participials and coordination in English, German and Norwegian

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In recent years, attempts to simplify the grammatical mechanisms used in syntax have led to proposals to reduce the relationships between elements in a sentence to relations between heads and complements, doing away with free adjunction. For the analysis of modifying relations one consequence has been the rise of analyses that use the properties of selecting heads to stipulate unexpected syntactic behaviour, such as the use of light verbs to derive transparency in complex verb constructions.

This thesis shows that such accounts are empirically inadequate and argues that the relationship between heads and adjuncts provides a more empirically-satisfactory model of modifying relations, such as complex verb constructions, than one restricted to the selection relation between heads and complements in the syntax. In support of the adjunct relation, I show how a modular approach to adjuncts in which the position of adjunction is licensed in the semantics and long-distance dependencies are licensed in the syntax can provide a more unified account of subextraction from two separate types of island configurations, viz. asymmetric subextraction from coordination and subextraction from participial adjuncts, either than analyses involving complementation in the syntax (Borgonovo and Neeleman,

2000; Fabregas and Jiménez-Fernández, 2016; Wiklund, 2007), or hybrid analyses mixing processing filters with syntactic licensing of long-distance dependencies (Truswell, 2009, 2011).

The first part of the thesis shows that Chomsky's (2000; 2001) phase theory gives rise to blackholes in the specifier positions of phases from which movement cannot take place. I provide a theoretical account in terms of feature-licensing, where blackholes are formed by the impossibility of licensing at least one unlicensed feature on a phase head, and show how this account derives the distinction between canonical adjuncts from which subextraction is not permitted and subextraction from single event constructions in which subextraction is permitted. The section speculatively concludes with a demonstration of how blackholes might provide a unified analysis of islandhood in general.

The second part of the thesis concentrates on the empirical phenomenon of subextraction from coordination and participial adjuncts. I report the results of a series of judgement experiments run in parallel across two sets of constructions, coordination and participial adjuncts, in three languages, English, German and Norwegian. The aim was to test whether acceptability of subextraction from within coordination and participial adjuncts varied depending on the aspectual or grammatical type of matrix predicate. The results show that acceptability of subextraction does depend on the type of matrix predicate. The crucial factor is intransitivity, partially confirming the bias towards unaccusatives in subextraction from participial adjuncts observed informally in Borgonovo and Neeleman (2000); Fabregas and Jiménez-Fernández (2016); Truswell (2011) whilst providing evidence against theoretical accounts that rely primarily on unaccusativity (Borgonovo and Neeleman, 2000; Fabregas and Jiménez-Fernández, 2016), primarily on aspectual distinctions (Truswell, 2007b) or primarily on agentivity (Truswell, 2009, 2011). Interestingly, the hierarchy in acceptability between the four types of matrix predicates stays constant across all three languages, despite both pseudocoordination and subextraction from within participials being ungrammatical in German.

Declaration

I hereby declare that this dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or similar institution except as declared in the Preface and specified in the text. The word limit does not exceed 80,000 words, including footnotes, references and appendices, but excluding bibliographies.

Jessica M.M. Brown

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Øystein Nilsen and Marius Jøhndahl the sentences for Norwegian, and Clara Mahoney-Zähe, Nadine Tschaksch, Julianne Brown and Kari Kinn recorded each of the sentences that are heard on the experiments. Thank you particularly to Bettina Roche, Ben Wallisch, Joakim Berg and Christine Meklenborg Salvesen for helping to recruit participants. A number of English German and Norwegian native speakers cheerfully gave up their time to participate in pilot versions of the experiment. Thank you in particular to: Nicole Badstuber, David Koch, Mary Hughes, Fiona Mitchell, Benjamin Law Smith, Debbie Pullinger, Isidro Schunck González, Brian, Mary, Miriam and Tristan Smith, Amy and Margaret Strange, Christine and Greg Thompson, Lyndsay, Mike and Sally-Anne Tough, and Joshua Worth. Thank you also to the anonymous participants of the eight experiments online. I would also like to thank Francis Nolan for allowing me access to the recording booths in the Cambridge Phonetics laboratory.

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I have been fortunate to have been surrounded by positive and encouraging people. I would particularly like to thank Sarah Moody and the unofficial Trinity Hall boardgame group, Malcolm, Ruth and Phil; the house at Duckett Road, especially Ben and Josh; my deskmates during the first part of my PhD, Andras, Tim and Georg; and Dottie Steward, Élodie, Jenni, Tom and Justine.

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I have been fortunate to study during a time when exchange between countries in Europe has been actively encouraged, and I have been shown a lot of kindness by people who didn't need to have done so. I would like them to know how much of a difference their decisions and kindness have made for me, and I would particularly like to thank the cycle de transition at Le Sépey and the teachers at the College de la Grande Eau; Heilig Geist Gymnasium in Broichweiden, particularly Herr Wesselmann and Herr Offermanns; the Wesselmann family, the Mahoney-Zähe family, Maren, Dave, Isidro and Tilman; and the Erasmus programme, Guglielmo Cinque and the department at Ca'Foscari University, especially Loretta Manzato, and Alice, Jane, Owen and Jeannette.

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Chapter 1

Introduction

1.1 Puzzle

Since the beginnings of the generative entreprise, how to formalise constraints on long-distance dependencies has formed, and still forms, one of the central problems in formal syntax. Long-distance dependencies are configurations where a constituent, the *filler*, occurs in one position in the sentence but must be interpreted in another, *gap*, position. For instance, although the filler *which boardgame* occurs in sentence-initial position in (1-a), the *wh*-phrase is nonetheless interpreted in the object position of *play*, indicated by an underscore. As objects in English are merged under sisterhood with a head[1], the expected configuration is not one in which *which boardgame* appears in sentence-initial position as in (1-a), but rather one in which the object *which boardgame* and the verb *play* are adjacent, as shown in the *wh*-in situ example in (1-b) and in the declarative sentence in (1-c). The question for formal syntax is how to model this link between filler and gap.

(1) a. *Which boardgame* did they play _?
b. They played *which boardgame*?
c. They played the least luck-based boardgame in the world.

[1] See the *Uniformity of Theta Assignment Hypothesis*, UTAH (Baker, 1988).

Since Ross (1967), the primary goal in modelling long-distance dependencies has been to model their distribution. Ross (1967) identified several types of constituents, under the metaphoric term of *islands*, that cannot contain a gap linked to a filler outside of that constituent.

This thesis focuses on a class of exceptions to two of those generalisations, i.e. to the Coordinate Structure Constraint and to the adjunct island condition, where extraction is allowed provided that the constituent containing the filler and gap forms a single event. Examples are given in (2). Until recently, these configurations were generally discussed separately in the literature (for unified discussion, see Cormack and Breheny, 1994, esp. 54-57; Jin, 2014; and Weisser, 2015).

(2) Transparent adjuncts

a. What did John arrive whistling ~~what~~?

(Borgonovo and Neeleman, 2000, (3a,b),200)

b. Which car did I go and buy ~~which car~~?

(cf. Ross 1967, (4.108a,b,c),170)

c. What temperature should I wash my jeans at ~~what temperature~~?

(Sheehan 2013, (16a))

The problem that these sentences present for transformational generative syntax can be straightforwardly articulated: syntactic mechanisms are supposed to operate blindly without reference to semantics[2]. However it is the meaning of the sentences in (2) that appears to determine whether movement is acceptable. Compare (2), where both a single event reading and extraction are possible, to (3), where neither single event reading nor extraction are possible.

[2] *Autonomy of syntax* in the Y-model of grammar, cf. Chomsky (1957, 17)

(3) Ungrammatical extraction without single event reading

*Which celebrity did Mary eat an ice cream before she saw _?

(cf. Huang, 1982, 503)

1.2 Context

In recent years, attempts to account for instances where movement appears to be semantically motivated has divided the literature into two camps. The first camp reifies the syntactic module leading to universal, rigid and highly articulated clauses of the type found in the cartographic and nanosyntactic frameworks (Cinque and Rizzi, 2008; Ramchand, 1997, 2008; Starke, 2009). The second camp reifies the semantic and discourse modules and uses the unavailability of a simple unified syntactic analysis for seemingly semantically-motivated movement as a key reason for eliminating movement constraints from the syntax (Abrusan, 2014; Truswell, 2011). In the first camp, syntax is responsible for as much as possible. In the second, for as little as possible.

At the same time, attempts to simplify the grammatical mechanisms used in syntax have led to proposals to reduce the relationships between elements in a sentence to relations between heads and complements, doing away with free adjunction. For the analysis of modifying relations one consequence has been the rise of analyses that use the properties of selecting heads to stipulate unexpected syntactic behaviour, such as the use of light verbs to derive transparency in complex verb constructions.

This thesis argues that a unified syntactic solution can be found under a balance between syntactic licensing of movement paths and semantic licensing of adjuncts. For such an account to work, I argue that a shift is necessary from focusing on the selection relation between heads and complements to focusing on the relationship between heads and adjuncts.

The first part of the thesis shows that Chomsky's (2000; 2001) phase theory delineates areas of the clause from which movement cannot take place. These areas are the nodes dominated by the specifiers of phase heads, marked in red in figure 1.1. Throughout this thesis,

I will refer to these areas as *blackholes* and mark the opaque nodes with the symbol •[3]. I derive the distribution of opaque and transparent nodes in figure 1.1 using feature-licensing, where blackholes are formed by the impossibility of licensing at least one unlicensed feature on a phase head. I show how this account derives the distinction between canonical adjuncts from which subextraction is not permitted and subextraction from single event constructions in which subextraction is permitted.

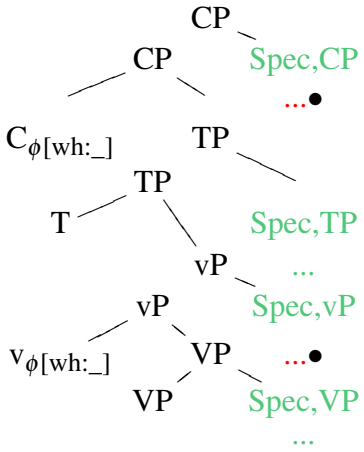


Fig. 1.1 Opaque areas across the clause

The section concludes with a demonstration of how blackholes might provide a unified analysis of islandhood in general. In particular, I explore some of the consequences for the typology of movement across the clause. Very recently, some works have situated adjunct islands in specifiers to phase heads Boeckx (2014); Müller (2010, 2011); Narita (2011). However these accounts rely on the notion of an active phase and derive transparent adjuncts as a special type of specifier to a phase head where the phase is still active. In contrast, the approach put forward here is configurational and makes a strict distinction between specifiers to phase heads, which are always opaque, and specifiers to non-phase heads, which are always transparent.

This thesis also employs experimental methods in the collection of data which neither the theoretical works in Boeckx (2014); Müller (2010, 2011); Narita (2011) nor works like

[3] • is used only for expository purposes and is not an indice on the tree. In each case, a node can be determined as opaque or transparent using the features of the heads in the tree.

Weisser (2015) or Truswell (2011) employ[4]. The advantage of experimental methods for reliability of data has been made repeatedly in the literature (cf. in particular Sprouse, 2007b; Sprouse and Hornstein, 2014 and the references therein; and the 2007 (33:3) issue of *Theoretical Linguistics* on experimental methods in Linguistics). In particular, experimental methods require the data collection process to be standardised and made explicit, allowing other researchers to evaluate the reliability of the data. An explicit process for data collection also allows replicability to be evaluated.

Furthermore, the examples in (2) are not straightforwardly grammatical or ungrammatical. Although the literature observes that certain types of verbs are more acceptable than others, e.g. unaccusatives than transitive activity predicates in subextraction from participial adjuncts (Truswell, 2011), it is not made clear whether this effect is categorical or gradient, i.e. whether there is a binary difference between two groups of predicates or whether different types of predicates give rise to a hierarchy of acceptability in subextraction from adjuncts.

In this thesis, I tested the effect of matrix predicates on subextraction from participials and pseudocoordination by running parallel experiments across the two constructions in three languages. The method is an extension of the parallel experiments run in Alexopoulou and Keller (2007) to investigate degrees of grammaticality in resumption. Alexopoulou and Keller (2007) run parallel experiments with translated stimuli in three languages where resumption is available[5], i.e. English, German and Greek. Here I investigate degrees of grammaticality and ungrammaticality by running parallel experiments on subextraction from pseudocoordination and participials in two languages in which these constructions are available, i.e. English and Norwegian, and one language where the construction is not available, i.e. German. The result was that the types of matrix predicates in all three languages formed a similar hierarchy of acceptability, regardless of whether the construction was grammatical or not in that language.

The theoretical account proposed here can account for gradience in extraction, despite

[4]Tanaka (2015) does use experimental methods for data collection but focuses on Quantifier Raising constructions rather than transparent adjuncts per se.

[5]Under certain syntactic conditions, which form the object of the study.

syntactic licensing conditions being categorically grammatical or ungrammatical. Although the instance of extraction is either grammatical or ungrammatical, the extent to which a phrase can be adjoined in a particular configuration depends on semantic licensing constraints which can be met to greater or lesser degrees through coercion processes. The theory therefore reconciles seemingly gradient extraction phenomena with the standard notion that syntactic constraints are categorical, i.e. define grammaticality and well-formedness, and semantic constraints are gradient, i.e. define gradient felicity.

1.3 Outline

The thesis is divided into three parts, illustrated in figure 1.1.

Table 1.1 Structure of the thesis

Part	Content	Chapter	Thesis
		Chapter 1	Introduction
Part I	Theory	Chapter 2	(2) are adjuncts
		Chapter 3	(2) are VP-adjuncts whereas (3) are v_{ϕ}P-adjuncts
		Chapter 4	Spec,ϕP• are islands
Part II	Results	Chapter 5	Testing interaction of aspect, transitivity and extraction in participials
		Chapter 6	Testing interaction of aspect, transitivity and extraction in pseudocoordination
			Testing ordering effects between participials and pseudocoordination
		Chapter 7	Conclusion

The first part of this thesis gives a syntactic derivation for the empirical puzzle relying on a division between syntactic licensing of movement paths and semantic licensing of adjuncts. Chapter 2 describes both types of constructions, pseudocoordination and participials, as adjuncts. Syntactic licensing of movement paths allows a unified syntactic solution for these cases. Semantic licensing of adjuncts allows for a flexible syntax. The position a lexical element in a tree is not predetermined by its lexical features. A lexical item can be merged anywhere (blind Merge in Chomsky, 2000; 2001) and the result will be more or less acceptable depending on the extent to which semantic licensing constraints can be met. Chapter 3 reduces the constructions to different configurations, and shows that specifiers to the phase head *v* are opaque whilst specifiers to the non-phase head *V* are not opaque. Chapter 4 considers the distribution of these blackholes across the clause, and the extent to

which they can provide a unified theory of island constructions.

The second part of the thesis explores gradience in these constructions, concentrating on the empirical phenomenon of subextraction from coordination and participial adjuncts. I report the results of a series of judgement experiments run in parallel across two sets of constructions, coordination and participial adjuncts, in three languages, English, German and Norwegian. The aim was to test whether acceptability of subextraction from within coordination and participial adjuncts varied depending on the aspectual or grammatical type of matrix predicate. The results show that acceptability of subextraction does depend on the type of matrix predicate. The crucial factor is intransitivity, confirming the bias towards unaccusatives in subextraction from participial adjuncts observed informally in Borgonovo and Neeleman (2000); Fabregas and Jiménez-Fernández (2016); Truswell (2011) whilst providing evidence against theoretical accounts that rely primarily on unaccusativity (Borgonovo and Neeleman, 2000; Fabregas and Jiménez-Fernández, 2016), primarily on aspectual distinctions (Truswell, 2007b) or primarily on agentivity (Truswell, 2009, 2011). Interestingly, the hierarchy in acceptability between the four types of matrix predicates also occurs in German coordination, despite pseudocoordination being unattested in German and much less acceptable to individual informants compared to English and Norwegian.

Part I

Theories of Transparent Adjuncts

Chapter 2

Transparent aspectual constructions

In this chapter, I describe the empirical properties of the transparent configurations in (2), repeated in (4). In chapter 3, I reduce the difference between this class of exceptions and the canonical cases of the Coordinate Structure Constraint and the adjunct island condition to different positions of merger with respect to a phase head[1]. In chapter 4, I consider whether position of merger with respect to a phase head can also derive other types of islands.

(4) Transparent adjuncts

a. What did John arrive whistling ~~what~~?

(Borgonovo and Neeleman, 2000, (3a,b),200)

b. Which car did I go and buy ~~which car~~?

(cf. Ross 1967, (4.108a,b,c),170)

c. What temperature should I wash my jeans at ~~what temperature~~?

(Sheehan 2013, (16a))

[1] Position with respect to a phase head, rather than height in the clause.

2.1 Pseudocoordination and asymmetrical coordination

Ross's (1967) Coordinate Structure Constraint and its across-the-board exception (Grosu, 1973; Ross, 1967; Williams, 1978) is given in (5). Islandhood in coordinate configurations follows the Law of Coordination of Likes (Williams, 1978): what happens to one conjunct must happen to the other. Therefore extraction is possible from within a coordinate configuration, but only if the filler external to the coordination is linked to a gap in both conjuncts.

Exceptions to this generalisation were identified from the outset in Ross (1967). The three examples Ross (1967) mentions are given in (6). In each case, extraction takes place asymmetrically from within one conjunct but not from within the other. In (6), *which dress*, *the screw* and *which granny* have been extracted from within the second conjunct. In each case extraction is asymmetrical, i.e. no extraction has taken place from within the first conjunct. Ross (1967) writes on the examples that: "As I have no plausible analysis for these sentences, I will merely point out that they are not subject to (4.84) [the Coordinate Structure Constraint]. (...) it may be the case that none of these sentences contain coordinate structures at the time when questions, relative clauses, etc. are formed, but only are converted into coordinate structures later, or never contain coordinate structures at all." (Ross, 1967, 170)

(5) a. Coordinate Structure Constraint (CSC) "In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct."

b. 'Across-the-Board' (ATB) Exception (addendum to CSC): . . . unless each conjunct has a gap paired with the same filler

(Sag et al., 2003, (41), 352, building on Ross, 1967, (4.84), 161)

(6) Well-formed extraction from pseudocoordination

a. Which dress has she gone and ruined now?

b. The screw which I've got to try and find holds the frammis to the myolator.

c. Which granny does Aunt Hattie want me to be nice and kiss?

(Ross, 1967, (4.108a,b,c), 170)

The examples in (6) differ from canonical cases of coordination (often referred to in the literature as *parallel coordination* or *true coordination*, e.g. Pullum, 1990, and De Vos, 2005) not only in terms of their extraction properties but also through a series of other properties: (i) restrictions on the types of verbs that can appear in each conjunct; (ii) unacceptability of overt subject in second conjunct; (iii) unacceptability of progressive; (iv) unacceptability of dummy auxiliary in second conjunct; (v) unacceptability of tense auxiliary in second conjunct; (vi) unacceptability of phrasal negation in second conjunct; (vii) incompatibility with *both*, showing single eventhood.

2.1.1 Restrictions on predicates in first conjunct

Types of verbs

Each of the examples in (6) uses intransitive predicates that are lexically deficient across languages (for *go* and *come*, cf. Heine and Kuteva, 2002; *try* gives rise to phenomena associated with deficiencies in other languages, for instance to restructuring in the West Germanic OV languages, cf. Wurmbrand, 2001, and *be nice* involves the copula *be*). Intransitivity of the first predicate is not a pre-requisite for extraction. Schmerling (1975) discusses examples such as (7), where extraction has taken place from within the second conjunct and the first conjunct contains both a verb and a noun. Whilst it may be the case that *take* can be theoretically accounted for in terms of lexical deficiency, nonetheless the presence of a noun in the first conjunct with *take* clearly shows a higher degree of argument structure than the intransitives in (6).

(7) Who did Lizzie take an axe and whack to death?

(Schmerling, 1975, (33), 217)

The works discussed above focus on asymmetrical extraction in the context of conditions on extraction. However research on the construction has a much longer tradition in Scandinavian philology, where constructions with intransitives first verbs and the conjunction *and* are used to express the progressive.

Further discussion of non-parallel exceptions to the Coordinate Structure Constraint has taken place under the umbrella term of *asymmetric coordination*, with particular focus on *pseudocoordination*. There is no consensus in the literature on exactly what constitutes pseudocoordination. However, pseudocoordination has been taken to differ from asymmetric coordination allowing asymmetric extraction more generally in two respects.

First, the construction is interpreted as supplying additional aspectual distinctions to the construction that would not otherwise be present in a sentence with a single verbal head, and would not be supplied in a regular coordinate structure. The modifying head is generally taken to be the V1 predicate, on the basis that *go* and *come* cross-linguistically often have little lexical content outside of aspectual properties; with respect to pseudocoordination, the construction is described as introducing, through V1, *PRIORITY* (e.g. Schmerling, 1975), *durative aspect* (e.g. Ebert, 2000, 605), *progressive aspect* (e.g. Platzack, 1979), *inceptive aspect* (e.g. Wiklund, 2007, esp.127) and *ingressive aspect* (e.g. Darnell, 2008, 264). There is however no reason why the first predicate should necessarily encode all aspectual properties of the construction, and indeed there appear equally to be a number of aspectual restrictions on the predicate in the second conjunct (as De Vos 2005; 2007, shows; cf, also analysis in chapter 3).

In early generative discussions of pseudocoordination, a number of verbs were suggested to select for *and*-complements in the lexicon. (8) provides examples of the lists of predicates that were proposed.

(8) Lists of verbs permitted in first conjunct

a. *come*, *go*, *run*, *try*, *be sure*, *hurry up*

(Carden and Pesetsky, 1977, (3), 82)

b. *go*, *come*, *run*, **walk*, **fly*, **rush*

(Cardinaletti and Giusti, 2001, (7), 6)

c. *try*, *remember*, *be sure*, *take care*

(Zwicky, 1969, 440)

Lødrup (2002, 122) provides the more articulated list in (9) of the types of verbs that can appear in the V1 position in Norwegian pseudocoordination:

(9) Types of verbs permitted in first conjunct

a. Positional verbs: *sitte* 'sit', *stå* 'stand', *ligge* 'lie', *voere* 'be (at a place)'

b. Movement verbs: *komme* 'come', *gå* 'walk' (progressive or directional)

c. Verbs of assuming a position: *sette seg* 'sit down' and *legge seg* 'lie down'

d. Communication verbs: *ringe* 'phone

e. Aspectual information: *drive* 'carry on'

f. *ta* 'take'

g. Fixed expressions: *voere snill* 'be kind', *voere i gang* 'be in activity'

(Lødrup, 2002, 122)

This list of verbs can be mostly transferred to English, with the exception of *be in activity* which is marginal as a phrase regardless of pseudocoordination, and of the verb *take*, although some examples from historical and non-standard varieties have been attested. For instance, the late modern English example in (10-a), and the Irish English example in (10-b):

(10) a. He takes and goes and hangs 'unsel, and turns us out of his employ.

Mer., Rich., Fev., Ch. III, 19 in Poutsma (1929, 564)

b. Look what's took and happened now! Look what happened now!

(Kuznetsova, 2006, 1)

Constraints on arguments

The term pseudcoordination is generally restricted to constructions where V1 is amenable to a light verb analysis, i.e. where V1 is realised as a monosyllabic intransitive predicate such as *go* (illustrated in (11)), *sit*, *come*, *try*, as well as constructions where such V1 predicates

are combined with additionally low or prepositional adverbials[2] (although even these two constructions are distinguished in analyses such as De Vos, 2005; 2007).

(11) What did John go to town and buy?

Omitted from these discussions are instances where the V1 predicate is transitive and selects a nominal complement, potentially allowing complement extraction, (12-a), and where a sequence of phrases are coordinated (12-b). The remaining types of construction, where extraction is from constructions with *and* with transitive V1, where the verbal head takes a nominal object, are generally discussed separately from pseudocoordination. These types of constructions are generally discussed under the umbrella-term of asymmetrical extraction (cf. Goldsmith, 1985; Kehler, 1996; Lakoff, 1986).

(12) a. Who did Lizzie take an axe and whack to death?

(Schmerling, 1975, (33), 217)

b. Sam is not the sort of guy you can just sit there, listen to, and stay calm.

(Lakoff, 1986, (3), (6))

2.1.2 Reduced *and*-phrase

Only a limited amount of material can occur in the second conjunct. In particular, material associated with the higher part of the clause such as functional elements like auxiliaries but also subjects and adverbs, are prohibited in the second conjunction. Negation is permitted only with a constituent reading and not with a phrasal reading.

First, no subject may occur in the second conjunct. Instead both verbs must have the same subject (e.g. *same-subject condition* in Pullum (1990)), and this subject cannot be realised in the second conjunct. In (13-a), *I* is interpreted as the subject of both *went* and *enjoyed*. Repetition of the subject leads to a reduction in acceptability, as observed by e.g. Zwicky (1969) and illustrated in (13-b).

[2]Whether or not *to town* in (11) is selected for by the V1 predicate *go*, or not is a separate issue. The relevance for the present discussion is that there is no direct nominal complement selected by the verb.

(13) Unacceptability of overt subject in second conjunct

a. I went and enjoyed the circus.

b. ?I went, and I enjoyed the circus.

(Zwicky, 1969, 433)

Second, a widely-noted feature of pseudocoordination is the restrictions on the tense markings allowed on the two verbs in the pseudocoordinate construction (cf. Wiklund, 2007, and Kjeldahl, 2010, for extensive discussions of tense and aspect copying). In particular, the progressive is barred, as illustrated in (14).

(14) Unacceptability of progressive

*John is running and buying a newspaper.

(Cormack and Smith, 1997, (28),18)

The construction also disallows repetition of dummy auxiliaries and periphrastic tense, associated with functional projections outside of the lexical domain. The contrast is illustrated in (15), where repetition of *did* is ill-formed:

(15) Unacceptability of dummy auxiliary

a. I did go and enjoy the circus.

b. *I did go and did enjoy the circus.

Morphological tense can however be realised on the lexical verb within either conjunct, if both verbs are morphologically marked for the same form. Tense harmony (Zwicky, 1969), or what Pullum (1990) refers to as the *identity condition*, is illustrated in (16) and (17). Examples (16-a), (16-b), (16-c) and (16-d) show tense harmony and are grammatical. Examples (17-a) and (17-b) have mismatching tense markings and are ungrammatical, i.e. *comes*/*get* in (17-a) and *has come*/*get* in (17-b).

(16) Grammaticality of tense harmony

a. Come and get the paper.

b. I told you to come and get the paper.

c. Every day I come and get the paper.

d. I came and got the paper.

(Pullum, 1990, (10a-c, e), 222)

(17) Ungrammaticality of mismatching tense

a. *Every day my son comes and get the paper.

b. *My dog has come and get the paper.

(Pullum, 1990, (10d, f), 222)

(16) also illustrates the availability of the imperative (16-a), infinitival (16-b), present (16-c) and simple past, (16-d), forms in pseudocoordination. Not all forms are available; Stahlke (1970) notes that progressive aspect in particular cannot occur in the pseudocoordinate construction. Periphrastic realisation of tense and aspectual heads can occur with pseudocoordination, provided tense and aspectual heads do not occur in the second conjunct. Examples are *did* in (15), and *have* in (18).

(18) Unacceptability of tense auxiliaries

a. They have gone and bought a newspaper every day for the past year.

b. *They have gone and have bought a newspaper every day for the past year.

c. *They went and have bought a newspaper every day for the past year.

Fourth, the two pseudoconjuncts appear to form a tight structure that is less permeable than true coordination. (19) illustrates with adverbs, (20) with negation.

(19) a. #Freda ran slowly and bought a paper.
b. #Freda ran and hastily bought a paper.
c. Freda hastily ran and bought a paper.

(Cormack and Smith, 1997, (37),20)

(20) a. #Freda did run and not buy the paper.
b. #Which paper did Freda run and not buy.

However Pullum (1990) suggests that negation may be acceptable depending on the context and provides the examples in (21) where *not* intervenes between the conjunction and the verb in the second conjunct. In contrast to the phrasal negation in (20), both examples in (21) involve constituent negation, i.e. in both examples (21-a) and (21-b), it is the case that *x* is going and doing something, and that action is to not do anything wrong for a week. The requirement for a low interpretation of *not* when realised in the second conjunct lends further support to the notion that the second conjunct cannot contain elements associated with higher, functional, parts of the clause, i.e. that the second conjunct is reduced or deficient. Such an analysis occurs steadily through the literature (cf. esp. Wiklund, 2007). The conclusion that incompatibility of functional elements points to a deficient V2 is not unavoidable[3].

(21) a. I expect you to go and not do anything wrong for a week.
b. What sort of bad stuff do you expect me to go and not do for a week?

(Pullum, 1990, (27a,b),227)

Besides a reduced second conjunct, the unavailability of separate modifying elements in the second conjunct has also been taken to show that the two conjuncts form a single event

[3]How to model this construction is returned to in chapter 3.

(Cormack and Breheny, 1994; De Vos, 2005; Déchaine, 1993; Schmerling, 1975; Wiklund, 2007). Further evidence in favour of single eventhood comes from the distributive operator *both*. *both* is incompatible with pseudocoordination but compatible with parallel coordination as can be seen by comparing an across-the-board extraction configuration which is parallel to an asymmetric extraction configuration of the type in (2) compared to the compatibility of this operator with true coordination which involves two events.

(22) Incompatibility with distributive operator *both*

a. Which car did Mary both buy ~~which car~~ and sell ~~which car~~?

b. #Which car did Mary both go and buy ~~which car~~?

(cf. Schmerling, 1975; De Vos 2005, 41)

Whilst combination of *buy* and *sell* with *both* in (22-a) is felicitous, combination of *go* and *buy* in (22-b) is infelicitous. The contrast suggests that the first example of coordination involves two events, thereby satisfying the input requirements on *both*, whilst the second example of coordination does not involve two events, giving rise to semantic infelicity.

2.1.3 Extraction from the first conjunct

Whilst discussion of transparency in the literature generally focuses on the second conjunct, it is not just the second conjunct that is transparent. Extraction from within the second conjunct is widely attested (cf. De Vos, 2005, and references therein) and is illustrated in (23-a). There also appears to be some possibility that extraction can take place asymmetrically from within the first conjunct, as in extraction from within *take a knife* in (23-b). A similar parasitic gap construction is available, where subextraction takes place from within both conjuncts and therefore constitutes across-the-board extraction. This construction is illustrated in (23-c). However (23-b) nonetheless appears to show a case of asymmetric extraction from within the first conjunct.

(23) Asymmetric extraction from within first conjunct

a. Which steak did Lizzie take a knife and hack ~~which steak~~ to pieces?
(Based on Schmerling, 1975, (33), 217)

b. Which knife did Lizzie take ~~which knife~~ and hack the steak to pieces?

c. Which knife did Lizzie take ~~which knife~~ and hack the steak to pieces with ~~which knife~~?

Postal (1998) claims that (24) shows that such extraction is not possible. (24) however does not involve asymmetrical extraction from within a single conjunct. Instead *the store* in (24) has two launching sites, one in the first and one in fourth conjunct, suggesting that extraction is ruled out because of constraints on dependent gaps (e.g. under parasitic gaps for an adjunct analysis, or under across-the-board extraction for a conjunction analysis).

(24) Constraints against dependent gaps

*the store which Harry went to ~~the store~~, bought stuff, went home, ate it, and returned to ~~the store~~ for more

(Postal, 1998, (49c),66)

Indeed, the example in (25), drawn from Lakoff (1986, cited in De Vos, 2005, 78) provides another instance of asymmetric extraction from within the first conjunct.

(25) Asymmetric extraction from within first conjunct

How many classes can you teach _and still complete your dissertation on time?

(De Vos, 2005, 78, citing Lakoff, 1986)

2.1.4 Restrictions on the verbs in the *and*-phrase

Equally, restrictions on the types of verbs available are not only found in the first conjunct, but also in the second conjunct. This property is often overlooked in the literature. However a clear description can be found in De Vos (2005, 2007) for Afrikaans and English.

In summary, the main types of discussion in the literature have been restrictions on the verbs in V1 position and the syntactic properties, including extraction, of V2. However restrictions on verbs in the second conjunct have also been discussed to a limited extent, e.g. in De Vos (2005, 2007), and extraction from the first conjunct is attested in Schmerling (1975), although it remains mainly undiscussed by the majority of the literature, e.g. there is no discussion in Wiklund (2007) or in De Vos (2005, 2007).

2.2 Participials

Participials behave similarly to coordination. The adjunct island condition (Cattell, 1976; Ross, 1967) is illustrated in (26). Whilst the complement to *ask* introduced by *to* is transparent for subextraction in (26-a), the adjunct introduced by *before* in (26-b) is opaque for subextraction.

(26) a. Which celebrity did Mary ask to meet _?
b. *Which celebrity did Mary eat an ice cream before she saw _?

(cf. Huang, 1982, 503)

Truswell (2007b; 2011; cf. also Borgonovo and Neeleman 2000) notes that extraction from within adjunct islands is however acceptable just in case a particular semantic condition holds, namely that matrix and adjunct predicates form a single event. Single event constraints on extraction have been discussed in the separate literatures on pseudocoordination (De Vos, 2005; Goldsmith, 1985; Schmerling, 1975; Wiklund, 2007) and on participial adjunction (Truswell, 2007a,b); for discussions of more than one construction (cf. Cormack and Smith, 1997, and Jin, 2014, for pseudocoordination and participial adjunction; and Sheehan, 2013, for prepositional and participial adjunction). The most detailed discussion specifically on a single event constraint on movement paths can be found in Truswell (2011) in relation to participial adjunction.

The single event constraint can be observed by comparing (26-b) with (27). Whereas in (26-b) the matrix and adjunct predicates do not form a single event, in (27) the matrix

and adjunct predicates do form a single event. This contrast correlates with a difference in the availability of adjunct-internal gaps.

The adjunct in (26-b) which does not form a single event with the matrix predicate remains opaque for extraction, in line with the adjunct island condition (Cattell, 1976; Ross, 1967) and the Condition on Extraction Domains (Huang, 1982). In contrast the adjuncts in (27)[4], where adjunct and matrix predicate form a single event, are transparent for extraction. Transparency is illustrated by the acceptable extraction of *which tune* from within the adjunct introduced by *whistling* in the participial adjunct in (27-a); by the acceptable extraction of *which car* from within the adjunct introduced by *and* in pseudocoordination in (27-b); and by the acceptable extraction of *which temperature* from within the prepositional adjunct introduced by *at* in (27-c).

(27) English: single event

a. Which tune did Monica arrive whistling _?

(cf. Borgonovo and Neeleman, 2000, (3a,b),200); Truswell (2011)

b. Which car did Mary go and buy _?

(cf. Ross, 1967, (4.108a,b,c),170)

c. Which temperature did Monica wash the jeans at _?

(cf. Sheehan, 2013, (16a))

As with pseudocoordination, the examples in (27) differ from canonical cases of participials not just in terms of their extraction properties but also through a series of other properties (cf. Borgonovo and Neeleman, 2000; Sheehan, 2013; Truswell, 2007a,b, 2009, 2011): (i) restrictions on the types of verbs that can appear in each conjunct; (ii) unacceptability of overt subject in second conjunct; (iii) unacceptability of progressive; (iv) unacceptability of dummy auxiliary in second conjunct; (v) unacceptability of tense auxiliary in second

[4]Pseudocoordination is treated in the literature as involving either coordination or subordination but not adjunction, with the exception of Déchaine (1993) who takes the construction to involve leftward adjunction of the first conjunct predicate, *go* in (27-b) (cf. De Vos (2005, 77-87) for a review of the literature).

conjunct; (vi) unacceptability of phrasal negation in second conjunct; (vii) incompatibility with *both*, showing single eventhood.

2.2.1 Restrictions on matrix predicate

As in pseudocoordination, the set of predicates that can occur in matrix position is restricted in participials. Truswell (2007b) gives the generalisation in table 2.1.

Table 2.1 Restrictions on verbs in with participials (Truswell, 2007b, (37), 29)

Matrix event	Secondary event	Example	Grammatical?
Atelic	Atelic	What did John work whistling?	No
Atelic	Telic	What did John work whistling?	No
Telic	Telic	What did John work whistling?	No
Telic	Atelic	What did John work whistling?	Yes

Whilst these verbs are different in their aspectual properties from those that are found in pseudocoordination, both constructions use predominantly intransitive verbs in matrix predicate position.

Constraints on arguments

The matrix predicate does not always need to be intransitive. Truswell (2011) gives the resultative in (28) where the matrix predicate is *drive Mary crazy*.

(28) What did John drive Mary crazy [whistling _]?

(Truswell, 2011, (44a), fn.11, p.30)

Another example is given in (29). (29) is ambiguous between a subject-control reading where John is whistling, and an object-control reading where Mary is whistling. In both cases, *meet* takes an object, i.e. *Mary*.

(29) a. Which tune did Julia meet Mary$_i$ whistling$_i$?

b. Which tune did Julia$_i$ meet Mary whistling$_i$?

2.2.2 Reduced participial

Another similarity to pseudocoordination is the restriction on functional elements associated with high parts of the clause occurring in the phrase containing the second verb. However not all participials pattern in the same way in this regard. On one hand, participials with unaccusative matrix predicates in (29) behave like pseudocoordination and disallow repetition of the subject in the participial (30-a); dummy auxiliaries in the participial (30-b); tense auxiliaries in the participial (30-c); adverbs in the participial (30-d); and phrasal negation in the participial (30-e). In addition, the matrix predicate cannot be in the progressive (30-f).

(30) Participials with unaccusative matrix predicates

a. *Mary arrived she whistling the national anthem.
b. *Mary arrived did whistling/whistle the national anthem.
c. *Mary arrived had whistling/whistled the national anthem.
d. #Mary arrived (quietly whistling the national anthem).
e. *Mary arrived not whistling the national anthem.
f. *Mary is arriving whistling the national anthem.

On the other hand, whilst participials occurring with *drive Mary crazy* also disallow functional elements as illustrated in (31-a) to (31-e), participials with matrix resultatives do allow a progressive matrix predicate as shown in (31-f).

(31) Participials with *drive Mary crazy*

a. *Julia drove Mary crazy she whistling the national anthem.
b. *Julia drove Mary crazy did whistling/whistle the national anthem.
c. *Julia drove Mary crazy had whistling/whistled the national anthem.
d. #Julia drove Mary crazy (quietly whistling the national anthem).
e. *Julia drove Mary crazy not whistling the national anthem.
f. Julia is driving Mary crazy whistling the national anthem.

Meet patterns like the participials with unaccusative matrix predicates. In (32), only (32-a) is different, and this example constitutes an Exceptional-Case-Marking construction, meaning that *Julia*, although the subject of the participial, nonetheless is realised in the matrix clause.

(32) Participials with *meet*

a. Mary met Julia whistling the national anthem.
b. *Mary met Julia did whistling/whistle the national anthem.
c. *Mary met Julia had whistling/whistled the national anthem.
d. #Mary met Julia (quietly whistling the national anthem).
e. *Mary met Julia not whistling the national anthem.
f. *Mary is meeting Julia whistling the national anthem.

2.2.3 Extraction from matrix clause

Extraction from the matrix clause takes place straightforwardly in participials as shown in example (33). As in (29), (33) is ambiguous between a subject- and object-control reading.

(33) Who did Julia meet _whistling the national anthem?

2.3 Summary of properties of pseudocoordination and participials

Strikingly, both of these classes of exceptions to island constraints behave similarly: besides being transparent, they have an aspectual reading, involve a phrase with reduced clausal material and they form single events with the first verb. Table 2.2 summarises the properties that indicate similar syntactic behaviour.

In the next section, I show that the *and*-phrase and the participial also behave like adjuncts in standard diagnostics. I conclude by considering how widespread this class of adjuncts is across the Germanic languages and what the axes of variation might be.

2.4 Adjuncts

The two exceptions to islandhood discussed here have been shown to pattern alike with respect to a number of empirical properties such as restrictions on both verbs, single event interpretation, and prohibitions on functional elements appearing in the constituent of the second verb. In both cases, these constructions behave like matrix predicate + adjunct configurations, where the first verb constitutes the matrix predicate, and the second conjunct or participial constitutes the adjunct. Going forward, I will refer to *and* and the head of the participial as prepositions (P). It is not necessary that these elements constitute prepositions, only that they introduce a free adjunct.

An adjunct analysis of pseudocoordination will seem surprising given that the literature centres around two camps: those arguing that pseudocoordination constitutes coordination (e.g. Cormack and Breheny, 1994; De Vos, 2005, 2007), and those arguing that pseudocoordination constitutes a complement configuration (e.g. Wiklund, 2007)[5]. However an adjunct analysis has the advantage of (i) allowing the first predicate to have an argument structure larger than that of a single intransitive verb; (ii) allowing any objects in the first predicate to be straightforwardly extracted; (iii) making the special semantic properties of the construction be reducible to semantic licensing constraints on adjuncts; and (iv) still allowing extraction from the second predicate (using the theory detailed in 3).

[5] A review of previous analyses of pseudocoordination is given in chapter 3.

Table 2.2 Summary of properties of pseudocoordination and participials

Property	Pseudocoordination	Participial
Restrictions on verbs	✔	✔
Same-subject condition	✔	✔
No progressive	✔	✔
Tense Harmony	✔	✔
No dummy auxiliary	✔	✔
No tense auxiliaries in adjunct	✔	✔
No phrasal negation in adjunct	✔	✔
Incompatibility of *both*	✔	✔
Extraction of object of both verbs	✔	✔

2.5 Distribution in Germanic

The analysis in section 3.2 uses data from English. However there are a limited number of informally collected judgements available in the literature, primarily in Truswell (2009, 2011), suggesting that extraction from within participial adjuncts is permitted across a number of Germanic languages[6].

2.5.1 Distribution

The availability of subextraction from pseudocoordination and participials is given in table 2.3, using the examples listed in appendix A drawn from: Borgonovo and Neeleman (2000); De Vos (2005); Kjeldahl (2010); Lødrup (2002); Maling and Zaenen (1990); Merchant (2001); Ross (1967); Truswell (2009, 2011); van Riemsdijk (1978); Wiklund (2007).

Table 2.3 Aspectual constructions in Germanic: data in literature

	Subextraction from pseudocoordination		Subextraction from participials		P'-stranding		P-stranding	
	✔	*	✔	*	✔	*	✔	*
Afrikaans	(135-a)							
Danish	(135-b)			(136-a)	(137-a)			(138-a)
Dutch		(no example)		(136-b)		(137-b)		(138-b)
English	(135-c)		(136-c)		(137-c)		(138-c)	
Faroese	(135-d)			(136-d)	(137-d)			(138-d)
Frisian		? (35-a)						
German		(no example)		(no example)		(no example)		(no example)
Icelandic		? (35-b)		(136-e)		(137-e)		(138-e)
Norwegian	(135-e)		(136-f)		(137-f)		(138-f)	
Swedish	(135-f)		(136-g)		(137-g)		(138-g)	

The table is composed in the following way. Examples from the aforementioned works are listed in appendix A. For acceptable examples, the example number is highlighted and provided under the relevant construction in the ✔ column. For unacceptable examples, the example number from the appendix is provided in the * column with no highlight. Unillustrated claims have been indicated by *(no example)*. For instance, German appears to be

[6]This thesis focuses on the availability and non-availability of subextraction from coordinate structures in Germanic languages, specifically in English, German and Norwegian. Constructions introduced by similar sets of verbs, e.g. posture verbs, and sometimes including a conjunction can be found more widely in the world's languages in the form of verb serialisation. See Newman (2002) for a collection of works on verb serialisation with posture verbs, and Nonato (2014) for a comprehensive recent work.

assumed by omission to not allow subextraction from pseudocoordination or from participials in the literature. This assumption is important when it comes to the experiments in part II, and is reinforced by my own informal judgements from native speakers. In the case of Dutch coordination, De Vos (2005, 79, citing Barbiers, p.c.) states that the type of examples discussed in Lakoff (1986) are not acceptable in Dutch, referring to the example in (34).

(34) Asymmetrical extraction not available in Dutch

How many classes can you teach and still complete your dissertation on time?

(De Vos, 2005, 78, citing Lakoff, 1986)

Finally, question marks (*?*) are given for North Frisian and Icelandic, as no examples of extraction were found. The two examples in (35) show coordination with a progressive reading of the second verb rather than a lexical reading of the first verb. These examples therefore show a pseudocoordinate reading but do not give information on whether extraction is possible, the primary property of interest here, and the main property of pseudocoordination in the literature (Pullum 1990 makes this point by differentiating between same-subject coordination and true coordination; De Vos 2005 between pseudcoordination and true coordination).

(35) Declarative clauses with *and* and progressive reading

a. North Frisian (Wiidinghiird)

Hi läit än driimt fuon sin fründin.
he lies and dreams about/of his girl(friend)
'He is dreaming of his girlfriend.'

(Ebert, 2000, (22),620)

b. Icelandic

María situr og les
Maria sits and reads
'Maria is reading'

(Jóhannsdóttir, 2006, (1b),361)

In particular, it can be observed that many of the examples in the appendix are either marginal, for instance the marginally unacceptable Danish (136-a), or contested (%), for instance Faroese (136-d) and Swedish (138-g). Informal intuitions are the standard in current theoretical work, and the data in table 2.3, is particularly valuable at this point, given the limited extent to which extraction from within participial adjuncts has been discussed in the literature. Nonetheless the difficulty in obtaining robust judgements for the extraction phenomena in (136-d) and (138-g) in particular highlights the need for empirical work going beyond informal gathering of native speaker intuitions. Data collection and experimental methodology will be returned to in chapter 3.

2.5.2 Potential theories

The table in 2.3 is incomplete. Partly, as already mentioned, data is missing for some languages (e.g. German, Dutch) and data is incomplete for others (e.g. Frisian, Icelandic). Another question arises in general though about whether variation is always the same or whether there is variation with different predicates. Similar extraction properties are seen in prepositional phrases like (36). I propose the common structure in figure 2.1a for participial and pseudocoordinate configurations and in figure 2.1b for prepositional phrases. The first verb in the complex verb construction is a regular matrix predicate. The second verb is found in a VP-adjunct. The adjunct is headed by *and* for pseudocoordination, by a preposition such as *at* for prepositional phrases allowing preposition-stranding, and by a null head for participials. The account in section 3.2 makes crucial use of a null preposition in the adjunct. Without such a preposition, the structure would lack a means of combining matrix and adjunct predicates in the semantics.

Cross-linguistically, a null preposition analysis of participials is motivated by data from languages which overtly realise the preposition in aspectual constructions, and converb constructions. First, some languages overtly realise the preposition in aspectual constructions, e.g. *am* + deverbal noun in German dialects (cf. Ebert, 2000).

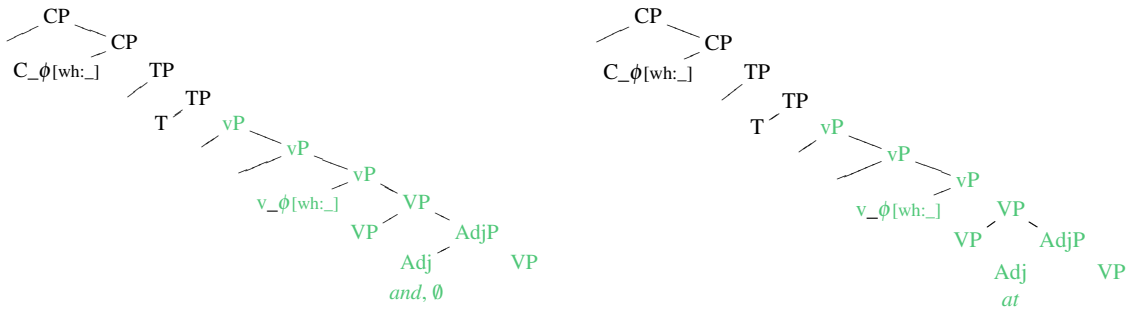
Second, participial constructions play a similarly adverbial role to converb constructions. In contrast to participials though, converbs tend to bear additional morphology, in-

cluding switch-reference morphology which Carlson (1987) suggests serves to link events. For instance, in Tuva, same-subject dependent clauses are formed by the amalgamation of the locative case marker *-DA* denoting co-occurrence of two events, with a preceding deverbal noun marker *-Vr* (imperfective) or *GAn* (perfective) (Bergelson and Kibrik, 1995:390-391).

While the English gerundive does form a deverbal noun, no additional morphology is present on the *-ing* form. A suggestion is that participials are semantically defective compared to converbs: the converb morphology responsible for linking matrix and adjunct event is instead expressed by the null preposition [$_P\emptyset$] in participials.

(36) Which temperature did Monica wash the jeans at _?

(cf. Sheehan, 2013, (16a))



(a) Participials and pseudocoordination

(b) Prepositions

Fig. 2.1 VP-adjunction

The first parameter concerns the availability of the [P$_\emptyset$] preposition in a language's lexicon. The second potential parameter depends on the theory of locality adopted. These two means of achieving variation will be addressed in turn.

A first parameter involves lexicalisation of the preposition [$P_{\emptyset}$] selecting a participial complement, given in (37).

(37) Parameter A: lexicalisation of [$P_{\emptyset}$]

a. 1: [$P_{\emptyset}$] is present in the lexicon.

b. 2: [$P_{\emptyset}$] is not present in the lexicon.

The first setting of parameter A, namely the presence of [$P_{\emptyset}$] in the lexicon, will give rise to declarative participial adjuncts like *Mary arrived whistling the national anthem*. One cross-linguistic prediction that can be made is (38).

(38) Cross-linguistic prediction

If a language *l* allows VP-adjoining participial adjuncts without extraction, *l* allows extraction from within such adjuncts.

A second parameter potentially arises in the phasality of P. Such a connection has previously been proposed in the literature by Truswell (2009), who suggests a correlation between extraction from within participial adjuncts (not mentioning pseudocoordination) and preposition stranding under A-movement. A later work, Truswell (2011, 198,199) presents a counterexample from Spanish and retracts the generalisation.

Van Riemsdijk (1978) suggests that preposition stranding should be accounted for in terms of the properties of P, which vary cross-linguistically to form a parameter. In Minimalism, transparency issues are dealt with under a phase theory of locality. Therefore, from a Minimalist point of view, the question is whether P is relevant for locality. Abels (2003) and Willis (2011) illustrate two contrasting ways of defining the relevance of P for locality: in Abels (2003), the phasehood of P is parameterised and movement is prohibited from within certain configurations under anti-locality. In Willis (2011), the phasehood of P is kept constant (ensuring that the complement domain of P is not visible to higher phases and cannot therefore be by-passed under a successive-cyclic account of movement). Instead the availability of an escape hatch in the form of Spec,PP is parameterised by varying the

presence of an EPP diacritic which triggers movement on P_{ϕ}'s [wh:_] feature.

I examine the predictions of both theories of phasal parameters and show that although parameterisation of P does not play a role in deriving participial constructions using ϕP-blindspots in English, the details of such parameterisation are crucial in determining whether there is a connection between extraction from within participial adjuncts and preposition stranding in PP-complements.

(39) Parameter B (configurational): phasality of P

a. 1: P is a phase head.

b. 2: P is not a phase head.

The configurational theory in Abels (2003) using the parameter in (39), links extraction to the phasal status of the prepositional head: anti-locality (figure 2.2) forbids extraction of a phrase which stands in a mutual *c*-command relationship to a phasal head. The motivation for such a restriction is that movement to Spec,ϕP acts to bring a phrase close enough to a phase head to enter into a checking relation. As sisterhood is already the closest possible relation, there is no motivation to move the sister of a phase to the specifier of the phase.

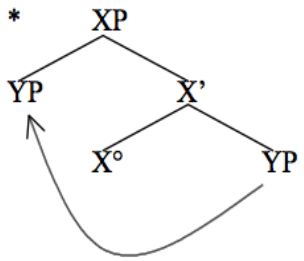


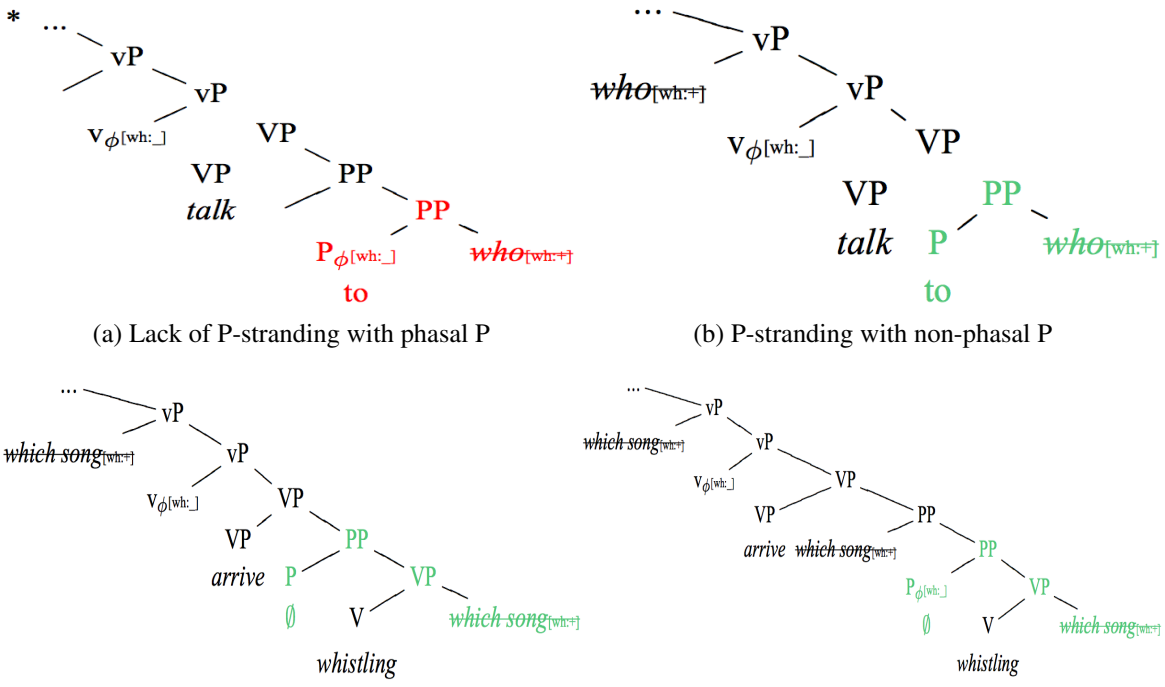
Fig. 2.2 Anti-locality (Abels, 2003, (4),12)

In the case of prepositions selecting DPs, i.e. the base configurations from which P-stranding movement takes place, setting 1 of parameter B in (39) will prohibit preposition stranding in a language (cf. figure 2.3a), whilst setting 2 will allow preposition stranding (cf. figure 2.3b). Under the first setting, the *wh*-phrase is within the complement domain of P, so the element is invisible to a higher phase. Therefore the *wh*-phrase is already in a maximally close relation to the phase head, and the configuration forces the *wh*-phrase sister

to the phase head to remain blocked in its base position.

In contrast to preposition stranding, where the preposition selects a nominal complement, the availability of extraction from within participial adjuncts is not affected by anti-locality. As highlighted by figures 2.3c and 2.3d, which assume the relevant prepositional head has been lexicalised, the *wh*-phrase to be extracted does not stand in the relevant structural configuration for anti-locality. Instead, the participial-internal *wh*-phrase is more deeply embedded than a nominal phrase selected by a preposition. As anti-locality only applies to sisters of a phase, movement of the participial internal *wh*-phrase is not affected.

Therefore, the configurational account in Abels (2003) does not predict any correlation between P-stranding and extraction from within participial adjuncts. Instead, the availability of extraction from within participial adjuncts depends solely on the lexicalisation of the preposition [$P_{\emptyset}$] with the relevant semantic properties to force low adjunction to a projection headed by a non-phase head, e.g. VP.



(a) Lack of P-stranding with phasal P

(b) P-stranding with non-phasal P

(c) Subextraction from participials with non-phasal P

(d) Subextraction from participials with phasal P

Fig. 2.3 Configurational (anti-locality) account

Conversely, the escape hatch account used in Willis (2011) yielding the parameter in

(40) does predict a correlation between non-availability of P-stranding and non-availability of extraction from within adjuncts introduced by a null preposition.

(40) Parameter B (escape hatch): distribution of EPP diacritic on features of phasal P_ϕ

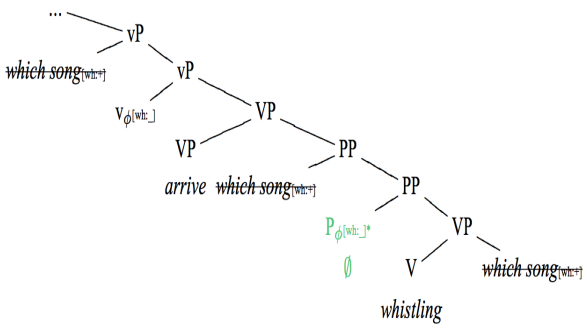
a. 1: [wh:_] feature on P_ϕ bears EPP diacritic triggering movement: [wh:_]*

b. 2: [wh:_] feature on P_ϕ does not bear EPP diacritic triggering movement: [wh:_]

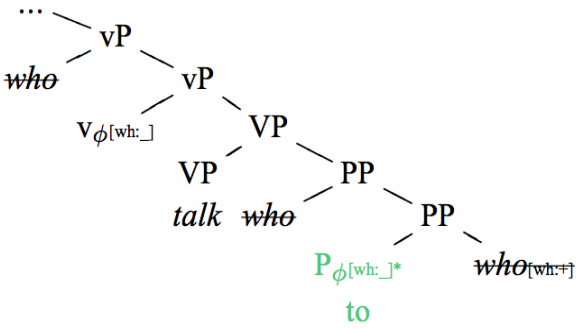
In the escape hatch account, P remains a phase, blocking visibility to a higher phase head of all *wh*-phrases internal to P's complement domain. Therefore, the only way to undergo successive-cyclic movement, is for the *wh*-phrase to undergo movement to an escape hatch, i.e. to a specifier of PP. Whether or not movement takes place is regulated by an EPP movement diacritic on the [wh:_] feature, and it is the distribution of this diacritic, rather than the phasality of P, which varies cross-linguistically. Movement of both the nominal *wh*-phrase and the participial-internal *wh*-phrase is equally affected by the presence or absence of the EPP diacritic, given that extraction of both elements relies on the presence of a trigger, and not specifically on the configuration of *wh*-phrase and phase head.

In this account, if the EPP movement trigger is present on the [wh:_] feature, then extraction can take place of both the nominal and participial *wh*-phrases, illustrated in figures 2.4c and 2.4a. In contrast, if the movement trigger is absent on the [wh:_] feature, then no escape hatch will be available on P_ϕ for either type of *wh*-phrase, and therefore extraction will be prohibited, illustrated in figures 2.4b and 2.4d. Thus the escape hatch account predicts a correlation between preposition stranding and extraction from within participial adjuncts in languages that have lexicalised the preposition [$P_\emptyset$] with the relevant semantic properties to force low adjunction to a projection headed by a non-phase head, e.g. VP.

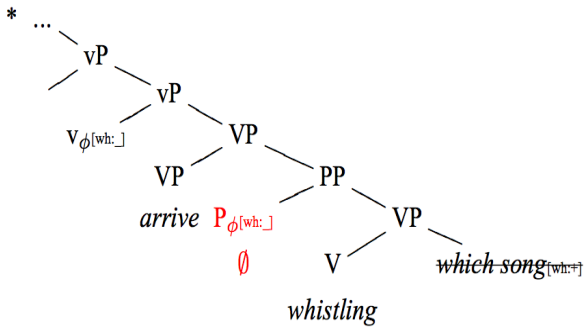
The choice between the two analyses can be determined empirically if a language can be found that prohibits P-stranding but allows subextraction from within participial adjuncts. In part II, it will be seen that German, a language that Abels (2003) shows to not allow P-stranding, nonetheless shows significant effects of the type of matrix predicate on the availability of extraction. Subextraction from participial adjuncts cannot be said to be gram-



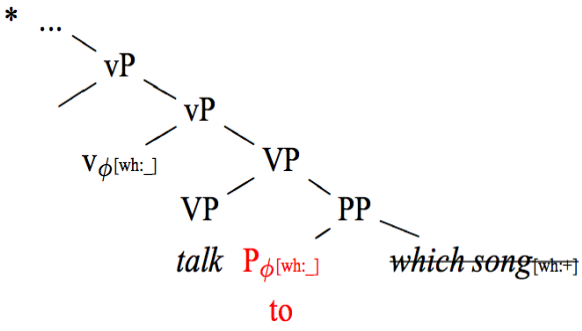
(a) Participials with EPP * diacritic



(b) P-stranding with EPP * diacritic



(c) Participials without EPP * diacritic



(d) Lack of P-stranding without EPP * diacritic

Fig. 2.4 Escape hatch account

matical as informants do not allow the constructions and the effects appear to show varying degrees of unacceptability. Nonetheless the reduction in acceptability could simply be a result of a register mismatch between the formal register of the participial and the informal register of the extraction construction. In this case, German may constitute one way of discriminating between theories of cross-linguistic variation in prepositions. The results in part II do not show a split between languages that have significant interaction effects between matrix predicate type and subextraction and other languages that do not show these effects. Instead both German and English and Norwegian all show significant effects of matrix predicates on subextraction. Therefore the question of how to model cross-linguistic variation is left open from this point, pending future empirical work investigating the properties of other Germanic languages.

2.6 Conclusion

Pseudocoordinate and participial exceptions to the Coordinate Structure Constraint and the adjunct island condition are often understood as idiosyncratic instances of variation that do not display regular enough patterns to be generated by a syntactic process. However this chapter showed that these constructions are of the same type, i.e. are adjuncts. The next chapter argues that these adjuncts adjoin to a particular position in the clause, namely to non-phase heads, and shows how the islandhood of adjuncts to phase heads vs. the non-islandhood of adjuncts to non-phase heads can be derived using standard theories of movement.

Chapter 3

Theoretical accounts of transparent adjuncts

Chapter 2 showed that transparent participials and pseudocoordination both involve the same type of configuration, i.e. transparent adjuncts. This chapter shows that these adjuncts differ from canonical, opaque, adjuncts in their position of adjunction. Whilst canonical, opaque adjuncts adjoin to a phase head (vP), the transparent adjuncts discussed here adjoin to a non-phase head (VP). Chapter 4 will return to this distinction in position of merger[1] and suggest that such a distinction may derive island patterns more generally[2].

The argumentation is organised as follows. First, in section 3.1, I review previous analyses to transparent adjuncts and show that each of the analyses respect the generalisation that extraction from within adjuncts is not possible from a purely syntactic point of view. Previous accounts either analyse the configuration as involving a process other than adjunction, or extend the theory of movement to modules of grammar outside of the syntax. Second, in sections 3.2 onwards, I show how it is possible both to analyse the configuration as involving

[1] Position, rather than height of merger.

[2] An analysis situating adjunct islands in the specifier position of phase head v has been proposed in the literature, cf. Narita (2011) and Boeckx (2014). However these works (i) do not derive the transparent adjuncts in (2) considered in this thesis; and (ii) contrast adjuncts to vP only with first merge meaning that the link between Spec,vP and islands does not extend to other types of islands and does not give rise to a typology of islandhood across the clause. See section 3.3 for more details of these analyses and chapter 4 for a contrast with the theory put forward in this thesis for launching sites across the clause and for their implications for movement theory in general.

adjunction and to keep a purely syntactic account of movement. This result can be achieved by (i) distinguishing between licensing of the adjunct and licensing of movement; and (ii) keeping a flexible syntax with blind merger where merger of an adjunct is possible to the extent that a meaning can be achieved in the semantic and discourse modules. I demonstrate that such an approach is simpler from a theoretical point of view, more adequate from an empirical point of view and derives gradience within a syntactic theory of movement.

3.1 Previous analyses of transparent adjuncts

Analyses of transparent adjuncts divide into two types. On the one hand, analyses like Borgonovo and Neeleman (2000); De Vos (2005); Wiklund (2007) and Fabregas and Jiménez-Fernández (2016) explain the exceptionality of the transparent adjuncts in chapter 2 in terms of their syntactic configuration. Such analyses do not propose alterations to the theory of movement, but rather show that the syntactic configuration in transparent adjuncts differs from that of canonical opaque adjuncts and that movement constraints are sensitive to this difference. For instance, Borgonovo and Neeleman (2000); Wiklund (2007) and Fabregas and Jiménez-Fernández (2016) propose analyses where what appears to be an adjunct or a conjunct is in fact structurally a complement, meaning that the configuration is no longer expected to form an island. Similarly, De Vos (2005) proposes that the two conjuncts in pseudocoordination form a complex head and that the argument to be extracted lies outside of the coordination, meaning that extraction does not take place out of a conjunct and the Coordinate Structure Constraint is not violated.

On the other hand, analyses like Goldsmith (1985); Kehler (1996); Stahlke (1970) and Truswell (2011) take the problematic nature of the configuration as is, but propose an alteration to the theory of movement. From the theoretical point of view of simplicity, altering the theory of movement to include non-syntactic constraints gives rise to unwanted redundancy in the grammar, where movement constraints are replicated in several grammatical modules. Truswell's (2011) filter analysis is especially problematic in this respect because although the discourse filter designed to account for transparent participials supplements a

syntactic theory of movement, the syntactic constraints are not specified, making the level of redundancy difficult to determine.

In this section, I review these two types of analyses: (i) analyses reanalysing the construction into a complement configuration that is compatible with assumptions about height in movement theory; and (ii) analyses that propose a change to movement theory itself.

The generative literature since Ross (1967) distinguishes three types of coordinate structure based on (i) their extraction properties; and (ii) parallelism of structure. First, those where the conjuncts remain parallel before and after extraction, i.e. across-the-board constructions where each conjunct contains a gap of similar function, e.g. of an object. Second, those where the conjuncts are not parallel either before or after extraction, i.e. where the gap asymmetrically occurs in at least one but not all conjuncts. Third, cases where conjuncts started off parallel but ended up non-parallel are generally considered to be unacceptable. Respectively, the first, across-the-board configuration does not violate the Coordinate Structure Constraint whilst the second type does. The three types agree with the parallelism constraint on coordination, the Condition on Coordination of Likes (Williams, 1978).

With respect to extraction, pseudocoordination picks out a subset of the configurations discussed under asymmetrical extraction. The division between discussions of pseudocoordination, and discussions of asymmetric extraction from constructions in which the sentences are parallel in the sense of allowing transitive predicates in both conjuncts, corresponds to a division in the types of analyses proposed. The discussions on asymmetric extraction overwhelmingly take asymmetric extraction as a counterexample to syntactic islandhood restrictions on extraction from within coordination structures and argue instead that the Coordinate Structure Constraint is not syntactic but should be implemented in the semantics (cf. Goldsmith, 1985; Kehler, 1996). In contrast, the works discussing pseudocoordination maintain the Coordinate Structure Constraint. In this case, pseudocoordination is taken to involve a configuration which is neither subject to the Coordinate Structure Constraint, nor to any other islandhood condition, whether the resulting configuration involves coordination (cf. Cormack and Breheny, 1994; De Vos, 2005, 2007), or subordination (cf. Wiklund, 2007).

There are drawbacks to both strategies: on the one hand removing the Coordinate Structure Constraint from the syntax (i) rejects the autonomy of syntax by imposing conditions on the assembly of lexical items into constituents outside of the syntactic module; and (ii) removes the possibility of a unified approach to locality and islandhood in the syntax, effectively rejecting the idea of a minimal syntax in a modular grammar. On the other hand, the approaches to pseudocoordination do not necessarily go against the assumption of an autonomous syntax (although some analyses, like that of De Vos 2005; 2007, nonetheless do). However those analyses also fail to offer any insight into locality in syntax: the exceptions presented by pseudocoordination to islandhood constraints are seen as illusions and accounted for in a construction-specific way.

Both sets of implications are problematic when acceptable violations of other island conditions taking place in similar semantic environments (single events) and syntactic environments (associated with low positions) are taken into account, e.g. acceptable violations of the adjunct island condition from within participial or prepositional adjuncts. The semantic accounts are problematic because such analyses offer no way of handling such similar but non-coordinate exceptions; the pseudocoordinate analyses are problematic because such analyses appear to be missing a generalisation that certain configurations fail to be subject to island conditions, regardless of whether that island is a condition on coordinate structures, and thus occurring in the specific configuration postulated for pseudocoordination.

3.1.1 Standard syntactic movement analyses

Complement analyses

The accounts introducing redundant semantic units into the syntax vary depending on whether the semantic units are used to restrict the position of merger in the syntax, meaning that a separate account is required for the transparency of that position, or whether the semantic units are used to directly license extraction.

The accounts of pseudocoordination in both De Vos (2005) and Wiklund (2007) use semantic units in the syntax to restrict the position of merger of the adjunct. In neither case is

pseudocoordination taken to involve true coordination. The contrast of pseudocoordination with true coordination can be seen by tests including distributive diagnostics (cf. De Vos (2005) for further diagnostics). The input conditions on the distributive operator *both* in (41) require two events. In (41-a) this condition is met and the resultant sentence is felicitous. In (41-b) in contrast this condition is not met and the resultant sentence is not felicitous.

(41) Distributivity

a. Which car did Mary both buy _and sell _?

b. #Which car did Mary both go and buy _?

(cf. De Vos, 2005, 41)

De Vos (2005) places the semantic units in the lexicon in the form of event-structural features, and uses these features to restrict which elements can be merged into a coordinate structure which forms a complex head. Extraction from within a conjunct in pseudocoordination is then only an illusion, as the internal argument is selected by the complex head as a whole. These features are redundant as they appear in addition to the event semantics in the semantic module. Predicates are conjoined to form complex heads, the combination of which selects the internal argument as in figure 3.1. The features act to restrict which arguments can be conjoined to form complex heads. For pseudocoordination, the combination has the effect of allowing the internal argument to be extracted without requiring an element to be asymmetrically extracted from within a coordinate island (in violation of the Coordinate Structure Constraint, Ross, 1967).

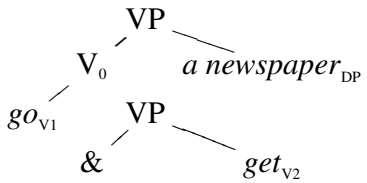


Fig. 3.1 Complex head construction in De Vos (2005)

Extension to participial adjuncts could be possible, provided a covert coordinator introduces the participial adjunct (cf. Cormack and Smith, 1997). However the event-structural

restrictions on participial adjunction appear to be quite different; Truswell (2007a) notes that in participial adjunction, the matrix predicate denotes the culmination point, whilst the adjoined predicate contributes the preparatory process. This division contrasts with pseudo-coordination, where the first conjunct does not denote the culmination point.

More importantly however, the complex head account strictly prohibits internal arguments to either predicate being realised within the structure, thereby failing to derive examples like (42). I leave the question open of whether extraction is possible from within this construction.

(42) Extraction from within both predicates

a. Which steak did Lizzie take a knife and hack _to pieces?

b. Lizzie took the knife and hacked the steak to pieces?

(Based on Schmerling 1975, (33), 217)

c. Which knife did Lizzie take _and hack the steak to pieces (with)?

This issue also arises if the semantic units are placed in Narrow Syntax, e.g. by means of a templatic structure like that of Ramchand (1997, 2008), which again places syntactic restrictions on which elements can be merged into which structures, and then allows pseudocoordination to be analysed as CP-subordination, allowing subextraction.

Sheehan (2013) highlights the relevance of height in transparent adjuncts beyond participials. (43-a), (43-b), (43-c) and (43-d) illustrate subextraction from within adjunct PPs; (43-e) and (43-f) illustrate unacceptability of extraction from within manner and extent adjuncts; finally, extraction from within participials is illustrated in (43-g) and (43-h).

(43) Subextraction from adjuncts

a. What temperature should I wash my jeans [at _]?

b. Which room does Karen teach her class [in _]?

c. What did you do that [for _]?

d. How long have you been waiting [for _]?

e. *Which way does climate change affect the weather [in _]?

f. *Which extent is Google Earth useful [to _]?

g. Which play did you fall asleep watching/*before watching/??after watching?

h. Which man did you return home without talking to/in order to talk to/*because you had talked to?

(Sheehan, 2013, (16), (17))

Sheehan (2013) suggests a further distinction between the availability of subextraction and the types of low adjunct: measure/locative/rationale/temporal PPs allow subextraction, whilst manner/extent PPs do not. It is unsurprising however that a register formal enough to allow sentence-initial *in which way* and *to which/what extent* disallows the stranding of prepositions, a construction notoriously disfavoured in formal registers of English.

Furthermore some examples do appear to be possible with subextraction from within manner or extraction modifiers, as (44-a) and (44-b) suggest.

(44) Subextraction from manner and extent adjuncts

a. Manner

Which way did Mary arrive riding? (e.g. side-saddle)

b. Extent

What pressure are nitrox diving tanks useful up to?

The two-way split will be seen in section 3.2 to correspond to the distinction between vP adjuncts (introduced by *before*, *after*) and VP-adjuncts (introduced by the null preposition [$_{P}$Ø]).

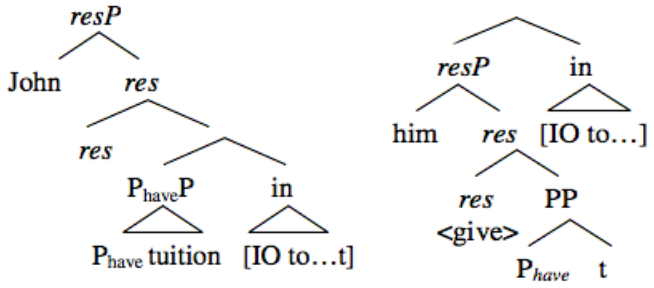
To sum up, a second property of transparent adjuncts is height of adjunction, which

can be observed through the semantic types of transparent adjuncts in both participial and prepositional constructions.

Sheehan (2013) provides an analysis that maintains both types of complement in (26-b) and (27) as adjuncts, and reduces the contrast to late and early adjunction. However the analysis of extraction relies on atomisation of the adjunct and requires stipulating that adjuncts to some phase heads are atomised whilst adjuncts to other phase heads are not atomised. Here position of adjunction (early or late adjunction) and reason for transparency (varying atomisation in types of adjunction) are not distinguished.

The actual analysis proposed in Sheehan (2013), however, staggers merger of adjuncts in the course of the derivation, so that transparent participial adjuncts like (56) are merged early, form an integral part of the computation of that part of the structure, and are therefore transparent. In contrast, tensed adjuncts are merged late, fail to count for computing that part of the clause, i.e. are invisible to the computation, and are therefore opaque, not licensing movement.

Early adjuncts are merged in the narrow syntax, and are assumed to merge to the non-phase head $P_{have}P$, as illustrated in figure 3.2a. In contrast, late adjunct islands are combined with the main clause at PF, so can only adjoin to a phase head, assumed to be *resP*, as illustrated in figure 3.2b.



(a) Early adjunction (b) Late adjunction

Fig. 3.2 Early vs. late adjunction in Sheehan (2013, (33b-c))

The first question is why, of all phase heads, that particular phase head is chosen, given (i) that any semantic evaluation of the late adjunct will proceed in absence of the main clause, given that these two are only combined at LF; and (ii) that PF operates after selec-

tional features have been satisfied, so an analysis where the adjunct selects that particular phase head is also ruled out. This question is particularly relevant given the fluid notion of phase in Sheehan (2013). There will therefore potentially be a larger number of phases than the canonical vP and CP (though not necessarily including either of these two projections).

A second issue is why early adjunction should be prohibited from adjoining to a phase head. Sheehan (2013) speculates that possibly a semantic analysis could make this work, and references Truswell (2007b, 2009). However the filter analysis in these works only acts as an agentivity filter, and so would be unlikely to be able to regulate height of merger in the syntax.

Finally, $P_{have}P$ is not assumed to constitute a phase, yet is both atomised in the fashion of phases under the multiple spell out analysis and fulfils the criteria for being a phase head in the Sheehan (2013) account, i.e. has externally merged adjunct, and adjuncts are not distinguished from specifiers in the account. Stipulating the phasehood of $P_{have}P$ renders the account toothless: either $P_{have}P$ does not constitute a phase and the analysis is internally inconsistent, or $P_{have}P$ is a phase and thus becomes a candidate for late adjunction, making it unclear why adjunct islands cannot merge lower. Such a contradiction also illustrates that height of adjunction does not provide any advantage in a late adjunction account: it is only the time of merger that counts, i.e. whether an adjunct is merged in the narrow syntax or at PF. However no motivation is available for why opaque adjuncts should be the only adjuncts that merge late, i.e. why late island-creating adjunction should only target adjuncts that are known to be islands.

The time of adjunction does however highlight the intuition that islands are less integrated into the derivation than transparent adjuncts. Such a point of view is very different from that of a filter analysis (e.g. Truswell, 2011). In the filter analysis, rather than the adjunct islands constituting anomalies, it is the transparent adjuncts which are anomalous and require an explanation. Viewing transparent constructions as anomalous is particularly problematic when no account of adjunct islands is proposed (as is the case in Truswell (2011)); the idea is that locality should be accounted for as if there were no exceptions in the form of transparent participials, and then transparent participials be formed via an ad

hoc filter.

An alternative to introducing redundant semantic units into the syntax is to base the analysis around the position of adjunction and derive differences in extraction syntactically from the differences in position.

This approach can be seen in the Condition on Extraction domains (Huang, 1982): projections are split up into two heights. An element can be merged low, as a sister to the head. The element is then a complement, satisfies a government relation with the head and allows subextraction. Alternatively an element can be merged high, to the maximal projection of the head. The element is then a modifier, is not in a government relation with the head and does not allow subextraction.

Borgonovo and Neeleman (2000) apply this height difference to transparent participial adjuncts by attempting to reduce transparent adjunction to the set of complements of a restricted class of predicates, namely reflexive predicates.

However, Truswell (2011) notes that such a restriction is descriptively inadequate. In (45), the participial adjunct does not occur with a reflexive predicate, and yet subextraction of *what* is possible.

(45) What did John drive Mary crazy [whistling _]?

(Truswell, 2011, (44a), fn.11, p.30)

Borgonovo and Neeleman (2000) take the phenomenon of transparent adjuncts to be restricted to cases where the matrix predicate is reflexive. Borgonovo and Neeleman (2000) take participials as superficially adjunct-like complements, and adjust the definitions of binding and L-marking to mean that transparent participial constructions constitute complements to reflexive matrix predicates. Extraction is allowed provided that the adjunct, and with it the adjunct-internal gap, is structurally low enough to be licensed reflexively under the revised definition of L-marking in (46).

(46) L-marking A head α L-marks a maximal projection β iff

a. β binds a θ-role of α, and

b. β is contained in α'.

(Borgonovo and Neeleman, 2000, (10),202)

In order for the adjunct to bind a theta-role of the matrix predicate, the matrix predicate must take an anaphoric complement. Borgonovo and Neeleman (2000) analyse unaccusative predicates and a small set of transitive predicates, e.g. *hurt oneself* in (47), as requiring anaphoric arguments and thus a reflexive feature [REFL].

(47) What$_i$ did John hurt himself trying to fix$_i$?

(Borgonovo and Neeleman, 2000, (30a),211)

No restrictions hold of the adjoined predicates, although to be transparent for the type of extraction discussed, the adjunct should include a direct object that can undergo *wh*-extraction.

A counterexample refuting the analysis is provided in Truswell (2011), reproduced in (48). In (48), extraction takes place from within an adjunct combining with the non-reflexive matrix VP *drive Mary crazy*, suggesting that restricting transparent participials to reflexive matrix predicates is inadequate (Truswell, 2011, fn.11,30).

(48) Extraction from within an adjunct to a non-reflexive transitive matrix predicate
What did John drive Mary crazy [whistling _]?

(Truswell, 2011, (44a),30)

The crucial insight of Borgonovo and Neeleman (2000) however is reflected in the revised definition of L-marking: transparent participials occur low in the tree.

Coupled with the requirement of single eventhood (Truswell, 2011), the relevance of

height for extraction from within participial adjuncts is not surprising given that single eventhood is associated with the lower part of the clause across distinctive frameworks (e.g. Ernst, 2002; Ramchand, 2008).

Left-hand adjunct analyses

Whilst most of the configurational analyses involve theoretically reanalysing the right-hand gap-containing phrase as a complement, some configurational analyses nonetheless maintain that part of the configuration contains adjunction. Both Déchaine (1993) and Culicover and Jackendoff (1997) analyse the right-hand phrase as a matrix clause, thereby standardly allowing extraction, and propose that adjunction is found instead in the left-hand phrase.

In conclusion, all of these configurational analyses account for the idiosyncrasy of these exceptions but do so by means of a rigid syntax which comes at an empirical cost. In contrast, the analyses reviewed in the next subsection, e.g. Goldsmith (1985); Kehler (1996); Stahlke (1970); Truswell (2011), maintain a regular productive syntax but require fundamental changes to the theory of movement.

3.1.2 Non-syntactic movement analyses

For analyses that propose alterations to the theory of movement in order to account for the transparent adjuncts in chapter 2, such long-distance dependencies are indicative of fundamental problems in the theory of movement. Such analyses either propose an ad hoc mix of syntactic and non-syntactic constraints (e.g. Truswell, 2011) or reject the project of a modular transformational grammar completely. The wider question of whether grammar should be transformational and what the advantages and disadvantages of a transformational grammar are lies outside of the scope of this thesis (see Borsley and Börjars, 2011 for such a discussion). I will show however that at least the transparent adjuncts that are often taken to provide evidence in favour of a move to non-syntactic constraints on long-distance dependencies require no such conclusion. Instead this data can be accounted for under an adjunction analysis in a flexible syntax within a standard syntactic theory of movement.

Non-syntactic Coordinate Structure Constraint

The first type of analysis is simply a rejection of the island constraint. Goldsmith (1985), Stahlke (1970) and Kehler (1996) all argue that the Coordinate Structure Constraint simply does not exist as a syntactic constraint. Instead, there is a semantic constraint on coordinate structures to be parallel (the Condition on Coordination of Likes) and non-parallel configurations are ruled out. Where the two conjuncts form a unit through some kind of process, e.g. forming a single event in Goldsmith (1985); Stahlke (1970), or through *coherence* in Kehler (1996), extraction is allowed.

These analyses have the advantage of being wide-reaching in their analysis of coordinate structures. Such accounts combine the semantic constraints of single eventhood with constraints on extraction in a way that accounts not only for pseudocoordination but also for transparency in asymmetrical coordination more generally.

In terms of the properties in chapter 2, such analyses can potentially capture the restrictions on the types of verbs that can appear in each conjunct, as these restrictions appear to be semantic in nature. The requirement for parallelism between conjuncts also derives the unacceptability of overt subjects, dummy auxiliaries, tense auxiliaries, phrasal negation and other elements that do not appear in the first conjunct (although such a strict implementation of the Condition on Coordination of Likes does raise a non-trivial question about how to account for asymmetric coordination with conjuncts that are not strictly parallel) in second conjunct; (iii) unacceptability of progressive; (iv) unacceptability of dummy auxiliary in second conjunct; (v) unacceptability of tense auxiliary in second conjunct; (vi) unacceptability of phrasal negation in second conjunct; (vii) incompatibility with *both*, showing single eventhood. However, extension to transparency in participial adjuncts and to other island constraints more generally is less clear.

Single Event Filter

The most comprehensive discussion of extraction from within participial adjuncts to date is Truswell's (2011) Single Event Filter, who proposes that extraction from within adjuncts like (56) is a bona fide example of semantically-driven extraction. More generally, Truswell

(2011) falls into a class of analyses that involve semantic constraints on movement, e.g. Abrusan (2014, 2-51) for a comprehensive overview of such analyses. However in contrast to analyses like Abrusan (2014), the analysis in Truswell (2011) is only partially based in the discourse module, and it is clear that Truswell (2011) intends the filter to operate on top of a syntactic theory of movement:

> "(...) the present work is an attempt to complement those syntactic constraints by finding a different resource which can do things that those constraints only do badly. This in no way removes the need for syntactic machinery regulating A'-dependencies (although it may well affect the specific formulations adopted). Syntax has a part to play in three areas here. Firstly, it will continue to rule out the core locality violations that have been systematically investigated since Ross (1967). (...)"
>
> (Truswell, 2011, 122)

The filter analysis in Truswell (2011) therefore introduces redundancy into the grammar, making it unclear which phenomena should be accounted for under syntactic constraints and which under semantic constraints, and why the line should be drawn as it is and not differently.

In contrast, Truswell (2011) introduces a filter at LF which directly licenses movement in single event constructions, by repairing movement violations provided a particular semantic condition, the Single Event Grouping Condition in (49), is met. The filter potentially involves redundant semantic units, as there must separately be a formalisation of *single event* in the semantics. To some extent the redundancy is avoided by identifying the crucial element of *single event* for LF as being agentivity, distinguished from event-structural notions like telicity in the semantics.

Truswell (2007a,b, 2009, 2011) accounts for transparent adjuncts by introducing a semantic filter into the syntax at LF (*Single Event Grouping Condition*, (49)). The filter acts as a last resort mechanism to save gaps which violate locality constraints, provided that

the gap is contained in a chain where matrix and adjunct predicate constitute a single event grouping or a single event formed by causally linking two predicates, which Truswell (2011) claims allows the agent of the adjoined predicate to be identified with the agent of the matrix predicate.

(49) Single Event Grouping 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 grouping*.
>
> (Truswell, 2011, (6),157)

where *event grouping* is defined as in (50):

(50) Event Grouping

> An *event grouping* ε is a set of core events and/or extended events [e_1, ..., e_n] such that:
>
> (i) Every two events e_1, $e_2 \in \varepsilon$ overlap spatiotemporally;
>
> (ii) A maximum of one (maximal event) e $\in \varepsilon$ is agentive.
>
> (Truswell, 2011, (65),157)

and *agentivity* is defined as in (51):

(51) Agentivity in Truswell (2011)

> An event e is *agentive* iff:
>
> (i) e is an atomic event, and one of the participants in e is an agent;
>
> (ii) e consists of subevents e_1, ..., e_n, and one of the participants in the initial subevent e_1 is an agent.
>
> (Truswell, 2011, (66),158)

The strongest empirical argument that Truswell (2011) puts forth for single eventhood of matrix predicate and adjunct is the limitation of matrix predicates to certain semantic classes of verbs, illustrated by the distinction between the examples in (52)[3].

(52) Single Event Grouping condition paradigm

a. What did John arrive$_{\theta}$ whistling$_{\underline{\theta}}$?
b. What did John arrive$_{\theta}$ wearing$_{\theta}$?
c. What did John drive Mary crazy$_{\underline{\theta}}$ whistling$_{\underline{\theta}}$?
d. *What did John drive Mary crazy$_{\underline{\theta}}$ whistling$_{\underline{\theta}}$?
(no causal relation between John's whistling and Mary's craziness)
e. What did John drive Mary crazy$_{\underline{\theta}}$ wearing$_{\theta}$?
f. Which chair did John eat his breakfast$_{\underline{\theta}}$ sitting on$_{\theta}$?
g. Which book did John lie around$_{\theta}$ reading$_{\underline{\theta}}$?
h. What did John wait around$_{\theta}$ sitting on$_{\theta}$?
i. *What does John dance$_{\underline{\theta}}$ screaming$_{\underline{\theta}}$?

(Truswell, 2011, (73), 163-165)

Whilst the Single Event Grouping condition successfully derives the paradigm in (52), the filter requires aspectual classes traditionally defined in terms of telicity (accomplishment/achievement) to be recast in terms of agentivity: accomplishments are agentive, whereas achievements are non-agentive (cf. Truswell (2011, esp.98-103)). Formulating the semantic requirement for extraction in terms of agentivity however causes problems when a wider set of matrix predicates with different telicity specifications are considered.

To start with, the sentences involving ill-formed extraction in (52-i) can be improved by rendering that event telic. The contrast between (52-i) and (53) shows that extraction from within the *dance-scream* configuration is intuitively more acceptable when an internal DP, *the YMCA* in (53), is added to the matrix predicate, regardless of the fact that both matrix and adjunct predicates remain agentive. Such a contrast is problematic for the Single Event

[3]For ease of exposition, I have labelled agentive predicates with $\underline{\theta}$ and nonagentive predicates with θ in (52), (53), and (54).

Grouping Condition in (49), as the movement chains in both (52-i) and (53) involve two agentive subevents; neither chain satisfies the requirements of the filter in (49), meaning that both movement chains should remain unlicensed at LF and be ill-formed, contrary to the judgements in (52-i) and (53).

(53) Acceptability of extraction from within adjuncts to telic matrix predicates

What does John dance the YMCA$_{\underline{\theta}}$ screaming$_{\underline{\theta}}$?

In addition, transparent adjuncts are intuitively unacceptable when combined with atelic matrix predicates, regardless of the agentivity of the adjoined predicate. (54) illustrates unacceptability of extraction from within a phrase adjoined to the atelic unergative (i.e. agentive) predicate *shake*, both when the adjoined predicate is nonagentive, e.g. *sitting on* in (54-a), and when the adjoined predicate is agentive, e.g. *whistling* in (54-b). Again, the Single Event Grouping Condition wrongly predicts the distribution of transparent adjuncts: whereas (54-a) has two agentive predicates and is therefore correctly predicted to be ill-formed, (54-a) involves just one agentive subevent, and is therefore incorrectly predicted to be well-formed under the Single Event Grouping condition.

(54) Unacceptability of extraction from within adjuncts to atelic matrix predicates

a. *Which chair did Mary shiver$_{\underline{\theta}}$ sitting on$_{\underline{\theta}}$?
b. *Which tune did Mary shiver$_{\underline{\theta}}$ whistling$_{\theta}$?

Furthermore, the notion of *event grouping* is not sufficient to cover all the configurations which are transparent for extraction. In addition to *atomic events* (e.g. *arrive*) and *single event groupings* (e.g.*arrive whistling*), Truswell (2011, cf.163-164) includes single events like *drive someone crazy whistling*. Adjuncts in single events, unlike event groupings, are not explicitly mentioned in the *Single Event Grouping condition* in (49) but are nonetheless transparent. For instance *drive Mary crazy whistling* in (52-c) involves two agentive subevents, but, as (52-c) illustrates, still allows acceptable extraction from within the adjunct introduced by *whistling*.

Truswell (2011) motivates the distinction between *single event grouping* and *single event* by claiming that the causality link between the two predicates is able to create a single event interpretation. However the availability of other means of forming a single event for the purposes of locality without restricting the number of agentive subevents in the single event undermines the validity of *single event groupings* as a natural class. In particular, it appears more feasible, and conceptually simpler, to maintain the importance of telicity in defining event-structural predicates, for instance in the tripartite event structure in figure 3.9. In (52-c) the adjunct to *drive Mary crazy* introduced by *whistling* acts to add a preparatory process to the telic predicate *drive Mary crazy*, suggesting that a more empirically adequate and conceptually simpler means of defining the class of predicates that combine with transparent adjuncts is in terms of telicity.

Besides issues in empirical coverage, the notion of a filter saving movement chains across adjuncts forming single events with matrix predicates remains unexplanatory in an account that does not make explicit a syntactic analysis of the island hood of tensed adjuncts. Truswell (2011) takes transparent adjuncts to be exceptional: the ultimate aim is to maintain the traditional view of locality, where adjuncts constitute strong islands, and to account for extraction from within single events as a separate class. As a research strategy, this tactic is very useful: single eventhood is taken to be a crucial property in a number of other constructions which allow extraction from what should constitute an island. One example of a construction not discussed by Truswell (2011) is pseudocoordination[4] which seemingly violates the Coordinate Structure Constraint (Ross, 1967, Huang, 1982; cf. De Vos (2005), 2005, Pullum, 1990, for discussions of single eventhood in pseudocoordination).

However in a model of locality, it is unlikely that single events will be exceptional. Complements, which are more integrated into the derivation if factors like *c*-selection as head of projection and theta-satisfaction are considered, allow extraction. The possibility of extraction from within complements suggests that transparency is the default and adjunct islands are expected to be exceptional.

[4]Pseudocoordination is briefly mentioned in an unrelated discussion in (Truswell, 2011, 19).

To sum up, Truswell (2011) makes a crucial point about the relevance of the semantic link between adjunct and matrix predicate. However the filter account proposed in Truswell (2011) remains empirically inadequate despite modifying the definition of event-structural predicates types in terms of agentivity rather than telicity. Furthermore, theoretical completeness makes it desirable to couch the account of transparent adjuncts within an explicit theory of the locality of adjuncts that is able to provide a specific derivation of opacity in adjunct islands.

3.1.3 Summary of analyses

To conclude, the filter (Truswell, 2011), reflexivity (Borgonovo and Neeleman, 2000) and late adjunction analyses (Sheehan, 2013) are each conceptually or empirically problematic. In the following section, I introduce a means of capturing the coherence of transparent adjuncts compared to the lack of integration into the derivation for opaque adjuncts, without invoking late adjunction and the stipulations that this type of analysis gives rise to, by showing that adjunct-internal positions are not visible to any phase head, and therefore constitute black holes for the purposes of locality.

3.2 Different positions of adjunction

Much work in transformational generative grammar (Government and Binding theory, Minimalism) has aimed to show that locality regulates patterns of extraction, highlighting that some movement configurations are not local enough whilst other configurations are too local. Respectively such constraints trigger successive-cyclic movement through intermediate landing sites (the *phase edge* in Chomsky, 2001), and rule out very short steps of movement from complement to specifier of a single projection (cf. *anti-locality* in e.g. Abels (2003)).

I aim to show that locality in some instances remains undefined: some parts of the clause are inaccessible for purposes of extraction. I use one such area of inaccessibility inside the prepositional free adjunct to vP in figure 3.3 to provide an all-syntax solution to the puzzle of why extraction is barred from within adjuncts to vP, e.g. tensed adjuncts

illustrated in (55), but permitted from within lower adjuncts to VP, e.g. participials in (56-a) and *and*-phrases in (56-b), which form single-events with the matrix predicate (cf. Truswell, 2011, for participial adjunction; De Vos, 2005, for pseudocoordination), and yield manner readings as in (56-a) and measure readings as in the prepositional construction in (56-c).

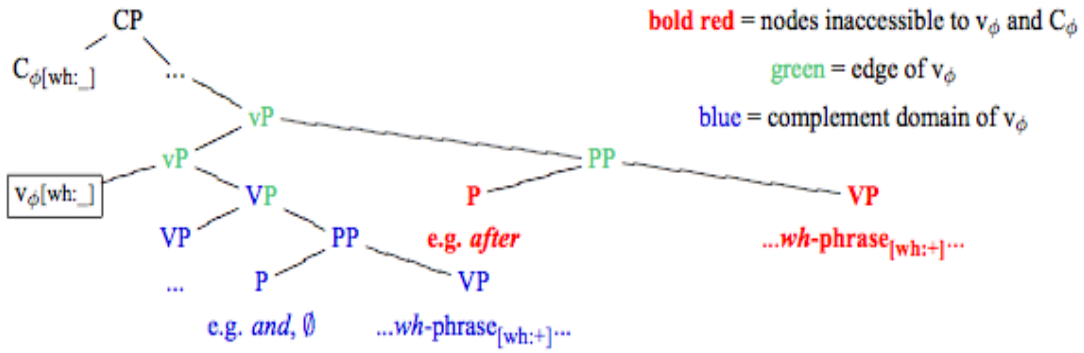


Fig. 3.3 Area of inaccessibility in a phase-based account of locality

(55) Unacceptability of extraction from within adjuncts to vP

*Which celebrity did Mary eat an ice cream before she saw?

(cf. also Huang,1982, 503)

(56) Acceptability of extraction from within adjuncts to VP

a. What did John arrive whistling ~~what~~?

(Borgonovo and Neeleman, 2000, (3a,b),200)

b. Which car did I go and buy ~~which car~~?

(cf. Ross 1967, (4.108a,b,c),170)

c. What temperature should I wash my jeans at ~~what temperature~~?

(Sheehan, 2013, (16a))

The puzzle is by no means an idiosyncrasy of English. The distinction is found in Norwegian, and the literature on extraction from within pseudocoordinate constructions across languages (cf. Kjeldahl 2010; Wiklund 2007), and the more limited discussions on extraction from within participial constructions (cf. Truswell 2009, 2011, 195) suggest that the

transparent constructions are found more widely in at least Danish and Swedish (see also table 2.3).

The availability of extraction in (56) is particularly surprising given that, to start with, these constructions should be ruled out by the adjunct island condition (Huang, 1982; Ross, 1967). Note that although (56-b) may at first be taken for coordination (and thereby acceptable violations of the Coordinate Structure Constraint; Ross, 1967, Williams, 1978), *and* in (56-b) patterns unlike true coordination with respect to e.g. distributivity (cf. De Vos, 2005, for a summary of tests distinguishing pseudo- and true coordination).

Furthermore, extraction in (56) appears to be semantically-driven which is problematic for an autonomous syntax; a central assumption of the Y-model of grammar is that the combination of lexical items into phrases, i.e. syntactic structure, is determined separately from the semantics. Under a strictly modular approach such as that standardly assumed in Minimalism, the syntax precedes the semantics and their interaction is mediated by an interface (LF), extraction gaps can be licensed only up to that interface, in line with the principle of full interpretation. One consequence of an autonomous syntax is that the semantics cannot license extraction gaps. Extraction from within an adjunct in (56) however is possible just so long as a particular interpretation holds, i.e. only if both predicates, *arrive* and *whistling what* in (56), form a single event (Truswell, 2011). The acceptability of subextraction in (56) therefore constitutes a potential counterexample to the autonomy of syntax.

A crucial assumption in Government Binding theory and Minimalism is that operations proceed locally. In a formalism based on locality of operations, long-distance movement such as that displayed in *wh*-extraction may at first seem surprising, given that the launching and landing site of a *wh*-element moving from object position to the front of the clause (Spec,CP) are separated by functional heads at least (e.g. *T*) and sometimes by clausal boundaries (e.g. *CP* in *Which actress did Mary ask whether John knew?*). A classic way of capturing long-distance movement in Government Binding theory and Minimalism has been to say that long-distance movement is a product of a series of much smaller movements (cf. principles like Shorter Steps and Minimal Link). That is, whilst the end result may appear non-local, each individual step remains local.

To motivate intermediate landing sites, such a theory requires the definition of domains of locality, in which operations take place before operations outside. Examples of units used to define domains of locality include bounding nodes (GB) or phases (Minimalism).

I now show that portioning the clause into domains of accessibility gives rise to a number of positions which remain outside of any domain, i.e. constitute 'blackholes' for the purposes of locality. I show how these areas of inaccessibility derive unavailability of extraction from within tensed adjuncts and their contrast with the availability of extraction from within participial and prepositional adjuncts. In particular, appealing to inaccessible nodes captures the properties of *single eventhood*, *low adjunction* and high level of integration into the computation.

The following subsections derive adjuncts to VP, illustrated in (57-a), (57-b) and (57-c), and adjunct islands, illustrated in (57-d). I first focus on participial adjuncts and then on prepositional adjuncts.

(57) Extraction from within VP adjuncts

a. [$_{CP}$What [$_{C}$did] [$_{TP}$John [$_{vP}$~~what~~ [$_{vP}$~~John~~ [$_{VP}$ [$_{VP}$arrive] [$_{PP}$ [$_{P}$∅] [$_{VP}$whistling ~~what~~]]]]]]]?

b. [$_{CP}$Which car[$_{C}$did] [$_{TP}$I[$_{vP}$~~which car~~[$_{vP}$ ~~I~~[$_{VP}$[$_{VP}$[$_{V}$go]] [$_{PP}$[$_{P}$and][$_{VP}$buy ~~which car~~]]]]]]]?

c. [$_{CP}$What temperature [$_{C}$should][$_{TP}$I[$_{vP}$~~what temperature~~[$_{vP}$~~I~~[$_{VP}$[$_{VP}$wash my jeans] [$_{PP}$[$_{P}$at]]]]]]]?

d. Extraction from within vP-adjuncts
[$_{CP}$Who [$_{C}$did] [$_{TP}$John [$_{vP}$ [$_{vP}$~~John~~ [$_{VP}$ [$_{V}$cry]]] [$_{PP}$ [$_{P}$after] [$_{TP}$Mary [$_{vP}$~~who~~ [$_{vP}$~~Mary~~ [$_{VP}$hit ~~who~~]]]]]]]]?

Participial and tensed adjuncts merge at different heights, i.e. at VP- and at vP-levels, if single events are licensed below vP (cf. Ernst, 2002), and participial adjuncts but not tensed adjuncts form single events with the matrix predicate. Supporting empirical evidence comes from adverbial modification: preverbal vP-adverbs like *reluctantly* scope over both predicates in (58-a) and (58-b). For instance, (58-a) can refer to a situation where part of what

Mary was reluctant about was the way she arrived, i.e. she was reluctant that she had to arrive whistling the national anthem. (58-b) can refer to a situation where part of what John was reluctant about was the timing of his crying, i.e. that he had to start crying after Mary hit a friend, rather than before she hit a friend.

(58) Pre-verbal adverbs

a. Mary reluctantly arrived whistling the national anthem.

b. John reluctantly cried after Mary hit a friend.

c. Mary quickly arrived whistling the national anthem.

d. John quickly cried after Mary hit a friend.

Conversely, preverbal VP-adverbs like *quickly* only scope over both predicates in (58-c), not in (58-d). For instance, (58-c) could describe a situation where a very good client has commented that there are not enough patriots around these days. To quickly dispel this myth, Mary is charged with entering the room whilst whistling the national anthem. In contrast, (58-d) only permits a reading is available where *quickly* modifies the matrix predicate *cried* in isolation from the adjunct *after Mary hit a friend*, i.e. a reading where the interval between each teardrop was short, or where the crying event was short in duration.

The contrast between the scope of VP- and vP-adverbs in (58) suggests that only participial adjunction creates a VP-constituent, i.e. participial adjuncts are merged at VP (non-phasal) level, whilst tensed adjuncts are merged at vP (phasal) level. Consequently, the question to be addressed is why extraction is prohibited from within adjuncts to maximal projections headed by a phase head ϕ rather than why extraction from within participial adjuncts is only licensed in single events.

A separate question remains as to why VP-adjuncts adjoin particularly low in the tree. I will argue that the preposition is taken to denote an operator which creates complex scales from the scale denoted by the matrix predicate and that denoted by the adjunct predicate.

This section focuses on licensing of the adjunct. Rather than transparency being directly linked to semantic interpretation, I argue that both transparency and single-eventhood are otherwise unrelated effects of the position of adjunction. Specifically, the opaque non-single

event construction in (26-b) involves merger with a projection of a phase head (vP), whilst the transparent single event constructions in (27) involve merger with a projection of a non-phase head (VP).

The existence of an interpretational difference between transparent and opaque adjuncts is clear: whilst the opaque adjunct in (26-b) situates two separate events in relation to each other, the participial and pseudocoordinate constructions in (27-a) and (27-b) modify aspect within a single event. Truswell (2007a) for instance notes that participial adjuncts denote the preparatory process in a tripartite event structure of preparatory process, culmination point and consequent state, and co-occur with achievement predicates in the matrix clause. Similarly, pseudocoordination has been described, generally through the first conjunct predicate, as marking PRIORITY (e.g. Schmerling, 1975), durative aspect (Ebert, 2000, 605), progressive aspect (e.g. Platzack, 1979), inceptive aspect (e.g. Wiklund, 2007, esp. 127) and ingressive aspect (e.g. Darnell, 2008, 264). Finally, Sheehan (2013) observes that transparent prepositional adjuncts, cf. (27-c), are restricted to low readings.

Besides interpretational differences, the opaque (26-b) and transparent (27) constructions can also be distinguished syntactically in terms of their position of base generation.

Adverb scope tests suggest that the opaque non-single event constructions in (26-b) are vP-adjuncts whilst the transparent single event constructions in (27) are VP-adjuncts. In (59) and (60), the subject-oriented adverb *reluctantly* can scope either over the first predicate, or over the matrix-adjunct complex as a whole, suggesting that neither adjunct is merged higher than vP. However whilst the VP-adjunct *loudly* can modify the transparent matrix predicate-adjunct complex as a whole in (61), suggesting merger below the adjunction site of *loudly*, e.g. to VP, *loudly* cannot scope over the opaque matrix predicate-adjunct complex in (62), suggesting merger to a position higher than VP but lower than the position of adjunction of *reluctantly*, e.g. to vP.

(59) Mary reluctantly ate an ice cream before she whistled the national anthem.

(60) a. Monica reluctantly arrived whistling the national anthem.

b. Monica reluctantly washed the jeans at 60 degrees.

c. Mary reluctantly went and bought the car.

(61) a. Monica loudly arrived whistling the national anthem.

b. Mary loudly went and bought the car.

c. Monica loudly washed the jeans at 60 degrees.

(62) #Mary loudly ate an ice cream before she whistled the national anthem.

The different behaviour of the constructions in (26-b) and (27) with respect to adverb scope tests (59)-(61) suggests that rather than semantic interpretation regulating transparency, semantic interpretation is a result of the position of adjunction. Semantic constraints on adjunction can be captured under a scope-based account of adjunct licensing such as Ernst (2002), where adjunction is not regulated in the syntax but is instead derived through scope relations in the semantics. For instance, adjuncts forming single events with the matrix predicate will merge low (VP) according to Ernst (2002), whilst adjuncts that do not form single events with the matrix predicate will merge with a predicational layer higher than VP.

Differentiating between the licensing of adjuncts and of movement paths requires two separate theories. In the present account, the semantics licenses the position of adjunction, meaning that differences in acceptability will occur between infelicitous and ill-formed sentences. Where no extraction has taken place, an incorrect position of adjunction will result in semantic infelicity, as the mismatch will require coercion of the adjunct to satisfy the semantics of the adjunction site. If subextraction does take place however, the violation will be syntactic. In this case, semantic coercion will have no repairing effect and the sentence will be ill-formed[5]. A more comprehensive formalisation of the licensing of adjuncts in single and non-single event constructions in (26-b) and (27) is provided in chapters 7 and 8.

One possible direction for formalising licensing constraints on single events involves aspectual operators. Formally, Ernst (2002) suggests that the VP-layer be represented in

[5]Thus a many-way contrast in acceptability is expected including (i) felicitous and well-formed sentences (e.g. interrogative sentences involving subextraction from adjuncts forming single events with the matrix predicate); (ii) infelicitous but well-formed sentences (e.g. declarative sentences without subextraction where adjuncts failing to satisfy the semantic constraints on single eventhood are merged at VP and must therefore undergo coercion in the semantics resulting in a (not total) reduction in acceptability); and (iii) ill-formed sentences (e.g. interrogative sentences involving subextraction from adjuncts in non-single event constructions where adjunction is to vP).

terms of aspect shift in a network of aspectual operators (cf. De Swart, 1998; Moens and Steedman, 1988). Potentially the semantic representation of the head of the adjunct in the single event construction could be represented as an aspectual operator that type-shifts between types in an aspectual network. The null preposition introducing the participial adjunct in (27-a) could denote PROG in the framework of De Swart (1998), introducing a preparatory process. In contrast, pseudocoordinate *and* in (27-b) could denote ADD-CUL in De Swart (1998), serving to add a culmination point.

The second question of how to license extraction is the focus of this paper. Thus far, I have followed the claim in Truswell (2011) that the movement puzzle requires formalising single event constraints on extraction. However distinguishing between licensing of adjunction and of movement paths shows that the movement puzzle is purely syntactic. Taken syntactically, two questions arise: why are transparency and opacity contrastively linked to certain positions of merger? Specifically why can extraction take place from within adjuncts to maximal projections of non-phase heads but not from within adjuncts to maximal projections of phase heads?

The relevant contrast is summarised in figure 3.4, where the nodes in green can undergo *wh*-movement to sentence-initial position whereas the nodes in red cannot undergo *wh*-movement to sentence-initial position. I derive the unavailability of gaps within free adjuncts to maximal projections of phase heads, here *vP*, using phase theory.

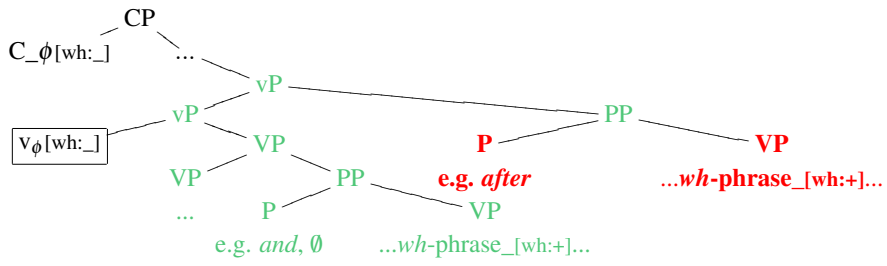


Fig. 3.4 Contrast between vP- and VP-adjuncts

3.3 Derivation of syntactic licensing constraints with blackholes

I propose an account that derives the contrast between adjunct islands and transparent adjuncts in a scope-based theory of free adjunction, e.g. Ernst (2002) without rejecting an autonomous syntax. Within a phasal successive-cyclic theory of movement, such as Chomsky (2001), positions within free adjuncts to maximal projections of a phase head (ϕ) remain undefined for purposes of locality. Figure 3.3 depicts the case of v_ϕ[6]P-adjuncts, where positions internal to the adjunct are invisible both to computation at v_ϕP and to computation at C_ϕP.

I use the area of invisibility inside the ϕP-adjunct in figure 3.3 to derive the contrast between VP adjuncts in (63) and v_ϕP-adjuncts as in (64).

(63) Extraction from within VP adjuncts

a. [$_{CP}$What [$_{C}$did] [$_{TP}$John [$_{vP}$~~what~~ [$_{vP}$~~John~~ [$_{VP}$ [$_{VP}$arrive] [$_{PP}$ [$_{P}$Ø] [$_{VP}$whistling ~~what~~]]]]]]]?

b. [$_{CP}$Which car[$_{C}$did] [$_{TP}$I[$_{vP}$~~which car~~[$_{vP}$ ~~I~~[$_{VP}$[$_{VP}$[$_{V}$go]] [$_{PP}$[$_{P}$and][$_{VP}$buy ~~which car~~]]]]]]]?

c. [$_{CP}$What temperature [$_{C}$should][$_{TP}$I[$_{vP}$~~what temperature~~[$_{vP}$~~I~~[$_{VP}$[$_{VP}$wash my jeans] [$_{PP}$[$_{P}$at]]]]]]]?

(64) Extraction from within v_ϕP-adjuncts

*[$_{CP}$Who [$_{C}$did] [$_{TP}$John [$_{vP}$ [$_{vP}$~~John~~ [$_{VP}$ [$_{V}$cry]]] [$_{PP}$ [$_{P}$after] [$_{TP}$Mary [$_{vP}$~~who~~ [$_{vP}$~~Mary~~ [$_{VP}$hit ~~who~~]]]]]]]]?

Here I show that phase theory (cf. Chomsky, 2000, 2001) can in fact derive figure 3.4 under a standard *c*-command definition of Agree such as (65).

[6]Subscript ϕ is used to emphasise the phasehood of a head, e.g. when distinguishing between adjuncts to maximal projections headed by a phase head, and adjuncts to maximal projections headed by a non-phase head.

(65) Agree

An interpretable feature stands in an Agree relation with an uninterpretable feature iff the interpretable feature *c*-commands[7] the uninterpretable feature within the same projection.

As standard, each phase head ϕ is assumed to contain uninterpretable copies of all the features in the derivation. These uninterpretable features must be checked under an Agree relation in order for the Principle of Full Interpretation to be satisfied and for the derivation to converge. In order for all uninterpretable features to be checked, a phase head ϕ probes its complement, i.e. those nodes *c*-commanded by ϕ that have not yet been spelled out. Where an interpretable copy is found, movement is triggered to a position from which that interpretable feature will *c*-command the uninterpretable feature on ϕ, i.e. to Spec, ϕP. From the specifier position, the uninterpretable feature on the projecting phase head is checked. In specifier position, the interpretable feature also escapes spellout of the complement of ϕ, meaning that the uninterpretable feature stays in the derivation and can check, and finally value, uninterpretable features on higher phase heads.

A consequence of (65) is that [wh:_] on v_ϕ cannot be checked in subextraction from vP-adjuncts as (i) nodes internal to vP-adjuncts (in red in figures 3.4 and 3.5) do not *c*-command v_ϕ from their in-situ position; and (ii) v_ϕ cannot trigger movement to an alternative Spec,vP node that does *c*-command v_ϕ, as nodes internal to vP-adjuncts are not *c*-commanded by v_ϕ. Subextraction from vP-adjuncts therefore violates the Principle of Full Interpretation and the derivation fails to converge.

Figure 3.5 illustrates this violation.

In contrast, nodes internal to VP-adjuncts (in green in figures 3.4, 3.6, 3.7 and 3.8) are *c*-commanded by v_ϕ. Therefore whilst interpretable features in these nodes internal to VP-adjuncts cannot check [wh:_] on v_ϕ from their in-situ position, v_ϕ can trigger movement of these features to a *c*-commanding position from which [wh:_] on v_ϕ can be checked. Subextraction from VP-adjuncts therefore satisfies the Principle of Full Interpretation and

[7] *C*-command rather than asymmetric *c*-command allows for anti-locality effects where the sister node to a phase head must remain immobile, cf. Abels (2003) for discussion of anti-locality.

the derivation converges.

Figure 3.6 illustrates the derivation for the acceptable extraction from within the participial adjunct in (27-a). Here a null preposition acts to combine the matrix and adjunct predicates. It is not necessary that this element be prepositional, only that the element project a phrase heading the adjunct.

Figure 3.7 illustrates the derivation for the acceptable extraction from within the pseudocoordinate adjunct in (27-b). Here the null preposition is realised by *and*. Again, it is not necessary that *and* be prepositional, only that this element project a phrase heading the adjunct. The question is left open in the present paper whether *and* should constitute a separate lexical entry homophonic to the true coordination *and*, or whether true coordination *and* and pseudocoordinate *and* should constitute instances of the same lexical entry, adjoined at different positions in Narrow Syntax (true coordination *and* at vP-level for instance, and pseudocoordinate *and* at VP-level).

Figure 3.8 illustrates the derivation for the acceptable extraction from within the prepositional adjunct in (27-c). Here the adjunct lacks a verbal predicate. The reduced adjunct still remains far enough removed from the phase head v_ϕ however to avoid anti-locality effects (cf. Abels, 2003), where the sister of a phase head is frozen in place.

An alternative account could define the *phase edge* of a phase head ϕ as in (66), with the result that the nodes internal to vP-adjuncts would remain invisible both to computation at v_ϕ and at C_ϕ, and therefore be stranded in their in-situ position. Not only would the *wh*-feature on v_ϕ remain uninterpretable in such an account but also the *wh*-features on higher phase heads, i.e. on C_ϕ.

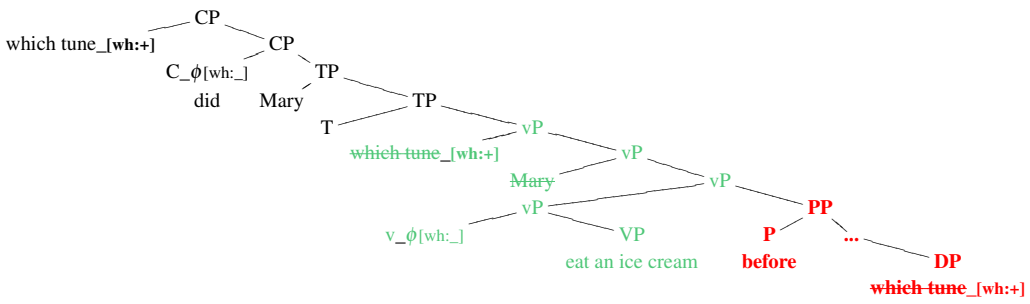


Fig. 3.5 Ungrammatical subextraction from Spec,vP with adjunct islands

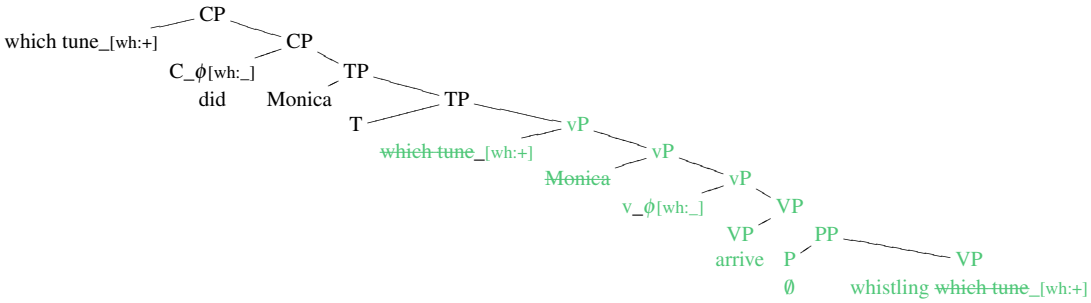


Fig. 3.6 Grammatical subextraction from Spec,VP with participial adjuncts

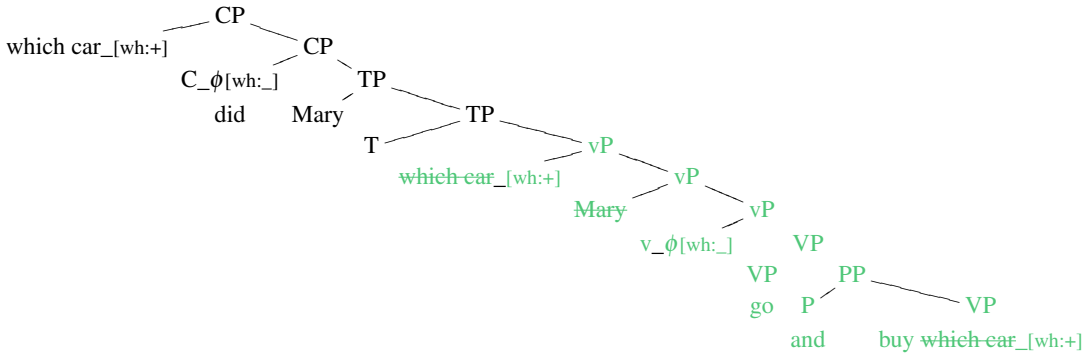


Fig. 3.7 Grammatical subextraction from Spec,VP with pseudocoordination

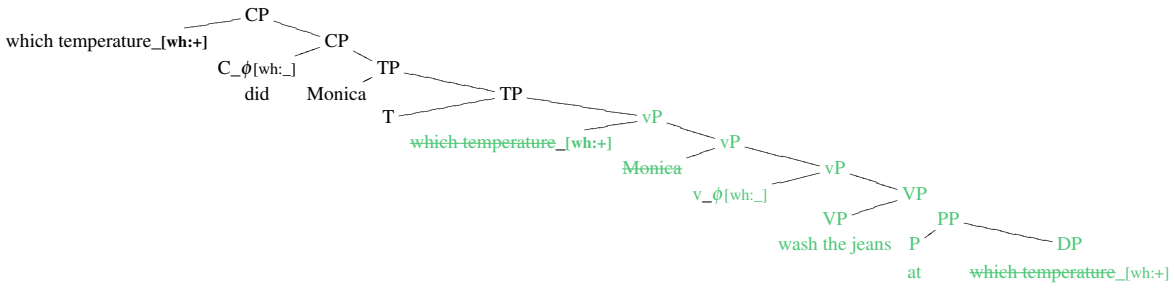


Fig. 3.8 Grammatical subextraction from Spec,VP with prepositional adjunct

(66) Phase edge (stipulated)

The set of nodes $\{n\_1 \ldots n\_x\}$ in ϕP that dominate, asymmetrically *c*-command or stand in an identity relation to ϕ.

However such an account would (i) require an additional stipulation in the form of the definition of phase edge in (66); and (ii) require a departure from the more explanatory standard account of spellout in phase theory. Rather than spellout targeting the complement of the phase head, spellout would have to target the maximal projection of the phase head, and then return the phase edge to the derivation.

In contrast, the account proposed here does not require additional stipulations to standard assumptions about phase theory. It is however crucial under the present analysis that v possess a *wh*-feature. There are two arguments in favour of the presence of [wh:_] on v_ϕ: (i) inheritance of *wh*-features is empirically motivated in cases of VP-adjunction, and so the simplest theory is to assume that inheritance takes place in all cases, including in derivations involving vP-adjunction; and (ii) the presence of [wh:_] on v_ϕ makes the empirical prediction that if an element is subextracted from the complement of v in addition to the nodes internal to vP-adjuncts, the derivation should be well-formed. Potential examples include parasitic gap configurations and across-the-board extraction from coordinate structures.

The hypothesis that there is an uninterpretable *wh*-feature on v does however go against an implicit assumption in much work on phase theory, namely that when an uninterpretable feature is not needed, it is not active on the phase head in question.

To some extent, some such generalisation is needed: it is acceptable to *wh*-extract from within a matrix clause whilst no extraction takes place from a lower embedded clause, cf. (67). Such an option would not be available if all phase heads were to inherit uninterpretable *wh*-features that necessarily must be checked under a *c*-command relation with the moving constituent within the same projection. To satisfy such a constraint, the moved constituent would first have to move down into the embedded clause, before moving back up to Spec,CP, which clearly is not the simplest derivation possible.

(67) Who _said that John will watch TV tomorrow?

However instances of multiple gaps in coordinate structures and in parasitic gaps suggest that at least a subset of adjuncts to Spec,vP with gaps require a [wh:_] feature on v. Additionally, even in cases where no gap is found in the matrix clause, inheritance of the *wh*-feature is needed into the adjunct to vP.

In order to capture the connected nature of movement paths, a principled means of defining inheritance could be to say that the uninterpretable *wh*-feature percolates down the tree to all phase heads projecting a node that dominates the gap. In this way, the head of any maximal projection in the line of nodes connecting filler and gap through dominance relations will possess an uninterpretable *wh*-feature, crucially including, in the case of adjuncts to vP, v and the adjunct-internal phase heads, but excluding any phase heads lower than, i.e. *c*-commanded by, matrix v.

Without such an account, sentences where the *wh*-phrase remains in-situ would also incur a Principle of Full Interpretation violation, due to unchecked uninterpretable *wh*-features on matrix C and v, and adjunct-internal P and v. The analysis proposed accounts for the lack of an active *wh*-feature on these nodes, as the filler and gap are here in the same position. No nodes intervene between antecedent and gap, therefore no phase heads will have active uninterpretable *wh*-features. The interrogative nature of the clause must then be signalled through a separate mechanism, e.g. through intonation.

In summary, I have argued that semantic licensing of adjuncts should be distinguished from licensing of adjunct-internal gaps. I formalised the account in terms of phase theory: some nodes remain inaccessible to the projecting head. A further question that arises is whether other semantic constraints on movement, e.g. transparency in weak island constructions involving discrete individuals (Szabolcsi and Zwarts, 1990, 1993), can also receive a syntactic explanation by distinguishing between semantic licensing of adjunction and syntactic conditions restricting filler-gap dependencies between nodes. This question is returned to in chapter 8.

(68) PP-adjuncts

a. Measure

[$_{CP}$What temperature [$_{C}$should] [$_{TP}$I [$_{vP}$~~what temperature~~ [$_{vP}$~~I~~ [$_{VP}$ [$_{VP}$wash my jeans] [$_{PP}$ [$_{P}$at] [$_{DP}$~~what temperature~~]]]]]]]?

b. Locative

[$_{CP}$Which room [$_{C}$does] [$_{TP}$Karen [$_{vP}$~~which room~~ [$_{vP}$~~Karen~~ [$_{VP}$ [$_{VP}$teach her class] [$_{PP}$ [$_{P}$in] [$_{DP}$~~which room~~]]]]]]]?

c. Rationale

[$_{CP}$What [$_{C}$did] [$_{TP}$you [$_{vP}$~~what~~ [$_{vP}$~~you~~ [$_{VP}$ [$_{VP}$do that] [$_{PP}$ [$_{P}$for] [$_{DP}$~~what~~]]]]]]]?

d. Temporal

[$_{CP}$How long [$_{C}$have] [$_{TP}$you [$_{vP}$~~how long~~ [$_{vP}$~~you~~ [$_{VP}$ [$_{VP}$been waiting] [$_{PP}$ [$_{P}$for] [$_{DP}$~~how long~~]]]]]]]?

e. Extent

[$_{CP}$What pressure [$_{C}$are] [$_{TP}$nitrox diving tanks [$_{vP}$~~what pressure~~ [$_{vP}$~~nitrox diving tanks~~ [$_{usefulP}$ useful] [$_{PP}$ [$_{P}$up to] [$_{DP}$~~what~~ ~~pressure~~]]]]]]]?

In each of the configurations in (68), the adjunct is merged to the maximal projection of the non-phasal head, meaning that positions within the adjuncts are visible to the probe v_{ϕ}, allowing the [+wh] *wh*-phrase to be targeted by the [wh:_] feature on v_{ϕ}, triggering successive cyclic movement to Spec,C_{ϕ}P via Spec,v_{ϕ}P. The result is well-formed extraction from within an adjunct.

Truswell (2011, 224-226) raises the contrast between (69-a) and (69-b) as a problem for a syntax-based account of the transparency of participial adjuncts. He puts the contrast down to antilocality: the gap is closer to the filler in (69-a) than in (69-b), suggesting that the reason for marginality in (69-a) is structural. However when considered in terms of the event-structural template in figure 3.9, the distinction is descriptively straightforward: *trying to fix* is atelic and can thus be associated with the preparatory process, whilst *fix* is telic, therefore contains its own culmination point and cannot be associated with the preparatory

process in figure 3.9.

(69) a. ??What did John drive Mary crazy fixing [_]?

b. What did John drive Mary crazy [trying [to fix _]]?

(Truswell, 2011, (22),225)

This reasoning is the same as for transparent participials in general but is unavailable to Truswell (2011) who defines the constraints on transparency in adjuncts in terms of agentivity. Contrary to the discussion in Truswell (2011, 224-226), such a syntactic account does not require EDGE features which Truswell (2011, 225) characterises as unexplanatory. Instead such an account needs first a structural account for why low adjuncts allow subextraction as opposed to higher adjuncts, in line with standard assumptions about phrase structure. Additionally, the account needs a means of manipulating the event-structural template figure 3.9 in the semantics in such a way that individual predicates can be identified with subparts of figure 3.9. That is, a not insubstantial question remains to be answered in the semantics: what regulates adjunction to VP vs. adjunction to vP?

This question is emphasised when the derivation for the three types of sentences in (70) is considered. These sentences were raised as problematic for the lexical complementation account (Borgonovo and Neeleman, 2000) and for the filter account (Truswell, 2011). According to the account developed in the present section, the derivation for the sentences in (70) involves regular successive-cyclic movement to Spec,CP via Spec,vP. Conversely, in (70-b) and (70-c), adjunction is barred to *shiver* in the semantics, as *shiver* is not telic, and therefore cannot denote the culmination point in figure 3.9.

(70) a. [$_{CP}$Which car[$_{C}$did] [$_{TP}$I[$_{vP}$~~which car~~[$_{vP}$ ~~I~~[$_{VP}$[$_{VP}$[$_{V}$go]] [$_{PP}$[$_{P}$and][$_{VP}$buy ~~which car~~]]]]]]]?

b. *Which tune did Mary shiver$_{\underline{\theta}}$ whistling$_{\theta}$?

c. *Which chair did Mary shiver$_{\underline{\theta}}$ sitting on$_{\underline{\theta}}$?

The semantic account of adjunction therefore needs to account for a three-way typology:

(i) well-formed adjunction to VP allowing extraction due to the structural configuration of this type of adjunction; (ii) well-formed adjunction to vP disallowing extraction due to the structural configuration of this type of adjunction; (iii) ill-formed to both VP and vP, resulting in unavailability of both the declarative statement with in-situ *wh*-phrase, and the interrogative statement with extracted *wh*-phrase.

3.4 Semantic licensing constraints on adjunction

So far, I have given a syntactic derivation of the opacity of different positions in the clause. The question arises now why some adjuncts should occur in Spec,VP and others in Spec,vP. I propose that different positions of adjunction are licensed differently in the semantics. Works such as De Vos (2005); Truswell (2007b); Wiklund (2007) suggest that the licensing of transparent constructions has to do with aspectual modifiers that form single events from series of verbs. Here I briefly sketch one way in which this generalisation could be derived alongside the syntactic account of extraction in the previous subsection.

This account of licensing predicts that there will be a split between telic and atelic predicates. This split will be seen not to be confirmed by the experiments in part II. Instead the results suggest a split between intransitive and transitive predicates.

A proposal that adds preparatory processes and culmination points within a template such as that in figure 3.9 does give rise to a non-trivial puzzle in the semantics.

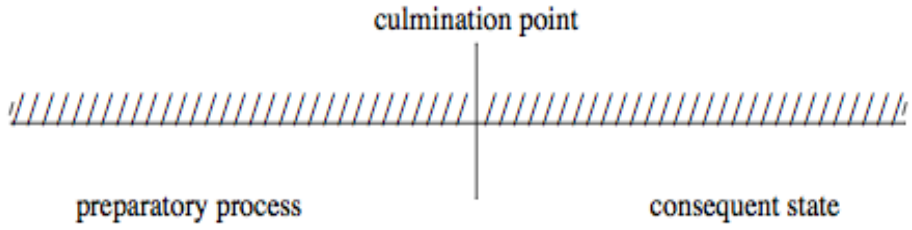


Fig. 3.9 Event nucleus in Moens and Steedman (1988, Figure 3, 18)

Indeed an earlier paper of Truswell's highlights the centrality of telicity, and the following quote from Truswell (2011, 44) suggests that manipulation of event structure was

abandoned more due to the technical difficulty of accounting for transparency in adjuncts in terms of telicity than because of any empirical advantage to using agentivity:

> "We cannot, in the general case, derive an accomplishment-denoting predicate by taking a lexical item describing a preparatory process and attaching it in the semantics to a lexical item describing a culmination. Shifts in the aspectual class of a verb are associated with relatively small amounts of material in a close syntactic relationship (...) to that verb."
>
> (Truswell, 2011, 44)

The present section introduces the foundations of a semantically licensed adjunction account that makes a different prediction to the gap licensing accounts of Borgonovo and Neeleman (2000) and Truswell (2011): the acceptability of participial adjunction in declarative and interrogative sentences is related.

Truswell (2011) distinguishes between association with a preparatory process in a non-causal relation and in a causal relation, meaning that *whistling the national anthem* in *Mary arrived whistling the national anthem.* is associated with a preparatory process.

Although *whistling the national anthem* does appear to describe the manner of arrival, it is important to note that the event of arrival does not entail the culmination of the whistling event. This can be shown by the possibility of negating the implicature that Mary stopped whistling upon arrival, as illustrated in (71).

(71) Mary arrived whistling the national anthem, and didn't stop for another 5 hours.

This suggests that a more accurate depiction of the relation between the matrix and adjoined eventualities involves the adjunct eventuality acting as *background* to the matrix predicate[8]. 3.10 illustrates a participial sentence such as (72), where the points of the matrix predicates are a proper subset of the non-maximal points of the adjoined predicate.

[8]Darnell (2008, esp.266) uses *BACKGROUND* to characterise the relation between V1 and V2 in pseudo-coordination in a corpus study of pseudocoordination in Swedish.

(72) Mary arrived whistling the national anthem.

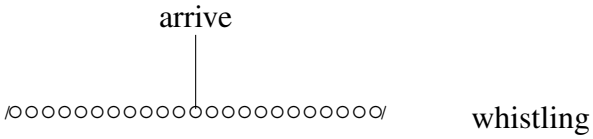


Fig. 3.10 Participial

Figure 3.10 models the background relation as the amalgamation of two scales. *Whistling* introduces an unbounded scale with no maximal or minimal points, whilst *arrive* introduces a bounded scale with maximal and minimal points. As an achievement, *arrive* is modelled as a special instance of a bounded scale where the minimal point is equal to the maximal point. Adjunction acts to amalgamate the two scales. The result is a single composite scale where the points of the scale introduced by the matrix predicate are subsumed in those of the scale introduced by the adjoined predicate.

An advantage of such an account is that it can be extended (at least at this informal stage) to pseudocoordination. 3.11 shows co-extension of the points of the scale introduced by the adjoined predicate for a sentence like (73-a). 3.12 shows co-extension of the points denoted by the scales introduced by the matrix and adjoined predicates in a sentence like (73-b).

(73) Pseudocoordination examples

a. Mary went and got a newspaper.

b. Mary sits and reads.

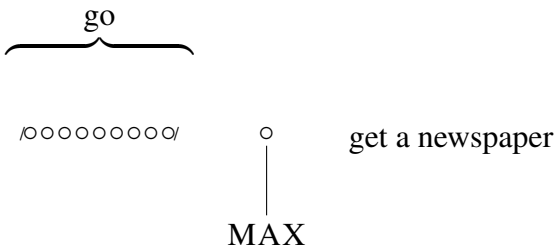


Fig. 3.11 Pseudocoordination with *went*

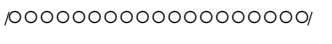


Fig. 3.12 Pseudocoordination with *sit*

The two figures 3.11 and 3.12 depict pseudocoordinate *and* as an operator (*AND*) that takes a predicate denoting a bounded scale (e.g. *get a newspaper*) or denoting an unbounded scale (e.g. *read* in figure 3.12) as its adjunct-internal complement in the syntax. In the semantics, *AND* creates a composite scale such that all points on the matrix scale are in a one-to-one relation with all non-maximal points on the adjoined scale.

With *go and get the newspaper*, the result is an inceptive reading of pseudocoordination, as the matrix predicate, along with part of the adjoined predicate, corresponds to just the preparatory process in the composite scale. The maximal (=culmination) point is contributed by the adjunct.

In figure 3.12, the result is a progressive reading of pseudocoordination: the adjoined predicate does not introduce a maximal (=culmination) point and so all points in the composite scale are non-maximal and therefore contributed by matrix and adjoined predicates. The event is composed of just the preparatory process.

Besides the empirical coverage of such an account, placing variation in the semantic component of the grammar by means of licensing constraints on adjunction allows a principled way of achieving a high level of coercion (see formalised semantic accounts of coercion such as De Swart, 1998).

Regardless of the level of coercion however, the account makes two predictions. The first, strong, prediction is that there should be a link between transparent adjunction configurations that involve extraction and their declarative counterparts. That is, if extraction is ill-formed from within a participial manner adjunct, then that configuration should be ill-formed when extraction has not taken place too.

The second, weaker, prediction is that the configuration (and extraction) should be able to occur with a much wider range of transitive verbs than accommodated by the gap licensing accounts. In this sense, the account outlined here requires for a greater parallel with prepositional duration adverbials like *in ten minutes* which can adjoin to both intransitive

predicates (*arrive (in ten minutes)*) and transitive predicates (*buy a bike (in ten minutes)*).

Intuitively the extension to non-reflexive and nonagentive transitive verbs is warranted, as shown by the availability of extraction from within phrases adjoined to non-reflexive transitive predicates, against Borgonovo and Neeleman (2000), and from the availability of extraction from within phrases adjoined to agentive transitive predicates, and the unavailability of extraction from within phrases adjoined to non-culminated processes regardless of the agentivity of the adjoined predicate, against Truswell (2011).

Figure 3.10 depicts the matrix predicate as picking out a subset of the points in time introduced by the adjoined predicate[9]. In keeping with this depiction, one of the input conditions on the operator that amalgamates the two scales could be that the matrix scale include a culmination point. This would result in a distribution of transparent participial adjuncts (in both declarative and interrogative contexts) based on event-structural notions[10]. More specifically, transparent participial adjuncts should require a matrix predicate denoting a culminated event.

In summary, an account where the adjunct introduces an operator which modifies the aspect of the matrix predicate makes one strong prediction compared to the gap licensing accounts: it predicts that participial adjuncts will be sensitive to the class of matrix predicate, regardless of whether or not extraction has taken place. A tentative means of formalising such an operation was given in terms of bounded and unbounded scales, i.e. in terms of culmination points.

3.5 Conclusion

In conclusion, this chapter reviewed previous analyses to subextraction from pseudocoordination and participials and showed that, contrary to the claims in the literature, a syntactic analysis of the extraction patterns is not only possible with adjunct configurations but also more empirically adequate than non-adjunct or non-syntactic analyses. The analysis re-

[9] A formal characterisation of the mapping will be provided after the first series of experiments.

[10] *Event-structural* is intended here in the decompositional tradition of Vendler (1967), Dowty (1979) rather than in the reanalysed sense of event structural class in Truswell (2011), defined in terms of agentivity.

quires a distinction between licensing of the movement path and licensing of the position of adjunction. I provided an original syntactic account for the licensing of movement paths within standard assumptions of locality, and provided a suggestion of a semantic mechanism licensing VP-adjuncts. The next chapter considers whether the theory can be extended to other types of islands. In particular, the present theory predicts that rather than being a phenomenon based on height, opacity is determined configurationally in terms of the relation of a launching site to a phase head, i.e. if v and C are phase heads, then Spec,vP and Spec,CP are opaque and Spec,VP and Spec,TP are transparent.

Chapter 4

Locality and Agree across the clause

In chapters 2 and 3, I showed that single event participials and pseudocoordinate constructions both involve adjunction to VP, whilst canonical adjunct islands occur in Spec,vP. I demonstrated that different positions of adjunction, constrained by semantic licensing constraints, allow for a purely syntactic account of the movement contrasts. In this chapter, I speculatively consider the implications for theories of movement across the clause as a whole using other types of geometric island constructions and transparent constructions such as subject islands, parasitic gaps, across-the-board extraction, the conjunct condition and the left-branch condition.

I suggest that some islands are associated with the lower part of the clause, and that some islands are associated with the higher part of the clause. In each case, it is necessary that the island be adjoined as a specifier of a phase head, and that, in the case of weak islands, transparent and opaque phrases show a semantic difference which correlates with a difference in position of adjunction in the syntax. Subextraction will then be more or less acceptable depending on the extent to which a reading associated with a transparent configuration can be achieved. The result is a flexible syntax which gives rise to gradience in subextraction phenomena.

Manzini (1992) distinguishes between geometric islands that appear to rely on syntactic configurations and non-geometric islands such as degree phrases and *wh*-islands. A complete theory of islandhood lies outside the scope of this thesis. However the theory

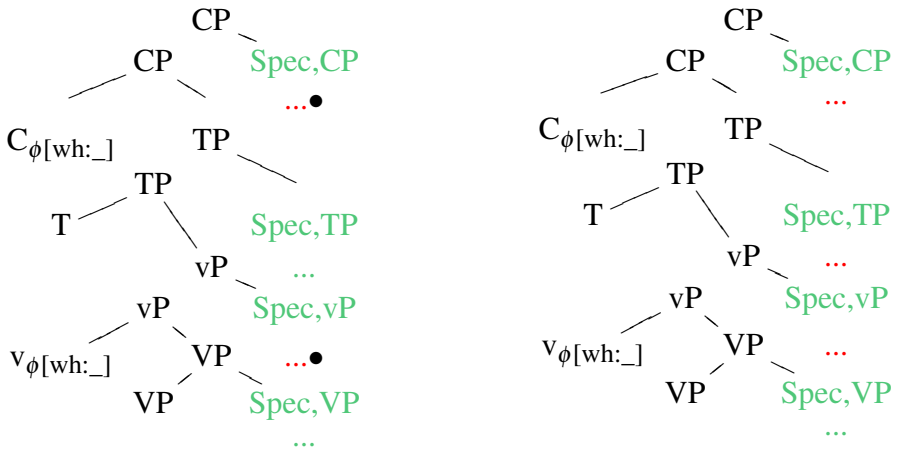
advanced in this thesis would require the following type of explanation for non-geometric islands: weak islands would involve adjunction either to the specifier of a phase head (for islands) or to the specifier of a non-phase head (for cases of transparency). The determining factor between the two types would be meaning-based and licensed in the semantics.

4.1 Typology of islands across the clause: configuration vs. height

The general assumption in generative syntax is that the very lowest parts of the clause are transparent (in most cases due to the properties of first-merge) and that the higher parts of the clause are opaque, i.e. that opacity is a phenomenon of height. The importance of height is also emphasised for individual projections through generalisations like the Condition on Extraction Domains (CED).

I predict that rather than height, transparency and opacity is a configurational phenomenon depending on the distribution of phase heads. As opaque nodes (blackholes) are found only in specifiers to phase heads, transparency is found not only under sisterhood in individual projections, as with the CED, but also with nodes in specifier positions. Across the clause, the distribution of blackholes correlates with the distribution of phase heads which is not a height-based phenomenon, i.e. v and C are phase heads but the T projection that intervenes between v and C is not a phase head. Therefore the theory proposed here predicts that opaque and transparent configurations will be distributed across the clause in figure 4.1a, repeated from figure 1.1. Opaque nodes are marked with •. Figure 4.1a can be contrasted with the traditional height-based predictions of islands across the clause in figure 4.1b.

Recent work has identified the vP/VP distinction as the locus of the adjunct island condition, involving subextraction from adjuncts occupying the edge of a phase, and its acceptable exceptions, involving subextraction from adjuncts situated in the complement domain of a phase head (Narita 2011, Boeckx 2014, Tanaka 2015, where the relevant heads are the phase head v (v_ϕ) and V; Sheehan 2013, where the relevant heads are phase head resP and



(a) Blackhole theory

(b) Height-based theories

Fig. 4.1 Islands across the clause

non-phase head $P_{have}P$).

However both proposals based on linearisation of phases (Narita 2011, 107-114, Boeckx 2014, 63-69) and proposals partially based on processing complexity (Tanaka, 2015) nonetheless concur with the received stance in the generative literature that opacity correlates with height: low elements in the clausal spine are transparent, whilst high elements are opaque. This intuition underlies early accounts of preposition stranding in particular (Chomsky 1965, Chomsky 1981, Chomsky 1986, Hornstein and Weinberg 1981; cf. Takami 1988), where the cut-off line for transparency is VP: VP-level prepositions can be stranded (74-a), whilst S-level prepositions cannot be stranded (74-b).

(74) a. What did you speak to Bill [about _]?

b. *Which vacation did John go to Hawaii [during _]?

(Takami, 1988, (1a,b),299)

Bjorkman (2013) suggests that this importance of height can also be carried through to asymmetry in coordination. Bjorkman (2013) argues that asymmetrical coordination is coordination of small conjuncts. Whilst CP-coordination is taken to give rise to symmetrical coordination, TP- and VP- coordination give rise to asymmetrical coordination. Coupled

with the implicitly assumed Law of Coordination of Likes (Williams, 1978), essentially stating that CP-coordination involves coordination of a CP with a CP in the syntax, TP-coordination of a TP with a TP, and VP-coordination of a VP with a VP, such a claim gives rise to a similar height effect as with opacity, this time with a cut-off at CP[1].

Weisser (2015) provides a derivation of subextraction from coordination and transparent adjuncts (i) that requires extraction to take place from a subordinate construction before a coordinate construction is formed and the Coordinate Structure Constraint is established; (ii) that uses Müller's (2010; 2011) derivational theory of locality to mark specifiers to phases as opaque; and that (iii) allows some of these specifiers to phases to remain transparent provided that the phase contains an upward probe to keep the matrix v-head active. Transparent adjuncts are therefore derived by stipulating that transparent adjuncts contain an upward probe that is not present in opaque adjuncts. Weisser (2015) makes a similar observation about phasehood and transparency to the one proposed here, i.e. that unavailability of extraction is related to phasehood in coordinate and participial constructions. However he places the crucial phase in the adjunct itself:

> "CPs and vPs are not transparent where as TPs (sometimes) are. Given that the prototypical clause chaining construction which was also analysed as a TP was sometimes also transparent for extraction, we can state that TPs seem more likely to be transparent for extraction than vPs or CPs. Even though this observation nicely correlates with the fact that vPs and CPs are generally taken to be phases whereas TPs are not, I do not know of a concrete theory that derives this asymmetry."
>
> (Weisser, 2015, 205)

The account proposed here on the other hand places the importance of phases in the matrix clause rather than in the adjunct. Deriving opacity in these types of constructions by the properties of the matrix clause phases suggests a way of addressing the observation in Weisser (2015). Specifically, the VP, vP, TP or CP size of the adjunct is not important for

[1] Bjorkman (2013) does not discuss asymmetrical extraction beyond VP-coordination, but left-subordinating *and* (Culicover and Jackendoff, 1997) is shown to pattern like TP-coordination.

the syntax, and is instead just a by-product of the semantic licensing constraints on adjuncts. For instance, participial adjuncts to Spec,VP will only be of size VP because otherwise these adjuncts would introduce a second event variable, not be able to form a single event with the matrix predicate, and violate the semantic licensing constraints, leading to unacceptability. In contrast, adjunct islands which adjoin to Spec,vP need to be of at least size vP in order to introduce a separate event variable because part of the semantics of adjuncts to Spec,vP is that they situate two events with respect to each other (e.g. using *before* or *after*). However it does not appear that there is a one-to-one matching of the category of the adjunct and the category of the adjunction site. For instance *before*-clauses introduce tensed events, suggesting that they are of size TP, but nonetheless adjoin to vP. This account therefore allows the link between phasehood and transparency to be derived without stipulating this difference through a special piece of machinery present only in constructions that need it.

The present work aims to show that opacity and transparency are not distributed according to height in the clausal spine, but are instead linked to the nature of the head to which adjunction takes place. Besides Boeckx (2014); Müller (2010, 2011); Narita (2011), the importance of phase edges for opacity is also highlighted in Tanaka (2015), where not only the phasal nature of the projecting head adjoined to is important, but also the assumed phasal nature of adjuncts. Tanaka (2015) then stipulates that movement from within an adjunct to the phase edge of the projection adjoined to gives rise to a barrierhood effect (76) and a concomitant decrease in acceptability. A conceptual problem arises in such a derivation of the adjunct island condition: there is no reason why movement should necessarily take place from the phase edge of the adjunct to the phase edge of the phase in whose projection the adjunct is contained, i.e. movement could take place directly from within the vP-adjunct to Spec,CP, given that all nodes within the adjunct are in the edge of v after the complement of v has been spelled out. Without a separate account of why elements within adjuncts to vP should necessarily pass through an additional Spec,vP position, adjuncts to vP do not necessarily invoke the barrierhood effect in (76). There is no discussion of adjuncts to other phase heads, but to the extent that the account derives opacity in vP-adjuncts, the account should derive opacity in CP-adjuncts, provided C were considered a phase head.

(75) Cyclicity

> An adjunct is a phase. Movement out of an adjunct must be via an edge of that adjunct because of the PIC.

(76) Barrier-hood

> A phase-hood of a phase HP_1 gives rise to a barrier-effect on movement of a DP / QP argument from the edge of H_1 to the edge of a head H_2 of a phase HP_2, only if HP_1 is merged into a non-complement position in the domain of HP_2.
>
> (Tanaka, 2015, (18),182)

There are therefore a number of recent syntactic accounts that allow phenomena such as transparent adjuncts and asymmetrical coordination to be accounted for in the syntactic module. The availability of syntactic derivations is a strong argument against discourse-based accounts of movement such as Abrusan (2014); Truswell (2011). However the syntactic proposals in Bjorkman (2013); Boeckx (2014); Narita (2011) also differ from the account proposed here in terms of the predictions that they make across the clause. All three accounts are height-based. Narita (2011) and Boeckx (2014) make the predictions in 4.1b. Bjorkman (2013) raises the height, stating that CP-coordination is parallel and all lower coordination is asymmetric. Nonetheless Bjorkman's 2013 account is height-based too. In contrast, the account proposed here predicts that the distribution of transparent and opaque nodes across the clause are interleaved because phase heads themselves are interleaved.

In the next section, I show how the account can derive a number of geometric islands by merging the adjunct in a specifier position to a phase head.

4.2 Geometric islands

4.2.1 Islands in Spec,vP•

Subjects

The Condition on Extraction Domains (CED), illustrated in (77), proposes a unified treatment of adjuncts and subjects. In Government and Binding theory, complements are merged as sister to the projecting head and therefore properly governed, whereas subjects and adjuncts are merged in specifier positions rather than under sisterhood and are therefore not properly governed. Therefore a definition based on government, such as the one in (77), classes adjuncts and subjects together.

(77) Condition on Extraction Domains

A phrase A may be extracted out of a domain B only if B is properly governed.

(Huang, 1982, 505)

Transparency under the CED is thus linked to height of merger within the individual projection: low phrases are transparent (i.e. complements) whilst high phrases are opaque (i.e. subjects and adjuncts). Consequently, any account of extraction from within adjuncts should also indicate how to treat extraction patterns from within subjects. Extraction patterns within subjects divide into two parts that require explanation (78).

(78) a. Subextraction is prohibited from subjects raising to Spec,TP
b. Subextraction is allowed from subjects remaining in Spec,vP

The current account extends straightforwardly to the general prohibition on subextraction from subjects that have raised to Spec,TP from Spec,vP. As in the case of adjuncts, the uninterpretable *wh*-feature remains unchecked on v. The [wh:+] subject-internal *wh*-phrase cannot check the uninterpretable *wh*-feature on v from within the subject, as the *wh*-phrase does not *c*-command the [wh:_] v from either its in-situ or derived positions within Spec,vP.

The *wh*-phrase is however *c*-commanded by the higher phase head C, and can therefore move to Spec,CP where the uninterpretable *wh*-feature on Spec,CP can be checked and valued. The Principle of Full Interpretation is nonetheless violated, as [wh:_] on v remains unchecked. It does not matter for the successive cyclic account whether subextraction from within the subject takes place before or after movement of the subject to Spec,TP. In both cases the *wh*-phrase fails to enter into the relevant relation with v.

Crucially, the account places the burden of explanation on successive cyclicity: subextraction from both high subjects and non-single event adjuncts is ill-formed because the filler never enters into the appropriate relationship with an intermediate projecting head. In GB-terminology, the moved constituent skips an intermediate landing site. Under the present account, the interpretable [wh:+] feature on the moved constituent does not enter into the appropriate AGREE relationship with the phase head v during the course of the derivation.

An alternative account might place the restriction in stranding elements in phase edges. Such a generalisation would capture the adjunct extraction patterns discussed in chapter 2. The prohibition on subextraction from subjects could also be captured, provided that subextraction of the *wh*-phrase take place before remnant movement of the subject to Spec,TP.

Two disadvantages for the stranding generalisation over the successive-cyclic reasoning will be provided. First, a technical issue: a ban on stranding in phase edges is only an empirical generalisation. Some theoretical derivation is still required, e.g. the successive cyclic account provided here. Under such an account, the empirical generalisation can very well be made that stranding is prohibited from within the phase edge. Nonetheless, the crucial part of the theoretical machinery is the absence of a *c*-command relationship within the same projection of moved constituents and v.

Second, as an empirical generalisation, a prohibition on stranding in phase edges is problematic. The successive cyclic account proposed here has the potential to account for instances of multiple gaps, e.g. across-the-board extraction from within coordinate structures and parasitic gaps, as the account allows stranding to occur in phase edges provided another moved constituent enters into the appropriate relationship with an intermediate phase head. A blanket ban on stranding in phase edges however does not make available this possibility

and therefore does not have the scope to capture multiple gaps.

(79) also provides a counterexample to a possible prohibition on stranding in phase edges. In (79), *guy* has been moved from the specifier position of a CP complement. In this case, a phasal account with PIC would require that movement of the whole phrase *how many pictures of* _ take place from sister to VP *buy* to Spec,vP to Spec,CP. Only in the specifier position of the complement CP would *the guy* then be visible to the higher phase head.

(79) the guy that we couldn't decide how many pictures of we should buy

(McCloskey, 2000, (i),fn.7,62, cf. also references therein including Chomsky, 1986, 25-27)

Derivation under the account proposed here is straightforward given the VP-complement launching site of *how many pictures of* _. As in the case of VP-adjuncts, the VP-complement is *c*-commanded by v_ϕ, meaning that movement can be triggered to Spec,vP from which position the uninterpretable *wh*-feature on v_ϕ can be checked.

The account proposed here does however predict that in cases of *wh*-phrases occupying the specifier position of a CP-complement, subextraction should be possible, given that the *wh*-phrase will have originated in a position *c*-commanding v_ϕ, thereby allowing the uninterpretable *wh*-feature on v_ϕ to be checked. (80) suggests that such a sentence is as acceptable as (79), meaning that this prediction is met.

(80) the guy that we couldn't decide how many pictures of should be framed

To conclude discussion of subjects, the account proposed here requires alteration of the CED. Whilst the CED makes crucial use of height of merger within the individual projection, the successive cyclic account proposed here distinguishes the relevant notion as positions of merger, i.e. whether merger is within the projection of a phase head or of a non-phase head. Here the transparency of complements is just a special case of merging into a non-phase head. Furthermore, this account part of the spirit behind a government definition of the CED: some heads, i.e. projecting phase heads, enter into relations that other heads,

i.e. projecting non-phase heads, do not enter into. The height restriction on the relevant relation which also forms part of the government operation is omitted.

Reconceptualising the CED as a generalisation about the nature of the projecting head requires distinguishing between moveability of maximal nodes merged into the phase head and of elements within these nodes. It is clearly not accurate to require all maximal nodes and the nodes they dominate to be opaque however, nor does the present account predict such a strict generalisation. The relevant contrast is instead provided in table 4.1.

Table 4.1 Moveability in adjuncts and complements across phase and non-phase heads

Condition	ϕP	non-ϕP
Maximal projection of adjuncts	✔	✔
Elements within adjuncts	* (blackholes)	✔
Maximal projection of complements	* (anti-locality)	✔
Elements within complements	✔	✔

Parasitic gaps

Up to this point, discussion has focused on examples that only contain a single gap linked to the filler. In the adjunct cases, only the adjunct contained a gap. In parasitic gap constructions, a gap not only exists in the adjunct, but also in the matrix clause. If extraction does take place from within the matrix clause, the adjunct can either contain a gap or not. If there is a gap in the adjunct however there must also be a gap in the matrix clause. (81) shows that extraction can take place from within the adjunct if and only if extraction has taken place from within the matrix predicate. Acceptable extraction with two co-referring gaps is given in (81-a). (81-b) shows unacceptability of subextraction from the *before*-adjunct without extraction of the object *the cheese* in the matrix clause. In contrast, subextraction from within the matrix clause is possible even with a gap in the *before*-adjunct, as illustrated

in (81-c).

(81) Parasitic gaps

a. Which bun did Mary sniff _before she ate _?

b. *Which bun_i did Mary sniff the cheese_i before she ate _?

c. Which bun_i did Mary sniff _before she ate the cheese_i?

(81) can be derived using the *wh*-feature on *v* that is required for adjuncts. When extraction takes place from within the matrix clause, the *wh*-element will pass through the intermediate position of Spec,vP meaning that no uninterpretable features will remain in the derivation, and the Principle of Full Interpretation will be satisfied. Therefore it will not matter whether extraction has taken place or not from within the adjunct. If extraction does take place, the uninterpretable *wh*-feature on v will be checked, just as if extraction does not take place.

The question then remains whether extraction can at all take place. The phase head C *c*-commands both the *wh*-phrase within the matrix clause and the *wh*-phrase within the adjunct. Movement of both of these *wh*-phrases can therefore be triggered as standard. However movement of both *wh*-tokens in a derivational sense will produce the undesired result of two instances of the same co-referential *wh*-phrase in Spec,CP, i.e. *Which bun_i which bun_i did Mary sniff before she ate?*

Taking the structure to be representational allows this issue to be avoided however. Merger takes place to all six positions: to the externally merged positions of sister to matrix V and of sister to adjunct V, and to the internally merged positions of matrix Spec,vP; adjunct Spec,vP; Spec*and*P; and Spec,CP. As there is a co-referential antecedent in the *c*-commanding position, Spec,CP, reference to the lower instances can be resolved without these copies being overtly spelled out.

Note that as in the adjunct cases discussed earlier, P here is taken to be a phase head. Taking P to be a phase head has the desired empirical effect that extraction is required in parallel out of both the adjunct and the matrix clause. Extraction cannot take place either out of just the matrix clause or out of just the adjoined clause. If extraction takes place only out of the matrix clause, the *wh*-feature on the adjunct-internal phase head P will remain

unchecked. If extraction takes place only out of the adjoined phrase, then the *wh*-feature on the matrix phase head v will remain unchecked.

4.2.2 Coordinate Structure Constraint and across-the-board extraction

Across-the-board extraction

A similar situation to parasitic gaps arises with coordinate structures in general. (82) provides the Coordinate Structure Constraint and its across-the-board exception (Grosu, 1973; Ross, 1967; Williams, 1978).

(82) a. Coordinate Structure Constraint (CSC)
"In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct."

b. 'Across-the-Board' (ATB) Exception (addendum to CSC):
. . . unless each conjunct has a gap paired with the same filler

(Sag et al., 2003, (41),352, building on Ross, 1967, (4.84),161)

This section derives the prohibition of subextraction of elements of a coordinate structure, and derives the across-the-board exception. For parallelism's sake, this paper will take an adjunct analysis not only of asymmetric coordination but also of parallel coordination. For arguments against a flat tripartite structure and in favour of a binary branching structure for parallel coordination, cf. Munn (1993).

In parallel coordinate structures as in parasitic gap configurations, a gap is allowed in the adjunct just in case a gap is also found in the matrix clause. In the case of coordinate structures, this constraint is the across-the-board exception. The same reasoning can be applied as in the case of parasitic gap constructions. Again, the phase head C *c*-commands both the *wh*-phrase within the matrix clause and the *wh*-phrase within the adjunct, meaning that a copy of the *wh*-phrase can be internally merged in Spec,CP, allowing the uninterpretable *wh*-feature on C to be checked and valued. Unlike in the case of adjunct islands,

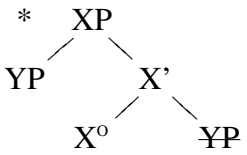


Fig. 4.2 Anti-locality in Abels (2003, (4), 12)

the uninterpretable *wh*-feature on v will also have been checked, as v *c*-commands the *wh*-phrase within the matrix clause, meaning that a copy of the *wh*-phrase can also be merged in Spec,vP, allowing the uninterpretable *wh*-feature on v to also be checked.

Conjunct condition

The conjunct condition refers to the prohibition on moving a conjunct, i.e. on stranding *and*. Although VP-adjoining *and* is similarly transparent to prepositional adjuncts and the null preposition introducing participial adjuncts, VP-adjoining *and* differs from these prepositional adjuncts in two crucial ways. The first difference is that *and* requires both conjuncts to be of the same type (Law of Coordination of Likes, Williams 1978). Such a constraint may be semantic in nature. The second difference is that *and* cannot be stranded. In this subsection, I will first give a derivation for the lack of *and*-stranding. I will then show how the account derives Across-the-Board extraction.

Abels (2003) derives P'-stranding from anti-locality coupled with variable phasehood of P across languages. Anti-locality is defined in figure 4.2. In languages without P'-stranding, such as German and Dutch, P is a phase head. As the DP to be extracted is sister to a phase head, DP is already in the closest position to the phase head, and can, and given the Last Resort nature of movement, must, check uninterpretable features from the in-situ position. As DP does not move to a specifier of the phase head P, DP does not escape Spell Out, meaning that this element is not visible to higher phase heads and cannot undergo successive cyclic movement to Spec,CP, stranding the preposition.

In contrast, in languages with P'-stranding, P is not a phase head. Therefore the *wh*-phrase is no longer a sister to a phase head, meaning that in order to check features of a higher phase head, the *wh*-phrase will have to undergo movement to a specifier position of

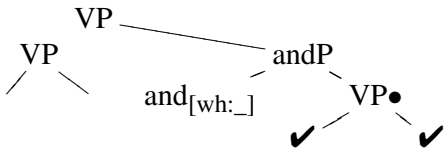


Fig. 4.3 Conjunct Condition

that phase head. From this position, the *wh*-phrase will be visible to higher phase heads and will be able to undergo successive cyclic movement to Spec,CP, stranding the preposition.

In the account proposed here, Agree will require *c*-command (including mutual *c*-command) of the uninterpretable feature by the interpretable feature within the same projection, allowing sisters to phase heads to check features from their in-situ position. Anti-locality will then be derived as in Abels (2003) by invoking the Phase Impenetrability Condition and cyclic Spell Out, i.e. checking uninterpretable features on the phase head in-situ means that the sister to the phase head undergoes Spell Out in that phase domain, and, according to the Phase Impenetrability Condition, elements in the complement domain of lower phases are inaccessible to higher phases. The sister to the phase head is then too local to the phase head to undergo movement.

In order to force *wh*-phrases sister to *and* to remain in-situ, *and* must be a phase head cross-linguistically. In the case of VP-adjuncts, the VP-sister to *and* will be forced to remain in-situ, cf. unacceptable (83-a), but the elements within the adjunct will be able to undergo movement via Spec,andP, cf. acceptable (83-b). 4.3 illustrates this configuration. ✔denotes nodes from which elements may be extracted, • denotes nodes from which elements may not be extracted. It is assumed that movement must target phrases.

(83) Conjunct condition

a. *BOUGHT A BOOK, Mary went and _.

b. Which book did Mary go and buy _.

The derivation here covers VP-coordination of the type in (83). However not only extraction from within the second conjunct as in (83-b) is licensed under the account proposed here, but also extraction from within the first conjunct. Standardly, extraction from within

the first conjunct is prohibited (cf. for instance Postal, 1998, (49c), 66, for English), meaning that the theory advanced here overgenerates. However recent research suggests that this generalisation is not as clear-cut as previously assumed. Nonato (2014, (115),60) for instance shows that asymmetric extraction from within the first conjunct is possible in Kĩsêdjê clause-chaining. Further research is required to evaluate the extent to which transparency of the first conjunct needs to be constrained in English and cross-linguistically and how that would be best achieved in the theory proposed here, for instance whether a language-specific filter is necessary to add to the theory of movement or whether the differing patterns in transparency can be derived through differing configurations.

Left Branch Condition

Left Branch Condition is defined in (84) and illustrated in (85).

(84) Left Branch Condition

No element which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

(Ross, 1967, (4.181),207)

(85) Left Branch Condition: example

a. *Whose did you like car?

b. Whose car did you like?

The Left Branch Condition differs from adjunct and subject islands previously discussed. Whereas in adjunct and subject islands a single node is being targeted for movement, in the Left Branch Condition, more than one node is being targeted for movement. Additionally, there is no single node that exclusively dominates these nodes, i.e. *whose* in (85) does not form a constituent to the exclusion of the other DP-internal elements, e.g. *car*.

This distinction highlights a requirement of the successive cyclic theory advanced here: the *wh*-feature has to be on the node targeted for movement. In the case of movement of whole vP-adjuncts, the *wh*-feature must be on PP; in the case of movement of object

wh-phrases, the *wh*-feature must be located on DP. Movement from within complex DPs fails not because of the configuration in which these elements are merged - their adjunct or complement status is irrelevant - but because there is no single node to target for movement.

Such a requirement means that *wh*-features cannot be located exclusively on the *wh*-element, i.e. on D. Furthermore, even if percolation to the maximal projecting node of the projection does not appear to be an unprincipled assumption, percolation raises the question of why the head containing an interpretable *wh*-feature cannot be exclusively targeted for movement, i.e. why instead maximal projections are obligatorily pied-piped. This constraint on movement is more widely known as the Complex NP Constraint.

Under the AGREE account proposed here, there is no reason to expect pied-piping a priori if gaps are copies. The constraint relies on whether uninterpretable *wh*-features are checked. It does not matter whether extraction targets all or only a subset of those nodes with interpretable *wh*-features.

Basing the analysis around phase heads means that crucially extraction is related to position of adjunction in the clause. Height is not important, either in terms of height within a single projection, as indicated by the CED, discussed in subsection 4.2.1, nor in terms of height across projections within the clause in general, including VP, vP, TP and CP. Instead, the illusion of a height effect is simply a result of the fact that *wh*-movement tends to target objects of verbs that are merged low in the clause. The height per se is not important under the proposal advanced here, but instead the presence of a phase head, v, and a non-phase head, V.

One prediction of distinguishing position of merger over height of merger makes is that island and transparency effects should not only be visible in the lower vP-VP part of the clause but also higher in the clause. The next section demonstrates opacity within CP-adjuncts and transparency within TP-adjuncts.

4.2.3 Transparent adjuncts to TP

(86) illustrates transparency of TP-adjuncts for subextraction. Bjorkman (2013); Culicover and Jackendoff (1997) take (86) to involve TP-coordination. The TP area is overtly realised

meaning that the second conjunct must at least contain TP. Furthermore, Bjorkman (2013) takes the strongly causal reading that occurs sequentially between the first and second conjunct, and the absence of the complementiser *that* to indicate asymmetrical TP-rather than symmetrical CP-coordination, particularly following verbs that subcategorise for an overt complementiser *that* and where *that* is realised preceding the first conjunct.

In (86), (i) the reading is strongly causal and occurs sequentially from first to second conjunct, reflecting an asymmetric reading; (ii) subject and temporal auxiliaries are present, indicating at least TP-coordination; and (iii) the complementiser *that* is absent, even with *confirm*. In these cases, asymmetrical extraction from within either conjunct is possible despite the fact that such extraction should violate the element condition on the Coordinate Structure Constraint.

(86) TP-coordination

a. You drink one bottle of that beer and you'll have a hangover.
b. That's the beer that you drink one bottle _and you'll be fined.
c. The engineer has confirmed that the hooligans broke the dam and the river flooded the valley.
d. Which valley has the engineer confirmed that the hooligans broke the dam and the river flooded _?
e. Which dam has the engineer confirmed that the hooligans broke _and the river flooded the valley?
f. Which dam has the engineer confirmed that the hooligans broke _and the river flooded _?

4.2.4 Islands in Spec,CP•

In contrast to (86), if *that* is overtly realised, indicating CP-coordination, then the strongly causal reading disappears in the declarative (87-a), leaving a symmetrical reading where the two conjuncts are interpreted separately and the temporal sequence could possibly run from conjunct 2 to conjunct 1. Asymmetrical extraction from either conjunct is ill-formed

(87-b)/(87-c). Across-the-board extraction is allowed (87-d).

(87) CP-coordination

a. The engineer has confirmed that the hooligans broke the dam and that the river flooded the valley.

b. *Which valley has the engineer confirmed that the hooligans broke the dam and that the river flooded _?

c. *Which dam has the engineer confirmed that the hooligans broke _and that the river flooded the valley?

d. Which dam has the engineer confirmed that the hooligans broke _and that the river flooded _?

As in the case of vP-adjuncts, subextraction from within CP-adjuncts is expected to be allowed provided that some other means of checking the *wh*-feature on C_ϕ is available. (87) shows acceptable across-the-board extraction from within CP-coordinate structures. In this case, the extracted element from within the matrix clause checks the feature.

Negation gives rise to scope ambiguity. In (88), the *because*-clause can either be interpreted as taking high scope (because > not) providing an explanation for John's lack of eating, or as taking low scope (not > because), stating that depression was not the cause of John's eating, e.g. ... *instead he ate one of the cupcakes because he was hungry*. In the high scope reading, John does not eat. In the low scope reading, John does eat.

(88) John didn't eat one of the cupcakes because he was depressed.

In a scope-based account of adjunct licensing, an analysis of transparency, whereby transparency is dependent on low merger in the clause, would suggest that when the *because*-clause takes low scope and is therefore merged low, subextraction should be allowed, but when the *because*-clause takes high scope and is therefore merged high, subextraction should be prohibited.

As (89) illustrates, differences in relative height do not translate to a distinction in the availability of subextraction. Both high and low *because*-clauses prohibit extraction.

(89) a. John ate one of the cupcakes because he lost a picture of his relative.
b. *This is a picture of John's relative that he didn't eat one of the cupcakes because he lost _.
c. *This is a picture of John's relative that he didn't eat one of the cupcakes because he lost _ but because he was hungry.

If there are only two phase heads, C and v, the account proposed here makes a firm empirical prediction: high scoping *because*-clauses must be CP-adjoined, whilst low scoping *because*-clauses must be vP-adjoined. These predictions concerning height of merger result from only adjuncts to phase heads prohibiting subextraction, meaning there are only two ways of creating the height difference required for the scope distinctions: (i) stacking of both high- and low-scoping *because*-clauses in Spec,vP; and (ii) merger of high-scoping *because*-clauses in Spec,CP and of low-scoping *because*-clauses in Spec,vP.

Stacking in Spec,vP will not give rise to a high reading. In order to scope over the *because*-clause in the low scope reading, negation must be higher than Spec,vP. Yet if negation is merged higher than Spec,vP, merger of the *because*-clause must be higher than Spec,vP when the *because*-clause takes high scope.

Arguments in favour of a Spec,CP position of merger come from sluicing and *say*-complement modification. In both cases, where the *because*-clause modifies a sluice or a CP-complement to *say*, only a high scope reading of the *because*-clause is permitted.

Sluicing is traditionally analysed as C'- or IP'ellipsis: the DP is first moved to Spec,CP, then the IP-complement to C is elided. For a right-adjoined modifier relating to the embedded CP to remain overt, merger must take place at Spec,CP, rather than at a lower position, e.g. Spec,IP, to avoid ellipsis. *Yesterday* illustrates one such modifier in (90).

(90) John ate one of the cupcakes, but he doesn't know which [_Spec,CP which [_Spec,CP [_IP _] yesterday]].

Ambiguity results from the availability of two positions of adjunction. In the case of sluicing, the lower one of these positions, Spec,vP, is made unavailable through ellipsis. If *because*-clauses taking high scope are merged in Spec,CP, then these clauses are expected (i) to be acceptable as right-adjoined modifiers to sluices; and (ii) to be unambiguous when merged as right-adjoined modifiers to sluices.

(91) illustrates that both of these expectations are met. *Because he was depressed* can acceptably be merged as a right-adjoined modifier to the sluice and can interact with negation. Without the comma after *one*, the *because*-clause is ambiguous in the written form in (91) between a modifier of the negated *didn't finish one of the cakes* and of the embedded *doesn't know*. The ambiguity can be resolved through intonation with a break between the ellipsis site and *because*, indicated by the comma.

(91) John didn't finish one of the cakes but he doesn't know which one, because he was depressed.

To be sure that the lack of ambiguity is not a result of the specificity of *which*, *because*-clauses should in contrast be ambiguous between high and low scope readings in sentences involving sluicing when *because* is not a right-adjoined modifier to the sluice. In (92-a), the *because*-clause is merged in the highest matrix clause, and again appears to be ambiguous. In (92-a), the high scope reading of *because*, where John failed to finish one of the cakes is straightforward. (92-b) forces a low reading, where John succeeds in finishing one of the cakes.

(92) a. John didn't finish one of the cakes because he was depressed, only he doesn't know which one _.

b. John didn't finish one of the cakes because he was depressed but because he was hungry, only he doesn't know which one _.

Repetition of *but* reduces acceptability, hence the use of *only* in the examples in (92). The same interpretations are however available with *but* in (93):

(93) a. John didn't finish one of the cakes because he was depressed, but he doesn't know which one _.

b. John didn't finish one of the cakes because he was depressed but because he was angry, but he doesn't know which one _.

The second argument for a CP-position of merger comes from modification of complements to *say*. McCloskey shows that modifiers to CP-complements to *say* must occur to the right of the complementiser. Occurrence to the left of *that*, surprisingly, results in modification of the matrix clause, rather than of the embedded clause. In (94-a), *yesterday* pertains unambiguously to the act of saying, whilst in (94-b), *yesterday* unambiguously modifies the embedded CP.

(94) a. Mary said that yesterday she didn't drink.

b. Mary said yesterday that she didn't drink.

If *because*-clauses taking high scope are merged in Spec,CP, then *because*-clauses are expected to (i) show the same patterning as *yesterday* in (94); and (ii) to be unambiguous when occurring to the right of the complementiser complement to *say*. (95-a) suggests that both of these expectations are met. First, the *because*-clause is acceptable when merged to the right of *that*. Second, the *because*-clause takes unambiguously high scope in that position.

In sentence-final position however, we expect structural ambiguity between merger at Spec,vP and merger at Spec,CP, and indeed (95-b) is ambiguous between a low and high reading of the *because*-clause.

(95) a. Mary said that because she was depressed she didn't drink. (unambiguous)
b. Mary said that she didn't drink because she was depressed. (ambiguous)

The question of how to derive McCloskey's embedded CP-modifier effect is left open. The important point here is that *because*-clauses pattern in the same way as other modifiers of the embedded CP, even if this pattern is in itself surprising.

4.3 Conclusion

To conclude, this chapter compared labelling and feature-driven implementations of phase theory, showing that the two types of account give rise to different predictions regarding the distribution of opaque and transparent adjuncts across the clause. Data was provided suggesting that opacity and transparency in adjuncts is not related to height, either across the clause, as suggested in the literature on preposition stranding and on asymmetrical coordination, or within individual projections, as under the Condition on Extraction Domains. Instead, the clausal spine is punctuated by areas of opacity, corresponding to elements contained within the immediate projection of phase heads.

This first part of the thesis has given a simple syntactic account of the extraction properties of a class of exceptions to the Coordinate Structure Constraint and to the adjunct island condition that have been held to show either a rigid syntax (requiring a cartographic framework such as that of Ramchand 2008, cf. Wiklund 2007) or non-syntactic constraints on islands (Truswell, 2011). First, I showed how these exceptions behave as a class, then I derived the transparency of these examples as adjuncts to non-phase heads, then considered whether the contrast between adjunction to phase heads and non-phase heads might account for other types of islands. The account proposed maintains flexibility and productivity through non-syntactic licensing of adjuncts, but keeps strictly syntactic licensing constraints on movement paths. The result is that acceptability of movement is a gradient phenomenon that depends on the extent to which a phrase can have a particular meaning. If the meaning can be straightforwardly derived in the semantic or discourse module, then the sentence is well-formed. If not, coercion must take place, and the acceptability of the

phrase will depend on the amount of coercion required. Unlike accounts such as De Vos (2005, 2007), the licensing constraints are not formalised as lexical semantic features that operate in the syntax, and therefore the account does not introduce redundancy or a look-ahead problem into the grammar by having semantic features operate both pre-syntactically (in the lexicon) and post-syntactically (in the semantics).

The syntactic account of movement is separate from the licensing constraints on adjunction here. However the question arises of how to formalise the licensing constraints on adjunction. The most salient means in the literature has been aspect. In the following two chapters (5 and 6), I report the results of a series of parallel experiments designed to test the influence of aspect on extraction, showing that aspect is not the principal regulator of acceptability in extraction. I then consider the implications for the question of how to license adjunction structures in such a way that the correct distribution is given for sentences allowing asymmetrical extraction from coordinate structures and subextraction from participials.

Part II

Experimental Study

Chapter 5

Subextraction from participials

This chapter presents three experiments on gaps in participial constructions in English, German and Norwegian. Section 5.1 motivates the use of judgement tests. Section 5.2.1 describes the design and set-up of the experiment in English, which was used as the starting point both for the experiments in German and Norwegian and for the judgement tests on coordination in chapter 6. Section 5.2 motivates the factorial design and gives the predictions of the theories discussed in the theoretical chapters in part I with respect to the three experiments. Sections 5.3, 5.4 and 5.5 detail the set-up, results and interpretation of results for English, German and Norwegian respectively. Section 5.6 summarises the results across the three languages.

5.1 Data in generative syntax

Data used to build theories in generative syntax has traditionally been restricted to isolated examples of a construction under discussion, sometimes from a primary source, e.g. a literary reference, but usually purpose-built by the linguist themselves in order to create the, often highly complex, syntactic environment required to fine-tune formal theories. Judgements on the acceptability of the sentence are made directly by the researcher for languages that the researcher speaks natively, in some cases after consulting a handful of other speakers. For languages that the linguist does not speak natively, judgements are made by con-

sulting one or more native speakers, usually professional linguists.

This section argues that (i) experimental methods such as small to large scale judgement tasks with non-linguist participants yield data with a higher level of certainty than the standard method of informal judgements by experts; that (ii) judgement tests are more suited to the level of information that is required here, i.e. information about the set of well-formed sentences, than alternative experimental methods that have become wide-spread in the psycholinguistic literature in recent years, such as Electroencephalography (EEG); and that (iii) parallel judgement tasks such as those in Alexopoulou and Keller (2007) can be generalised as a method for comparative syntax to yield systematic datasets that are more useful for cross-linguistic research than isolated judgement tasks alone.

5.1.1 Experimental methods

The quantity of informants is left deliberately vague in the introduction to this section, as much work in theoretical syntax does not mention how acceptability judgements on illustrated constructions are obtained. More recent works often address to some extent the issue of how data is collected by specifying the quantity of native speaker informants consulted and, where necessary, using the symbol % to indicate disagreement amongst informants instead of symbols such as *?*, *??*, * and ** that are otherwise used to indicate levels of acceptability across the literature. To take an example from the literature on subextraction from participials, Truswell (2009, (49), p. 27, and fn. 21, p.58) uses % to indicate disagreement between two informants on the Faroese data in appendix A, example (136-d). This level of explicitness is an improvement over much work in generative syntax over the past 50 years but is clearly not sufficient to meet broader scientific standards. Such concerns have been raised in numerous papers since the start of the generative syntax programme and common criticisms of the informal method prevalent in generative syntax are lack of replicability and lack of objectivity (Bader and Haeussler, 2010; Bard et al., 1996; Clifton et al., 2006; Culbertson and Gross, 2009; Culicover and Jackendoff, 2010; Dąbrowska, 2010; Dikken, 2007; Edelman and Christiansen, 2003; Fanselow, 2007; Featherston, 2005a,b, 2007, 2008, 2009; Fedorenko and Gibson, 2010; Gibson and Fedorenko, 2010a,b; Gibson et al., 2011; Grewen-

dorf, 2007; Gross and Culbertson, 2011; Haider, 2007; Hill, 1961; Hofmeister et al., 2013; Johnson, 2008; Keller, 2003; Myers, 2003; Newmeyer, 2007; Phillips and Lasnik, 2003; Schütze and Sprouse, 2014; Sorace and Keller, 2005; Spencer, 1973; Sprouse, 2007a,b, 2008, 2009, 2011a,b; Sprouse and Almeida, 2011, 2012a,b; Sprouse et al., 2013, 2012; Weskott and Fanselow, 2011).

Nonetheless, recent experimental work has shown that such expert intuitions, although collected in a non-systematic way, are not without reliable results. Sprouse and Almeida (2012a) for instance address the claim that informal methods have given rise to a high number of false positives. And indeed, small-scale informal investigations are frequently used as initial surveys to identify areas for more extensive investigation in even the physical sciences, where standardised data collection is the norm, see for instance the description of informal testing in Wilson (2013) that preceded formal entomological studies. Nonetheless, whilst it is reassuring that much of the data providing the foundations of generative syntax is replicable, the standard for future data collection in linguistics should not be deliberately lower than the standard of science more generally.

As the previous paragraph illustrates, experimental work related to syntax is not absent from the literature. There is an entire subfield dedicated to evaluating the empirical claims of generative syntax (cf. the references in the previous paragraph). Experimental methods also feature heavily in the (generally psycholinguistic) literature on syntactic processing (cf. Alexopoulou and Keller (2007) for a particularly clear example). However systematic data-collection methods are still rarely employed in formally-oriented work, and this absence is a feature of work not only in generative syntax but also in grammatical formalisms more generally (cf. Kubota and Levine 2015 for the proceedings of a conference aimed to address this situation in work on categorial grammars).

As in the generative syntax literature at large, experimental methods are rarely used in studies on subextraction from participials and coordination. The standard method of informal judgements was employed in the most extensive works on subextraction from participials, Truswell (2011), and on pseudocoordination, i.e. subextraction from asymmetric coordinate structures, De Vos (2005) and Wiklund (2007). A small number of exceptions

exist. For subextraction from participials, Bailey and Janke (2015) use a picture-matching task, Fabregas and Jiménez-Fernández (2016) use judgement tasks[1].

In relation to the study at hand, experimental methods offer a means of achieving a higher level of certainty of data in a way that can (i) discriminate between theories; and (ii) disprove or provide confirmation for some of the empirical claims in the literature, e.g. requirements on the matrix predicate such as telicity restrictions (Truswell, 2007a,b), and restrictions on the presence of external arguments (Truswell, 2011) or on the absence of internal arguments (Borgonovo and Neeleman, 2000; Fabregas and Jiménez-Fernández, 2016). The next section motivates the use of judgement tests from amongst the experimental methods.

5.1.2 Judgement tests

Judgement tests have the advantage over corpora of attested data when it comes to distinguishing between infrequent or unattested but otherwise acceptable sentences and sentences that are unattested precisely because they are unacceptable. The acceptability of infrequent or unattested sentences is often of crucial importance to theories of generative syntax, given that the primary goal of research in theoretical syntax is not to obtain some reduction in the quantity of errors in the short-term, where focusing on improving the derivation of frequently attested sentences could be expected to provide a higher hit rate, but instead to identify where the boundary lies between between grammatical and ungrammatical sentences in order to define the set of well-formed sentences that a theory of syntax should be able to derive.

A potential issue arises as to whether acceptability differences from judgement tasks originate within the grammar or in an external module such as in the processing module (i.e. are epiphenomenal; cf. Hofmeister et al. 2013 for a recent discussion of the source-ambiguity problem). Regardless of the origin of these differences, significant differences from a judgement task will increase the certainty and knowledge of the set of well-

[1] Fabregas and Jiménez-Fernández's (2016) study uses a large quantity of participants but further details on experimental design were not provided.

formed sentences. Models that then place some restrictions on long-distance dependencies in the grammar and other restrictions in a processing module are particularly vulnerable (e.g. Truswell, 2011). A further issue that could potentially be of concern even for theories that create the entire model in either the grammar or the processing module is the mixture of syntactic and semantic variables.

5.1.3 Parallel judgement tests

Classic judgement tests carried out in a single language give information about the set of well-formed sentences for one language. However an important part of the present study and of comparative syntax in general is to discriminate between theories based on their cross-linguistic predictions. Alexopoulou and Keller (2007) describe a study on resumptive pronouns across Greek, German and English. In order to maintain broadly consistent datasets and therefore potentially isolate correlations between varying features, languages from within a single language family were chosen: English, German and Norwegian. See subsection 5.2 for cross-linguistic predictions.

In conclusion, judgement tests allow more certainty to be achieved than previously has been about the set of well-formed sentences with subextraction from participial and pseudocoordinate constructions. In particular, it remains unclear what types of matrix predicates are compatible with subextraction from participials and pseudocoordination and whether the restrictions on matrix predicates are the same or vary in consistent ways across a set of closely related languages.

5.2 Telicity and Transitivity in Yoked English, German and Norwegian Studies

5.2.1 Method

This part of the thesis (part II) aims to gain a clearer understanding of adjunct constructions by testing the conditions under which transparent participial and asymmetric coordination

constructions are acceptable. The main hypotheses are (i) that the type of matrix predicate used in a sentence, in particular the telicity and transitivity of that predicate, will influence acceptability; and (ii) that the influence a matrix predicate has on acceptability will have an effect not only in sentences with gaps but also in sentences without gaps.

In order to test these hypotheses, two sets of yoked experiments were created. The hypotheses give three variables that can potentially have an effect on acceptability: telicity and transitivity of the matrix predicate, and the presence or absence of a gap. A factorial design has the benefit of enabling the effect of variables to be isolated and their interactions to be investigated. Therefore a factorial design is well-suited to the type of study under investigation here.

Under a factorial design, there is one continuous dependent variable (acceptability) and three binary categorical features: (i) telicity (CUL); (ii) transitivity (DP); and (iii) extraction (EXTR). Transitive predicates with definite complements, e.g. *identify the flowers*, were assumed to be telic, i.e. contain a culmination point, and transitive verbs with indefinite plurals, e.g. *design engines*, were assumed to be atelic, i.e. not to contain a culmination point (following Verkuyl, 1972). Crossing these factors gives 2x2x2=8 conditions, namely:

(96) Type of sentence in each condition

a. Transitive telic matrix predicate in a sentence with a gap
b. Transitive telic matrx predicate in a sentence without a gap
c. Intransitive telic matrx predicate in a sentence with a gap
d. Intransitive telic matrx predicate in a sentence without a gap
e. Transitive atelic matrix predicate in a sentence with a gap
f. Transitive atelic matrx predicate in a sentence without a gap
g. Intransitive atelic matrx predicate in a sentence with a gap
h. Intransitive atelic matrx predicate in a sentence without a gap

Table 5.1 crosses the three binary factors: *CUL*, *DP* and *EXTR*.

The experiments were yoked in two directions. First the sentences were tested across constructions, i.e. with either participials or with coordination. Second the sentences were

tested across two languages where the transparent construction were possible (English and Norwegian) and one language were the transparent construction was not possible (German). Bringing these two dimensions together gave 2x3=6 experiments, one experiment for each construction in each language.

For participials, the conditions in table 5.1 give rise to the base sentences in (97). Replacing *$* with the lexicalisations in (98) results in the test items listed in table B.1 in appendix B.

(97) Templates for sentences[2]

a. $1 $[+cul,+dp]$_{past}$ whistling the national anthem.

b. Which tune did $1 $[+cul,+dp] whistling?

c. $1 $[+cul,-dp]$_{past}$ whistling the national anthem.

d. Which tune did $1 $[+cul,-dp] whistling?

e. $1 $[-cul,+dp]$_{past}$ whistling the national anthem.

f. Which tune did $1 $[-cul,+dp] whistling?

g. $1 $[-cul,-dp]$_{past}$ whistling the national anthem.

h. Which tune did $1 [-cul,-dp] whistling?

(98) Lexicalisations:

a. $1: Mary, Julia, Lucy, Monica, Sophie

b. $[+cul,+dp]$_{past}$: picked the candidates, sold the paintings, threw the balls, identified the flowers

c. $[+cul,+dp]: pick the candidates, sell the paintings, throw the balls, identify the flowers

d. $[+cul,-dp]$_{past}$: arrived, surrendered, disappeared, appeared

e. $[+cul,-dp]: arrive, surrender, disappear, appear

f. $[-cul,+dp]$_{past}$: finished sketches, designed engines, closed gates, washed dishes, broke plates

g. $[-cul,+dp]: finish sketches, design engines, close gates, wash dishes, break

[2]Formatting building on Alexopoulou and Keller (2007, (60),47)

plates

h. $[-cul,-dp]$_{past}$: shivered, fought, ran, walked, wrote

i. $[-cul,-dp]: shiver, fight, run, walk, write

For coordination, the conditions in table 5.1 give rise to the base sentences in (99). Replacing *$* with the lexicalisations in (100) results in the test items listed in table C.1 in appendix C.

(99) Templates for sentences[3]

a. $1 $[+cul,+dp]$_{past}$ and bought the book.

b. Which book did $1 $[+cul,+dp] and buy?

c. $1 $[+cul,-dp]$_{past}$ and bought the book.

d. Which book did $1 $[+cul,-dp] and buy?

e. $1 $[-cul,+dp]$_{past}$ and bought the book.

f. Which book did $1 $[-cul,+dp] and buy?

g. $1 $[-cul,-dp]$_{past}$ and bought the book.

h. Which book did $1 [-cul,-dp] and buy?

(100) Lexicalisations:

a. $1: Mary, Julia, Lucy, Monica, Sophie

b. $[+cul,+dp]$_{past}$: picked the candidates, sold the paintings, threw the balls, identified the flowers

c. $[+cul,+dp]: pick the candidates, sell the paintings, throw the balls, identify the flowers

d. $[+cul,-dp]$_{past}$: arrived, surrendered, disappeared, appeared

e. $[+cul,-dp]: arrive, surrender, disappear, appear

f. $[-cul,+dp]$_{past}$: finished sketches, designed engines, closed gates, broke plates

g. $[-cul,+dp]: finish sketches, design engines, close gates, break plates

h. $[-cul,-dp]$_{past}$: shivered, fought, ran, walked, wrote

[3]Formatting building on Alexopoulou and Keller (2007, (60),47)

i. $[-cul,-dp]: shiver, fight, run, walk, write

5.2.2 Predictions

Five predictions are made. First, a main effect of extraction (EXTR) is expected across all experiments, as sentences with extraction are standardly more difficult to process than sentences without extraction (see for instance **?**).

Second, main effects of the factors associated with type of matrix predicate, i.e. telicity (CUL) and transitivity, are expected. Of these two, I predict that the key factor is telicity (CUL). Following previous work, it is predicted that participials and coordination should pattern differently in this respect: participials should have a main effect of telicity where telic>atelic (in line with Truswell, 2007a,b) and coordination should have a main effect of telicity where atelic>telic (in line with De Vos, 2005, 2007). I predict that telicity is more important that transitivity, and thus that there will be a main effect of telicity, possibly accompanied by a 2-way interaction between telicity and transitivity. This result is compatible with the approach proposed in the first part of the thesis, but not with other approaches such as a light verb approach. A main effect of transitivity with a 2-way interaction between telicity and transitivity would not be incompatible with the approach proposed in the first part of the thesis, however would be equally compatible with other approaches such as a light verb approach and not rule out such approaches.

Third, it is expected that there should be no interaction between telicity or transitivity and extraction, as the effect should be seen in both sentences with and without gaps.

Fourth, the effect should be seen only in languages where the construction exists, i.e. in English and Norwegian. In German where single event constructions for participials and pseudocoordiation are not found, there should only be an effect of extraction. Therefore, sentences without gaps should have significantly higher ratings than sentences without gaps because there is no formation of complex predicates, i.e. no effect of matrix predicate.

Finally, the coordinate sentences without gaps are ambiguous with a parallel coordination reading. Efforts have been made to exclude this reading by having the sentences read aloud by a native speaker with both verbs in a single intonational phrase. Nonetheless, in

cases where this reading is available, i.e. in sentences without gaps, it may be more acceptable to have a telic transitive in order to achieve a parallel structure to the second conjunct under the Condition of Coordination of Likes. If this is the case, then these sentences will be more acceptable with the opposite telicity to that expected, making the desired direction for telicity, i.e. atelic>telic, harder to achieve. In this case, a three-way interaction will be expected, where, in sentences without gaps, a telic transitive receives higher acceptability.

Table 5.2 summarises the predictions.

5.3 English

5.3.1 Set-up

Participants from non-linguistic backgrounds were asked to rate 90 recorded sentences on a Likert scale (1 to 6). The experiment was performed in English, and then administered in translated form in German and Norwegian. For previous examples of series of experiments run in parallel across more than one language, see Alexopoulou and Keller (2007).

The study in Alexopoulou and Keller (2007) employed magnitude estimation. Magnitude estimation was rejected for the present study, as feedback and random results from an initial pilot of the experiment suggested that the task was too complex. Additionally, recent studies suggest that magnitude estimation at best generates similar results to Likert scales (see Fukuda et al., 2012), as well as produces similarly non-ratio data (see Sprouse, 2011a).

A second pilot used pictures alongside spoken stimuli to try to force a single event reading. However feedback suggested that it was unclear how the pictures influenced the rating of the spoken stimuli and whether it was the picture or the spoken stimuli to which participants were responding. An example of one of the pictures is given in figure 5.1 along with the sentence for which it was intended.

Neither of these pilot designs were in the final study. Instead the experiments used Likert scale ratings of spoken stimuli only.

Following Cowart (1997), four lexicalisations of the base sentences were put together. Different lexicalisations were included for both the proper noun in subject position, and the

Table 5.1 CUL^2 x DP^2 x $EXTR^2$:

	1	2	3	4	5	6	7	8
	+cul +dp -extr	+cul +dp +extr	+cul -dp -extr	+cul -dp +extr	-cul +dp -extr	-cul +dp +extr	-cul -dp -extr	-cul -dp +extr
Participials	(97-a)	(97-b)	(97-c)	(97-d)	(97-e)	(97-f)	(97-g)	(97-h)
Coordination	(99-a)	(99-b)	(99-c)	(99-d)	(99-e)	(99-f)	(99-g)	(99-h)

Table 5.2 Predictions

Effect type	**English**	**Norwegian**	**German**
Main	Extraction [-extr] > [+extr] Telicity (CUL) Participials: telic > atelic Coordination: atelic > telic	Extraction [-extr] > [+extr] Telicity (CUL) Participials: telic > atelic Coordination: atelic > telic	Extraction [-extr] > [+extr]
2-way interaction	CUL and DP	CUL and DP	
3-way interaction	Only where ambiguity exists with parallel coordination	Only where ambiguity exists with parallel coordination	

Fig. 5.1 *Which tune did Sophie identify the flowers whistling?*

class of matrix predicate.

To limit the impact of additional variables, such as semantic compatibility between matrix and adjoined predicate (e.g. the requirement for two physical activities), the same adjunct was used in each condition, i.e. as *whistling the national anthem*.

Frequency effects were controlled for in the test items in the following way. The requirements in (101) were taken to delimit four types of matrix predicate:

(101) Conditions for use in assessing frequency effects

a. 1/2: [+cul,+dp], e.g. *pick the candidates*

b. 3/4: [+cul,-dp], e.g. *arrive*

c. 4/6: [-cul,+dp], e.g. *finish sketches*

d. 7/8: [-cul,-dp], e.g. *shake*

A rough initial list of matrix predicates meeting the requirements was put together by taking the frequencies per million words of verbal lemmas occurring in the British National Corpus, as listed in Leech et al. (2001)[4], and taking approximately every third satisfactory verb.

Verbs were excluded for a number of reasons. First, verbs were excluded from occupying matrix position if they did not denote a physical action. The motivation behind this exclusion was that the adjunct chosen, *whistling the national anthem*, is a manner adjunct, describing the way in which the matrix eventuality took place. As *whistling* is a physical act, the matrix predicate is also required to express a physical act. Adjoining *whistling the national anthem* to a matrix predicate that does not express a physical act results in a sentence that is intuitively unacceptable. (102) shows the unacceptability that results from combining the participial introduced by *whistling* with two verbs that do not express physical acts, i.e. *lost* in (102-a) and *failed* in (102-b).

(102) Physical act manner adjunct with non-physical act matrix adjunct

a. ??Julia lost whistling the national anthem.

b. ??Julia failed whistling the national anthem.

Second, overlapping verbs in conditions 1/2, 5/6 and 7/8 were avoided, so that the classes did not become defined in terms of whether or not they permitted both transitive and intransitive variants. For instance, sets of sentences like those illustrated in (103) following were avoided:

[4]Available online at $http://ucrel.lancs.ac.uk/bncfreq/lists/5_{2a}ll_rank_{v}erb.txt$. Last checked 24/07/16. Data from websites are referenced in footnotes and the reference is repeated in the bibliography.

(103) a. Mary wrote two letters whistling the national anthem.
b. Mary arrived whistling the national anthem.
c. Mary wrote letters whistling the national anthem.
d. Mary wrote whistling the national anthem.

Third, verbs were excluded from occurring in matrix position if they could act as complement to the matrix predicate, e.g. *chose whistling* in (104).

(104) Which tune did Mary choose whistling?

Fourth, verbs were excluded if they gave rise to garden path interpretations where the launching site of the *wh*-phrase could be either a sister position to the matrix predicate or to the adjunct predicate, e.g. *which tune* in (104).

The result was an intermediate list of verbs that were then paired with prototypical nouns. Again prototypicality was maximised by composing a rough initial list of elements of similar frequency using this time the list of nominal lemma frequency per million words in Leech et al. (2001)[5].

t-tests were then carried out on the lexicalisations for each of the four classes in (103) using the frequency data of lemmas per million words in WebCelex[6]. *t*-tests provide a standardised way of assessing whether two groups of means are significantly different. Words were changed in groups that were found to significantly (p>0.05) vary in frequency.

There are three advantages of using WebCelex. First, it constitutes a standard in the literature: WebCelex is based on the Celex database (Baayen et al., 1995) used in textbooks like Baayen (2008). Second, it is large: Celex makes available word frequency counts in a corpus of 18.6 million words (Baayen, 2008, 44). Third, the database provides easy access to frequency data for two other Germanic languages, Dutch and German, which will be helpful in the cross-linguistic phase of the experiment.

Table 5.3 shows that none of the log-transformed mean frequencies of the verbal lemmas

[5]Available online at $http://ucrel.lancs.ac.uk/bncfreq/lists/5_{1}all_{r}ank_{n}oun.txt$. Last checked 27/07/16.
[6]WebCelex. 2001. Max Planck Institute. Available online at $http://celex.mpi.nl/$. Last checked 27/07/2016.

in any two conditions are significantly different:

Table 5.3 No significant differences for frequencies of verbal lemmas

Conditions compared	*t*-value	*p*-value
1,2	t(13)=-0.415	p=0.689
1,3	t(13)=-0.304	p=0.769
1,4	t(13)=0.415	p=0.689
2,3	t(13)=-0.286	p=0.782
2,4	t(13)=-0.145	p=0.888
3,4	t(13)=0.206	p=0.842

Table 5.4 shows that none of the log-transformed mean frequencies of the verbal and indirect object nominal lemmas (if applicable) in any two conditions are significantly different.

Table 5.4 No significant differences for frequencies of verbal and nominal lemmas

Conditions compared	*t*-value	*p*-value
1,2	t(13)=0.018	p=0.986
1,3	t(13)=-1.43	p=0.169
1,4	t(13)=-0.351	p=0.731
2,3	t(13)=0.811	p=0.432
2,4	t(13)=-0.145	p=0.888
3,4	t(13)=-1.19	p=0.254

(105) Participials: English

a. Condition 1: Mary picked the candidates whistling the national anthem.

b. Condition 2: Which tune did Julia pick the candidates whistling?

c. Condition 3: Lucy arrived whistling the national anthem.

d. Condition 4: Which tune did Monica arrive whistling?

e. Condition 5: Sophie finished sketches whistling the national anthem.

f. Condition 6: Which tune did Sophie finish sketches whistling?

g. Condition 7: Lucy shivered whistling the national anthem.

h. Condition 8: Which tune did Sophie shiver whistling?

Controls

The first set of controls (106) provided a baseline of unacceptability with which to compare extraction from within participial and pseudocoordinate adjuncts. Adjuncts were chosen that expressed eventualities that were not simultaneous to the matrix eventuality, introduced by *before*, *after*, or *so that*.

(106) Control 1: Unacceptable extraction from sentences with adjunction

a. Which celebrity did Mary eat an ice cream before she saw?

b. Which song did Julia close the book after she had sung?

c. Which competition did Lucy read the book so that she would win?

d. Which magazine did Sophie play violin before she read?

The second set of controls (107) provided a baseline of acceptability in sentences with extraction. *wh*-extraction takes place from within the matrix clauses in the sentences in (107), meaning that the added complexity of *wh*-extraction is present without the unacceptability of extraction from within a tensed adjunct island.

(107) Control 2: Acceptable extraction from sentences with adjunction

a. Which ice cream did Mary eat before she saw the celebrity?

b. Which book did Sophie close after she had sung the song?

c. Which book did Lucy read so that she would win the competition?

d. Which instrument did Julia play before she read the magazine?

Fillers

As participants were drawn from non-linguistic backgrounds, disguising the aim of the experiment was not taken to be a priority. Fillers were introduced instead to reduce priming effects, especially as each experimental condition used either of two adjuncts, *whistling the national anthem* or *whistling which song*. The fillers involved a range of sentence types, across the spectrum of acceptability. The list for English is given in table B.1, appendix

B. A summary highlighting the key properties of each of the filler sentences is given in table B.7, appendix B. There were 50 fillers. At four observations each, the experimental sentences and control sentences came to a total of 40 (=4(2x2x2+2)). The total number of stimuli came to 90.

The type of errors that were included to reduce acceptability are given in (108) and (109).

(108) Types of errors included for intermediate acceptability, i.e. *?*

a. Incompatibility of duration adverbials *in* and *for* with the matrix predicate

b. Pragmatically odd adverbials, e.g. *sleep furiously*

c. Conjunct mismatch, e.g. *Julia is standing still and wore a hat.*

(109) Types of errors included for unacceptability, i.e. *

a. Agreement and inflection errors

b. Word order violations

Presentation of testing materials

To avoid ordering effects, the 82 stimuli were divided into 4 blocks with either 20 or 21 items. The order in each block was kept constant across participants but the order of blocks was randomised for each subject.

Each block included one of the eight test conditions from table 5.1 and one of each of the two control types from (106) and (107) in each group and 10 or 11 fillers. A Latin square design was not used, meaning that each participant was exposed to four instances of each test condition[7]. To choose the fillers, the list of 50 fillers was arranged in a random order using the *RAND()* function in Microsoft Excel. Starting from the top of this randomised list of fillers, 10 or 11 fillers were added to each block. This produced 4 blocks of 20 or 21 stimuli. The order of these items was then randomised using *RAND()* in Microsoft Excel and checked to ensure that no declarative and interrogative versions of the same sentence

[7]I have used a between-subjects ANOVA to analyse the data and treated each observation as a separate piece of data.

were adjacent. An example of two sentences that would not be allowed to be adjacent under this rule is given in (110).

(110) Examples of sentences that were not allowed to be adjacent

a. Mary picked two candidates whistling the national anthem.

b. Which tune did Julia pick two candidates whistling?

To ensure that the rating task was understood, a training phase was included, consisting of 8 practice items in the same format as the experimental items, giving a total of 90 recorded sentences. The practice items covered the full range of acceptability.

The task was carried out over the internet using the questionnaire software *Qualtrics*. Subjects were told to answer each question as quickly as they felt comfortable.

Participants

Participants were monolingual speakers of English, where *monolingual speaker* is defined as speaking only English on a daily basis and not having lived outside of the UK for more than two consecutive years. Linguists, defined as anyone who had taken a module in Linguistics at an institute of higher education, were excluded from the study. Stricter conditions[8] were imposed for a pilot but it proved difficult to recruit participants satisfying these conditions. Additionally, the stricter conditions acted mainly to restrict the regional distribution of participants, but as there was no reason to assume dialectal variation, this precaution was not taken to be a priority.

The participial experiment was conducted with 48 participants in English. Each participant judged four instances of each condition. All data from partially completed questionnaires were excluded. Of the remaining completed questionnaires from 54 participants, 3 participants had answered *Yes* to the question *Have you ever taken a Linguistics course?*

[8]The original stricter conditions were the following: (i) not have lived outside of London, the South West, the South East or the East of England for longer than 1 year at a time; (ii) be a native speaker of English, where *native speaker* is defined as being monolingual and not mastering any other language to higher than intermediate level (i.e. not C1 or C2 in the Common European Framework of Reference for Languages); and (iii) not have previously taken a course in Linguistics at an institute of higher education.

and their data was removed, as was the data from one additional participant on the basis of questionable native speaker status. Although this participant was a self-reported native speaker of English, email correspondence showed a number of non-native errors. Finally, the combined rating of all four c2 and c3 controls was compared and participants' data removed if c2<c3, i.e. if the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island was not at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. A further two participants' data was removed due to controls, yielding a total of 48 completed questionnaires after sorting. The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 12 using the SORT() function in Excel and one rating for each condition was used for each group.

5.3.2 Results

Statistical analyses were run using R software (R Development Core Team, 2009) and the package *gplots* (Warnes et al., 2016). The means for each condition are given in figure 5.2. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There were significant effects at the $p<0.05$ level for EXTR ($p<0.001$) and DP ($p<0.001$). Furthermore there was a significant interaction of telicity (CUL) and transitivity (TRANS) ($p=0.049$).

5.3.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would depend on the type of matrix predicate, in particular on the telicity of the matrix predicate. Therefore it was expected that there would be a significant main effect for telicity (CUL) which would be visualised by the four leftmost bars being higher than the four rightmost bars in figure 5.2.

This prediction was partially met: the type of matrix predicate did make a difference, however telicity alone did not. There was no significant main effect for telicity (CUL). The

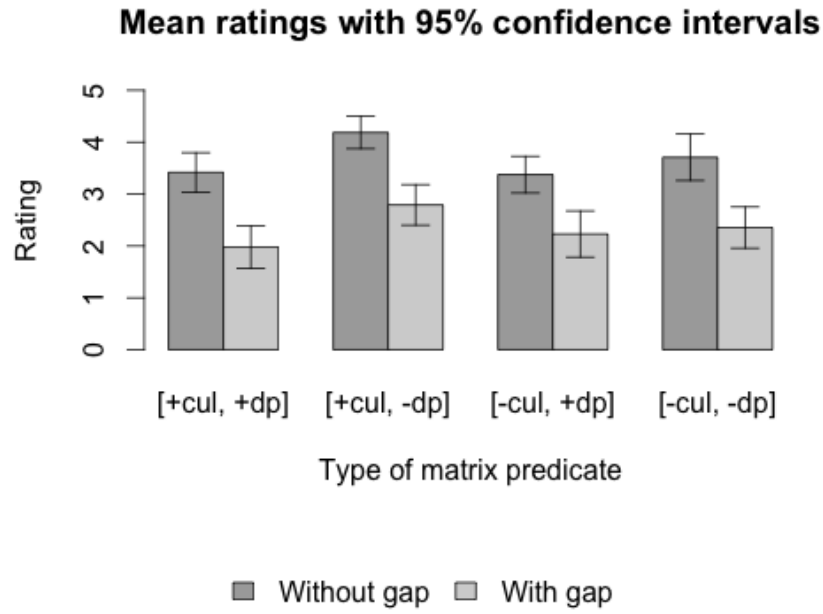


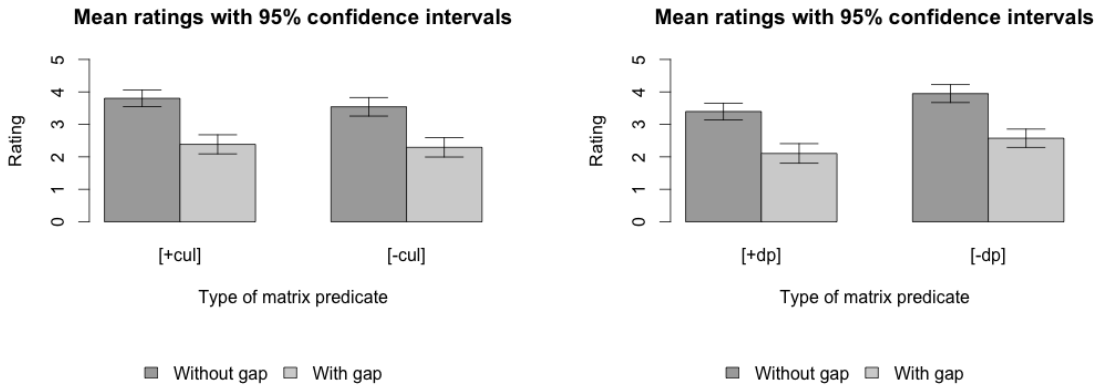
Fig. 5.2 English participials: mean ratings by type of sentence

barplot in figure 5.2 does not show a clearcut division between the leftmost and rightmost four conditions as expected. The lack of difference between atelic and telic conditions is further illustrated in figure 5.3a that collapses the two telic conditions together and the two atelic conditions together.

Instead, transitivity emerges as the key factor. The barplot in figure 5.3b shows the differences in mean ratings between transitive and intransitive conditions, illustrating that the sentences with intransitive matrix predicates are more acceptable than those with transitive matrix predicates. This difference is statistically significant at the $p<0.05$ level.

Whilst there is no main effect of telicity, telicity nonetheless has an effect within intransitives only, as demonstrated by the significant interaction of the two factors of telicity (CUL) and transitivity (DP). This interaction is plotted in figure 5.4. From the plot, it can be seen that whilst atelic and telic transitives are similarly acceptable, as are atelic intransitives, telic intransitives are acceptable to a higher degree.

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each con-



(a) Telicity (b) Transitivity

Fig. 5.3 English participials: mean ratings

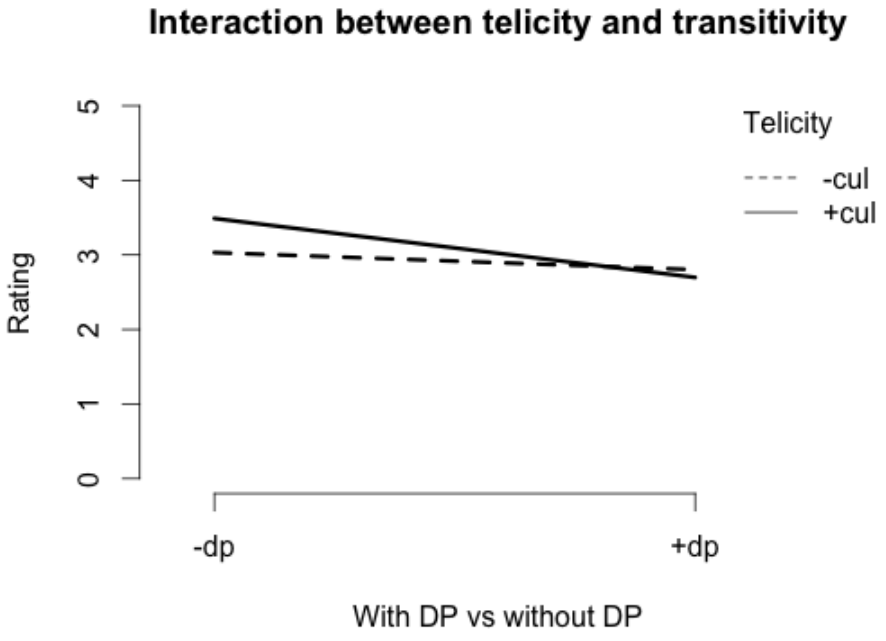
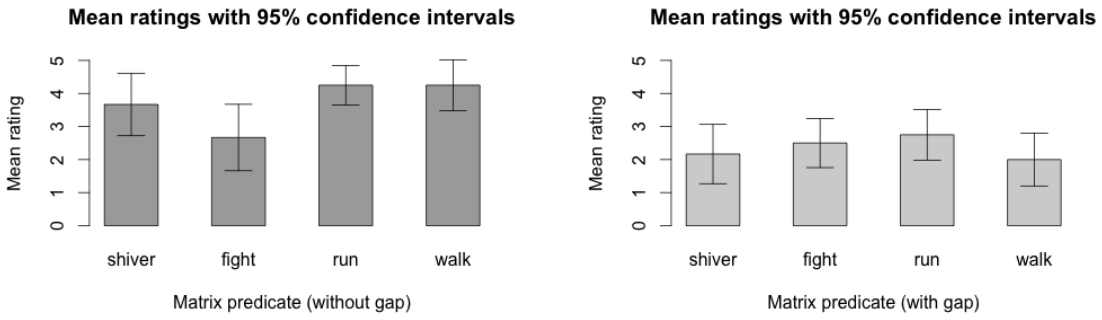


Fig. 5.4 English participials: 2-way interaction between telicity and transitvity



(a) Without gap

(b) With gap

Fig. 5.5 English participials: means of [-cul, -dp]

dition. One condition, [-cul, -dp, -extr], showed a significant effect when the means were compared. Figure 5.5a plots the mean ratings for each of the four predicates, *shiver*, *fight*, *run* and *walk*. It can be observed that the mean rating for *fight* is lower than the mean ratings of the other predicates in this condition. Nonetheless, mean ratings are not significantly different in sentences with gaps, i.e. [-cul, -dp, +extr]. Visually, it can be observed that all four predicates receive similar mean ratings in the plot in 5.5b. It is unclear whether *fight* does or does not show a lexicalisation effect: although *fight* behaves in a cohesive way with the other lexicalisations when there is a gap, the lack of difference may be because the overall unacceptability of the gap makes the lexicalisation effect invisible. In this respect, it is worth noting that the mean rating for *fight* in the gapless condition is on par with the condition with gap, whilst the other predicates all show higher mean ratings in the gapless condition.

In summary, this experiment shows that the type of matrix predicate does have an effect on the acceptability of participials in English. Furthermore, there is no interaction with extraction, suggesting that the hypothesis put forward in part I is met, i.e. that the effect of the matrix predicate is seen both in sentences with and without extraction. It is not the case that extraction saves an otherwise ungrammatical sentence, nor that extraction selectively makes some sentences but not others decrease in acceptability. Intransitivity rather than

telicity has emerged as the key factor regarding the type of matrix predicate. Nonetheless, telicity does have an effect within intransitives only.

5.4 German

5.4.1 Set-up

The analysis proposed in chapter 3 relies on the lexicalisation of a null preposition which adjoins to the matrix VP. Two potential cross-linguistic patterns emerging from the analysis proposed in chapter 2 and from the literature (especially Truswell, 2009; 2011) are given in (111).

(111) Possible cross-linguistic patterns

a. If a language *l* allows preposition stranding, *l* allows extraction from within participial adjuncts.

b. If a language *l* allows VP-adjoining participial adjuncts without extraction, *l* allows extraction from within such adjuncts.

The hypothesis in (111-a) is a prediction of the analysis advanced here and detailed in chapter 3. According to (111-a), there are two types of languages: those like English, which allow participial adjunction both with and without extraction, and those which represent the opposite of English and permit such adjunction neither with or without extraction.

The present account does not make any predictions about the availability of extraction from participial adjuncts: this depends on lexicalisation of the null preposition ∅. However if German allows participial adjuncts but prohibits extraction from within such adjuncts, then (111-a) will be rejected.

German, as a language without preposition stranding will cause (111-b) to be rejected if it allows extraction from within participial adjuncts. If German does not allow participial extraction, then the current situation remains: there is insufficient data to reject the (111-b).

Conditions

To build the test items, the sentences in table B.1, appendix B, were translated into German by two informants. A third informant provided judgements on sentences with discrepancies. Finally, a fourth informant recorded the sentences and provided additional judgements. Table B.3, appendix B, provides the translations for all test items into German. To illustrate here, an example for each test condition is given in (112).

(112) Test items

a. Condition 1:

Maria wählte die Nationalhymne pfeifend die Kandidaten aus.
Mary chose the national.anthem whistling the candidates out
'Mary picked the candidates whistling the national anthem.'

b. Condition 2:

Welches Lied wählte Julia pfeifend die Kandidaten aus?
which song chose Julia whistling the candidates out
'Which tune did Julia pick the candidates whistling?'

c. Condition 3:

Luzie kam die Nationalhymne pfeifend an.
Lucy came the national.anthem singing at
'Lucy arrived whistling the national anthem.'

d. Condition 4:

Welches Lied kam Monika pfeifend an?
which song came Monica whistling at
'Which tune did Monica arrive whistling?'

e. Condition 5:

Sofie beendete die Nationalhymne pfeifend Entwürfe.
Sophie ended the national.anthem whistling drafts
'Sophie finished sketches whistling the national anthem.'

f. Condition 6:

Welches Lied beendete Julia pfeifend Entwürfe?
which song ended Julia whistling drafts
'Which tune did Julia finish sketches whistling?'

g. Condition 7:

Luzie zitterte die Nationalhymne pfeifend.
Lucy shivered the national.anthem whistling
'Lucy shivered whistling the national anthem.'

h. Condition 8:

Welches Lied zitterte Sofie pfeifend?
which tune shivered Sophie whistling
'Which tune did Sophie shiver whistling?'

(113) illustrates the type of sentence under consideration, composed of the gerundive of a transitive verb, modifying the main verb, whose object has undergone *wh*-extraction:

(113) Which tune did Mary arrive whistling?

What should the German equivalent of (113) be? Two informants provided the two possibilities in (114), judging (114-a) to be acceptable (although belonging to a high register due to the use of the present participle *pfeifend*), and (114-b)-(114-c) to be unacceptable. Of (114-b) and (114-c), (114-c) was judged clearly worse.

(114) Translation of (113)

a. (✔) Welches Lied pfeifend ist Maria angekommen?
which song whistling is Mary at.come
'Which tune did Mary arrive whistling?'

b. (*) Welches Lied ist Maria pfeifend angekommen?
which song is Maria whistling at.come
'Which tune did Mary arrive whistling?'

c. (**) Welches Lied ist Maria angekommen pfeifend?
which song is Maria at.come whistling
'Which tune did Mary arrive whistling?'

All three informants judged the *wh*-in situ variant in (115-a) to be acceptable:

(115) a. Maria ist angekommen welches Lied pfeifend?
Mary is at.come which song whistling "
'Mary arrived whistling the national anthem.'

The acceptable in-situ variant realises *pfeifend* after *angekommen* with a pause separating the two. Such detachment, sentence-final placement, and contrast with the placement of the adjunct *die Nationalhymne pfeifend* in (116) suggests that *Welches Lied* has undergone rightward extraction in (115-a). However the declarative version provided by the informants in (116), which was judged acceptable, realises *pfeifend* pre-verbally, suggesting that (114-a) involves pied-piping, i.e. extraction of the entire adjunct rather than extraction of an element internal to the adjunct.

(116) Maria ist die Nationalhymne pfeifend angekommen.
Mary is the national.anthem whistling at.come
'Mary arrived whistling the national anthem.'

The same type of translation for the test items in the other [-DP] condition (condition 7/8) was chosen, i.e. with *pfeifend* immediately preceding the matrix verb participle. The translation of the variant without extraction is provided in (117-a), and the translation of the variant with extraction is provided in (117-b)[9].

(117) Test items in intransitive conditions 7 and 8

a. Condition 7: Luzie zitterte die Nationalhymne pfeifend.
Lucy shivered the national.anthem whistling
'Lucy shivered whistling the national anthem.'

b. Condition 8: Welches Lied zitterte Sofie pfeifend?
which tune shivered Sophie whistling
'Which tune did Sophie shiver whistling?'

The translations for the two transitive [+DP] conditions (conditions 1/2 and 5/6) involved another potential variable: the placement of the DP. In both cases, the three informants preferred sentences where the DP followed the present participle *pfeifend* as in (118-b) and (118-d), rather than sentences where the DP preceded the present participle *pfeifend* as in (119-b) and (119-d).

(118) Preferred word order with DP following *pfeifend*

[9]Conditions and controls for Norwegian can also be found in tables B.5 and B.6 in appendix B.

a. Sofie beendete die Nationalhymne pfeifend Entwürfe.
Sophie ended the national.anthem whistling drafts
'Sophie finished drafts whistling the national anthem.'

b. Welches Lied beendete Julia pfeifend Entwürfe?
which song ended Julia whistling drafts
'Which song did Julia finish drafts whistling?'

c. Maria begegnete die Nationalhymne pfeifend Feinden.
Mary fought the national.anthem whistling enemies
'Which song did Julia fight enemies whistling?'

d. Welches Lied begegnete Julia pfeifend Feinden?
which song fought Julia whistling enemies
'Which song did Julia fight enemies whistling?

(119) Dispreferred word order with DP preceding *pfeifend*

a. Sofie beendete Entwürfe die Nationalhymne pfeifend.
Sophie ended drafts the national.anthem whistling
'Sophie ended drafts whistling the national anthem.'

b. Welches Lied beendete Julia Entwürfe pfeifend?
which song ended Julia drafts whistling
'Which song did Julia end drafts whistling?'

c. Maria begegnete Feinden die Nationalhymne pfeifend.
Mary fought enemies the national.anthem whistling
'Mary fought enemies whistling the national anthem.'

d. Welches Lied begegnete Julia Feinden pfeifend?
which song fought Julia enemies whistling
'Which song did Julia fight enemies whistling?'

Two informants noted that whilst both variants with *beendete* in (118-b) and (119-b) were unacceptable, it was more unclear which object was intended to go with which verb in the variants with *begegnete* in (118-d) and (119-d). The informants also stated that the telicity of the (a) and (b) examples in (118) and (119) stayed the same regardless of the relative order of the DP and *pfeifend*. In both orders, *beendete Entwürfe* was atelic and *begegnete den Feinden* was telic. Therefore the sentences chosen to be included in the study were those in with the DP following *pfeifend* in (118). These intuitions also fit with the adjacency requirement for subextraction from participials observed for Spanish in Fabregas and Jiménez-Fernández (2016), interestingly despite the fact that the informants rated the

sentences as unacceptable overall.

Frequency tests were carried out to compare the verbs in each condition using frequency per million counts from the WebCelex German Lemma corpus. Welch's two sample *t*-test was used because the frequency data for each of the conditions had normal distributions. Whilst there were eight conditions, only four groups of verbs were compared because the same verbs were used in both sentences with extraction and in sentences without extraction. The four groups of verbs are given in (120).

(120) Groups of conditions used in assessing frequency effects

a. 1/2: [+cul,+dp], e.g. *den Feinden begegnen (fight enemies)*

b. 3/4: [+cul,-dp], e.g. *ankommen (arrive)*

c. 5/6: [-cul,+dp], e.g. *Entwürfe beenden (end sketches)*

d. 7/8: [-cul,-dp], e.g. *zittern (shiver)*

Table 5.5 gives the results of the frequency test. The test was carried out in the following way. First, the frequency for each verb was taken from the WebCelex German Lemma corpus. Second, the mean frequency was taken across the four verbs in each of the groups in (120). Third, Welch's two sample *t*-test was used to compare each group of verbs to the other.

Table 5.5 shows that none of the log-transformed mean frequencies of the verbal lemmas in any two conditions are significantly different. A Wilcoxon sum rank test was again used to compare the means of the conditions with non-normal frequency data as detailed in Baayen (2008, 76), i.e. for tests comparing condition 1/2 with the other three conditions, where the frequency counts of the verbal lemmas per million words were non-normally distributed (Shapiro-Wilk test: W=0.793, p=0.012).

Table 5.6 shows that none of the log-transformed mean frequencies of the verbal and indirect object nominal lemmas (if applicable) in any two conditions are significantly different. A Wilcoxon sum rank test was used to compare the means of condition 1/2 with conditions 3/4, 5/6 and 7/8, as the frequency counts of the verbal lemmas per million words for condition 1 were non-normally distributed (Shapiro-Wilk test: W=0.793, p=0.012).

The issue of reinforcing a single event reading by means of no pause between the matrix predicate and the adjunct does not arise in German, as the participial adjunct in (114-b) is not in sentence-final position. For consistency with the English experiment, the German stimuli were nonetheless recorded on the same Behringer C-1 condenser microphone as the English sentences.

Controls

As with the English experiment, two sets of controls were included to provide baselines of unacceptability and acceptability. The first set of controls, given in (121) involved unacceptable extraction from within sentences with adjunction (i.e. from within a mixture of tensed adjuncts).

(121) Control 1: unacceptable extraction from sentences with adjunction

a. Welchen Promi aß Maria ein Eis, bevor sie sah?
which celebrity ate Mary an ice-cream before she saw
'Which celebrity did Mary eat an ice-cream before she saw?'

b. Welches Lied schloss Julia das Buch, nachdem sie gesungen hatte?
which song closed Julia the buch before she sung had
'Which song did Julia close the book before she sung?'

c. Welchen Wettbewerb las Luzie das Buch, um zu gewinnen?
which competition read Lucy the book in.order to won
'Which competition did Lucy read the book in order to win?'

d. Welche Zeitschrift spielte Sofie die Geige, bevor sie las?
which newspaper played Sophie the violin before she read
'Which newspaper did Sophie play the violin before she read?'

Table 5.5 No significant differences for frequencies of verbal lemmas

Conditions compared	*t*/*w*-value	*p*-value
1,2	w=15	p=0.675
1,3	w=16	p=0.525
1,4	w=13	p=1
2,3	t(5.5)=2.038	p=0.092
2,4	t(4.8)=1.21	p=0.282
3,4	t(7.4)=-0.302	p=0.771

The second set of controls (122) involved acceptable extraction from within sentences with adjunction, i.e. from within the matrix clause of a sentence with a mixture of tensed adjuncts.

(122) Control 2: acceptable extraction from sentences with adjunction

a. Welches Eis aß Maria, bevor sie den Promi sah?
which ice-cream ate Mary before she the celebrity saw
'Which ice-cream did Mary eat before she saw the celebrity?'

b. Welches Buch schloss Sofie, nachdem sie das Lied gesungen hatte?
which book closed Sophie after she the song sung had
'Which book did Sophie close after she had sung the song?'

c. Welches Buch las Luzie, um den Wettbewerb zu gewinnen?
which book read Lucy in.order the competition to won
'Which book did Lucy read in order to win the competition?'

d. Welches Instrument spielte Julia, bevor sie die Zeitschrift las?
which instrument played Julia before she the newspaper read
'Which instrument did Julia play before she read the newspaper?'

Fillers

The fillers for the German experiment are given in table B.4, appendix B, and were translated from the English fillers in table B.1, appendix B, by two informants. Table B.7, appendix B, compares the distinguishing properties of the fillers.

Table 5.6 No significant differences for frequencies of verbal and nominal lemmas

Conditions compared	*t*/*w*-value	*p*-value
1,2	w=29	p=0.668
1,3	w=67	p=0.211
1,4	w=33	p=0.357
2,3	t(13)=1.874	p=0.084
2,4	t(4.8)=1.21	p=0.282
3,4	t(6)=0.161	p=0.877

Presentation of testing materials

Presentation of testing materials was carried out on *Qualtrics* in parallel to the English survey. See (109) for precautions undertaken to avoid ordering effects.

Participants

The participial experiment was conducted with 52 participants in German. Each participant judged four instances of each condition. All data from partially completed questionnaires were excluded. Of the remaining completed questionnaires from 61 participants, 3 participants had answered *Yes* to the question *Have you ever taken a Linguistics course?* and their data was removed. Finally, the combined rating of all four c2 and c3 controls was compared and participants' data removed if c2<c3, i.e. if the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island was not at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. A further three participants' data was removed due to controls, and three further participants' data were randomly removed using the SORT() function in Excel to yield a multiple of 4, giving a total of 52 completed questionnaires after sorting. The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 13 using the SORT() function in Excel and one rating for each condition was used for each group.

5.4.2 Results

The means for each condition are given in figure 5.6. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There was a significant main effect at the $p<0.05$ level only for EXTR ($p<0.001$). Interactions were not significant.

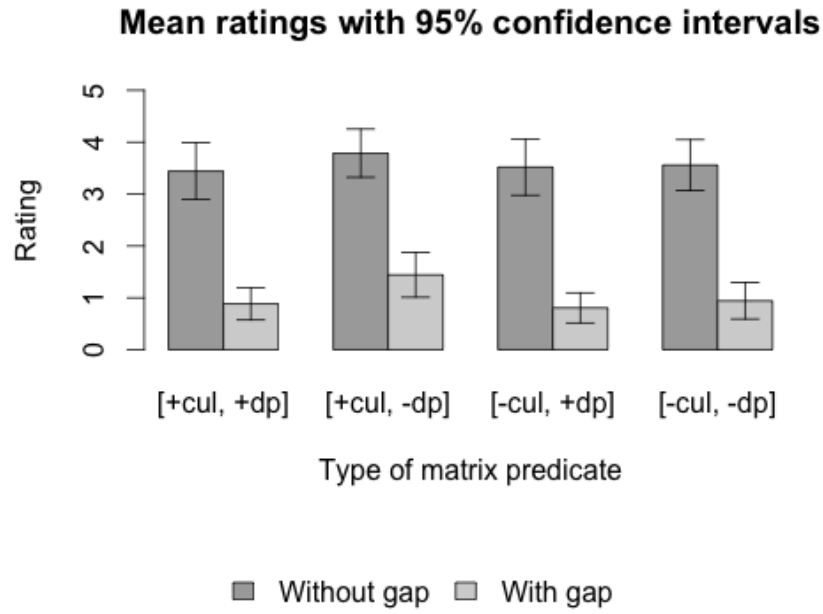


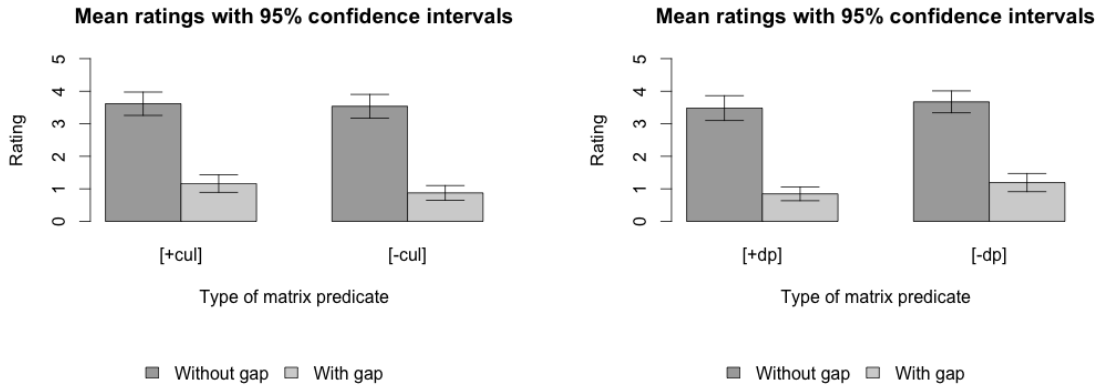
Fig. 5.6 German participials: mean ratings by type of sentence

5.4.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would not depend on the type of matrix predicate, as this type of sentence is standardly taken to be unacceptable in German. Therefore it was expected that there would be a significant main effect only for extraction which would be visualised by the light grey bars being lower than the dark grey bars in figure 5.6.

This prediction was met. There was a main effect of extraction (EXTR) that is expected, as sentences with extraction are standardly thought to be more difficult to process. This effect is illustrated in figure 5.6 by the light grey bars being lower than the dark grey bars. There were no main effects relating to the type of matrix predicate, i.e. to either telicity (CUL) or to transitivity (DP).

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each condition. No conditions showed significant effects when the means were compared. Figure 5.7



(a) Telicity (b) Transitivity

Fig. 5.7 German participials: mean ratings

shows that both telic and atelic as well as transitive and intransitive sentences have similar means.

In summary, this experiment shows that the type of matrix predicate does not have an effect on the acceptability of participials in German.

5.5 Norwegian

5.5.1 Set-up

(123) Possible cross-linguistic patterns

a. If a language *l* allows preposition stranding, *l* allows extraction from within participial adjuncts.

b. If a language *l* allows VP-adjoining participial adjuncts without extraction, *l* allows extraction from within such adjuncts.

Of the two potential patterns in (123), Norwegian can provide additional evidence for just (123-a). Under the analysis in chapter 3, the expectation is that if a matrix predicate can occur with the adjunct, then extraction will be possible. Additionally, it will be interesting to compare whether the classes of matrix predicate that can occur with participial adjunct

are the same classes as in the English experiment. It need not however be the case that the same matrix predicate occur with participial adjuncts. This variation is lexical in nature: either the preposition ∅ will be lexicalised or it will not be. If the preposition is lexicalised, it may denote a variety of aspectual operators in the semantics. (123-a) on the other hand is a structural prediction: if the semantics forces a preposition to be merged in Spec,VP, then it must allow extraction assuming a universal syntax across languages. Informants judged the sentences less good without *på* (*on*, PP).

Data from Norwegian will not help reject the prediction in (123-b). To reject (123-b), the language under consideration must not allow adposition stranding. However Norwegian allows preposition stranding under both A- and A'-movement (Truswell, 2011; see (138-f) for an acceptable example of P-stranding and (137-f) for an acceptable example of P'-stranding).

Conditions

Unlike German, the Norwegian informants did not judge there to be ordering effects relating to the placement of the present participle in sentences with extraction or relating to the placement of the direct objects. The test sentences were translated[10] as in (124)[11], with other positions of the present participle or direct object judged strongly unacceptable to the informants.

Table B.3, appendix B, provides the translations for the test items into Norwegian.

(124) Test items

a. Condition 1: Marit valgte kandidatene plystrende på
Mary picked candidates.DEF whistling to
nasjonalsangen.
national.anthem.DEF
'Mary picked the candidates whistling the national anthem.'

[10]One informant was asked to translate the test conditions, the one control set in (126), practice items and fillers into English. A second informant was asked to translate both control sets, at least one of each test condition, and to check the other test items, practice items and fillers. A third informant was asked to provided additional judgements and to record the sentences.

[11]Conditions and controls for Norwegian can also be found in tables B.9 and B.10 in appendix B.

b. Condition 2: Hvilken melodi valgte Julia kandidatene plystrende på?
which tune picked Julia candidates.DEF whistling to
'Which tune did Julia pick the candidates whistling?

c. Condition 3: Lucie ankom plystrende på nasjonalsangen.
Lucy arrived whistling to national.anthem.DEF
'Lucy arrived whistling the national anthem.'

d. Condition 4: Hvilken melodi ankom Monika plystrende på?
which tune arrived Monica whistling to
'Which tune did Monica arrive whistling?'

e. Condition 5: Sofie fullførte skisser plystrende på nasjonalsangen.
Sophie finished sketches whistling to national.anthem.DEF
'Sophie finished sketches whistling the national anthem.'

f. Condition 6: Hvilken melodi fullførte Julia skisser plystrende på?
which tune finished Julia sketches whistling to
'Which tune did Julia finish sketches whistling?'

g. Condition 7: Lucie skalv plystrende på nasjonalsangen.
Lucy shivered whistling to national.anthem.DEF
'Lucy shivered whistling the national anthem.'

h. Condition 8: Hvilken melodi skalv Sofie plystrende på?
which tune shivered Sophie whistling to
'Which tune did Sophie shiver whistling?'

Frequency tests were carried out on the matrix verb and matrix object alternates using frequency counts from the Oslo Corpus of Tagged Norwegian Texts (bokmål part, 18.5 million words). The search was open, i.e. no syntactic categories were selected[12]. The frequency count was divided by 18.5 (as there are 18.5 million words in the corpus) and then rounded to the nearest whole number.

Table 5.7 shows that none of the log-transformed mean frequencies of the verbal lemmas in any two conditions are significantly different.

Table 5.8 shows that none of the log-transformed mean frequencies of the verbal and indirect object nominal lemmas (if applicable) in any two conditions are significantly dif-

[12]The items searched for were infinitivals (for verbs), and nominal elements with no ending (for nouns) in [+dp] conditions. For condition 1 [+cul,+dp], the verbal elements were *velge*, *møte*, *kaste*, *identifisere*, *audkjonere*, and the nominal elements were *kandidat*, *fiende*, *ball*, *blomst* and *maleri*. For condition 2 [+cul,-dp], the verbal elements were *ankomme*, *overgå*, *forsvinne*, *dø* and *dukke*. Particles, like *opp* in *dukke opp* were not included in the search. The verbal elements for condition 3 [-cul,+dp] were *fullføre*, *designe*, *lukke*, *vaske*, *knuse*, and the nominal elements were *skisse*, *motor*, *port*, *kopp* and *tallerken*.

ferent. A Wilcoxon sum rank test was used to compare the means of condition 1/2 with conditions 3/4, 5/6 and 7/8, as the frequency counts of the verbal lemmas per million words for condition 1 were non-normally distributed (Shapiro-Wilk test: W=0.685, p=0.0006).

Controls

As with the English and German experiments, two sets of controls were included in order to determine base lines of unacceptability and acceptability. The first set of controls, given in (125), involved unacceptable extraction from within sentences with adjunction, i.e. from within tensed adjuncts.

(125) Control 1: unacceptable extraction in sentences with adjunction

a. Hvilken stjerne spiste Marit en iskrem før hun så?
which star ate Mary an ice-cream before she saw
'Which celebrity did Mary eat an ice-cream before she saw?'

b. Hvilken sang lukket Julia boka etter at hun hadde sunget?
which song closed Julia book.DEF after that she had sung
'Which song did Julia close the book after she had sung?'

c. Hvilken konkurranse leste Lucie boka så hun kunne vinne?
which competition read Lucy book.DEF so she could win
'Which competition did Lucy read the book so that she would win?'

d. Hvilket blad spilte Sofie fiolin før hun leste?
which newspaper played Sophie violin before she read
'Which magazine did Sophie play violin before she read?'

(126) Control 2: acceptable extraction in sentences with adjunction

Table 5.7 No significant differences for frequencies of verbal lemmas

Conditions compared	t-value	p-value
1,2	t(4.5)=1.309	p=0.254
1,3	t(4.1)=1.652	p=0.172
1,4	t(8)=-0.053	p=0.959
2,3	t(5.6)=1.165	p=0.291
2,4	t(4.5)=-1.358	p=0.24
3,4	t(4.1)=-1.696	p=0.164

a. Hvilken iskrem spiste Marit før hun så stjernen?
which ice-cream ate Mary before she saw celebrity.DEF
'Which ice cream did Mary eat before she saw the celebrity?'

b. Hvilken bok lukket Sofie etter at hun hadde sunget sangen?
which book closed Sophie after that she had sung song.DEF
'Which book did Sophie close after she had sung song.DEF?'

c. Hvilken bok leste Lucie så hun kunne vinne konkurransen?
which book read Lucy so she could win competitions
'Which book did Lucy read so that she would win competition.DEF?'

d. Hvilket instrument spilte Julia før hun leste bladet?
which instrument played Julia before she read magazine.DEF
'Which instrument did Julia play before she read the magazine?'

The second set of controls will involve acceptable extraction from within sentences with adjunction, i.e. from within the matrix clause of a sentence with tensed adjuncts.

Fillers

The fillers for the Norwegian experiment are given in table B.6, appendix B, and were translated from the English fillers in table B.1, appendix B, by two informants. Table B.7, appendix B, compares the distinguishing properties of the fillers.

Presentation of testing materials

Presentation of testing materials was carried out on *Qualtrics* in parallel to the English and German surveys. See subsection (109) for precautions undertaken to avoid ordering effects.

Table 5.8 No significant differences for frequencies of verbal and nominal lemmas

Conditions compared	*t*/*w*-value	*p*-value
1,2	w=26	p=0.951
1,3	w=70	p=0.14
1,4	w=19	p=0.5
2,3	t(4.6)=1.56	p=0.184
2,4	t(4.5)=-1.358	p=0.24
3,4	t(4)=-1.783	p=0.149

Participants

The participial experiment was conducted with 16 participants in English. Each participant judged four instances of each condition. All data from partially completed questionnaires were excluded. Of the remaining completed questionnaires from 18 participants, 1 participant had answered *Yes* to the question *Have you ever taken a Linguistics course?* and their data was removed. Finally, the combined rating of all four c2 and c3 controls was compared and participants' data removed if c2<c3, i.e. if the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island was not at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. No participants' data was removed due to controls, and one further participants' data was randomly removed using the SORT() function in Excel to yield a multiple of 4, giving a total of 16 completed questionnaires after sorting. The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 4 using the SORT() function in Excel and one rating for each condition was used for each group.

5.5.2 Results

The means for each condition are given in figure 5.8. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There was a significant main effect at the $p<0.05$ level only for EXTR ($p<0.001$). Interactions were not significant.

5.5.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would depend on the type of matrix predicate, in particular on the telicity of the matrix predicate. Therefore it was expected that there would be a significant main effect for telicity (CUL) which would be visualised by the four leftmost bars being higher than the four rightmost bars in figure 5.8.

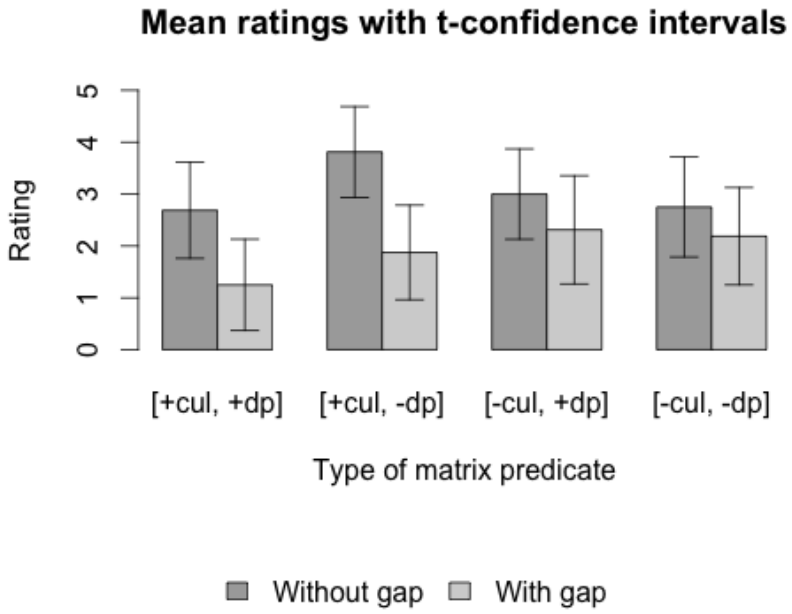
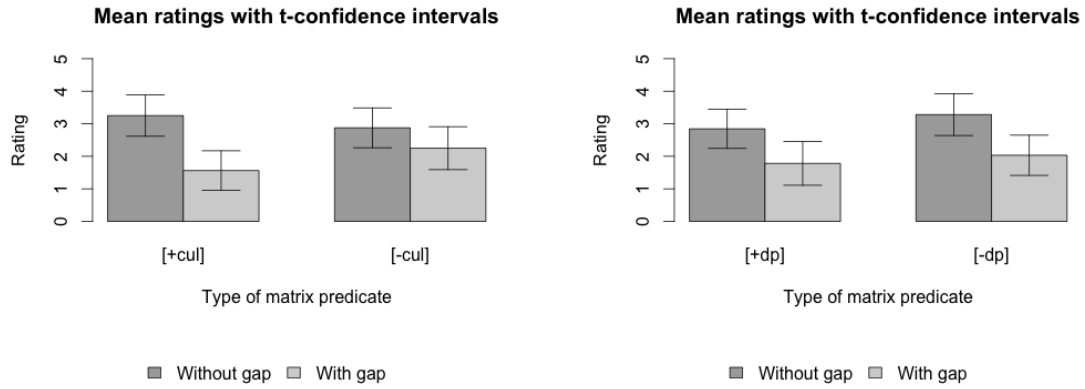


Fig. 5.8 Norwegian participials: mean ratings by type of sentence

This prediction was not met: the type of matrix predicate did not make a difference. There was a main effect of extraction (EXTR) that is expected, as sentences with extraction are standardly thought to be more difficult to process. This effect is illustrated in figure 5.8 by the light grey bars being lower than the dark grey bars. However there were no main effects relating to the type of matrix predicate, i.e. to either telicity (CUL) or to transitivity (DP). Figure 5.9 shows that both telic and atelic as well as transitive and intransitive sentences have similar means.

When comparing figures 5.8 and 5.9 for Norwegian with 5.2 and 5.5 for English, it can be observed that the bar plots look very similar. In figure 5.8 for instance, telic intransitives have a visibly higher mean than the other three types of matrix predicate. The Norwegian experiment was run with fewer participants than the English experiment (16 compared to 48) and it may be that the lack of significant effects are due to the small number of participants.

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each condition. No conditions showed significant effects when the means were compared.



(a) Telicity (b) Transitivity

Fig. 5.9 Norwegian participials: mean ratings

In summary, this experiment shows that the type of matrix predicate does not have an effect on the acceptability of participials in Norwegian.

5.6 Summary of results

The results for the three participial experiments are summarised in 5.9.

Table 5.9 Summary of results of participial experiments

Effect type	**English**	**Norwegian**	**German**
Main	Extraction [-extr] > [+extr] Transitivity (DP) Participials: [-dp] > [+dp]	Extraction [-extr] > [+extr]	Extraction [-extr] > [+extr]
2-way interaction	CUL and DP		

In order to compare these results to the predicted results in table 5.2, table 5.10 takes table 5.2 and shows in green those predictions that have been met and in red those predictions that have not been met.

Table 5.10 Results compared to predictions in coordination experiments

Effect type	**English**	**Norwegian**	**German**
Main	Extraction [-extr] > [+extr] Telicity (CUL)	Extraction [-extr] > [+extr] Telicity (CUL)	Extraction [-extr] > [+extr]
2-way interaction	CUL and DP	CUL and DP	

Chapter 6

Subextraction from coordination

This chapter starts by presenting three experiments on gaps in coordination in English, German and Norwegian. Section 6.1 provides the results of the English experiment. Sections 6.2 and 6.3 detail the set-up and results for German and Norwegian respectively. Section 6.4 summarises the results across the three languages.

6.1 English

The design for the judgement task was developed in parallel with the participial task in section 5.2.1, chapter 5.

Conditions

An example of each of the conditions are given in (127). The full list of stimuli for English is given in table C.1, appendix C.

(127) Coordination: English

a. Condition 1: Mary picked the candidates and sold the book.

b. Condition 2: Which book did Mary pick the candidates and sell?

c. Condition 3: Lucy arrived and bought the book.

d. Condition 4: Which book did Monica arrive and buy?

e. Condition 5: Sophie finished sketches and bought the book.

f. Condition 6: Which book did Julia finish sketches and buy?

g. Condition 7: Lucy shivered and bought the book.

h. Condition 8: Which book did Lucy shiver and buy?

The aim was to define [+single] to include true coordination, and adjunction of an *and* phrase that does not form a single event with the matrix verb (should this exist), so that the experiment would be as parallel as possible to the participial construction experiments described in chapter 5.

Controls

Four sets of controls were included. In addition to the two types of control used for the participial experiments, i.e. the unacceptable extraction from within an adjunct and acceptable extraction from within the matrix clause in a sentence including adjunction, two further types of extraction from within coordinate structures were included. The first type of extraction is canonical pseudocoordination. The second type of extraction is acceptable across-the-board extraction from both conjuncts of a coordinate structure. The full list of controls can be found in table C.2 in appendix C.

Fillers

The same fillers were used as in the English participial judgement task. The list for English is given in table B.3, appendix B. There were 50 fillers. At four observations each, the experimental sentences and control sentences came to a total of 48 (=4(2x2x2+4)). The total number of stimuli came to 98.

Presentation of testing materials

Presentation of testing materials was the same as for the participial judgement tasks. To avoid ordering effects, the 98 stimuli were counterbalanced in 3 blocks of 19 test items and

2 blocks of 18 test items. The order in each block was kept constant across participants but the order of blocks was randomised for each subject.

Each block included one of the eight test conditions and one of each of the four control types in each group and 12 or 13 fillers. To choose the fillers, the list of 50 fillers was arranged in a random order using the *RAND()* function in Microsoft Excel. Starting from the top of this randomised list of fillers, ten fillers were added to each block. This produced 3 groups of 19 stimuli and 2 blocks of 18. The order of these items was then randomised using *RAND()* in Microsoft Excel and checked to ensure that no declarative and interrogative versions of the same sentence were adjacent, e.g. *Mary picked two candidates whistling the national anthem* and *Which tune did Julia pick two candidates whistling?*

To ensure that the rating task was understood, a training phase was included, consisting of 8 practice items in the same format as the experimental items. The practice items covered the full range of acceptability.

The task was carried out over the internet using the questionnaire software *Qualtrics*. Subjects were told to answer each question as quickly as they felt comfortable.

6.1.1 Participants

The coordination experiment was conducted with 63 participants in English. Each participant judged four instances of each condition. All data from partially completed questionnaires were excluded. Of the remaining completed questionnaires from 71 participants, 2 participants had answered *Yes* to the question *Have you ever taken a Linguistics course?* and their data was removed, as was the data from two additional participants on the basis of questionable native speaker status. Although both these participants were self-reported native speakers of English, email correspondence showed a number of non-native errors. Finally, the combined rating of all four c2 and c3 controls was compared and participants' data removed if c2<c3, i.e. if the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island was not at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. A further four participants' data was removed due to controls, and

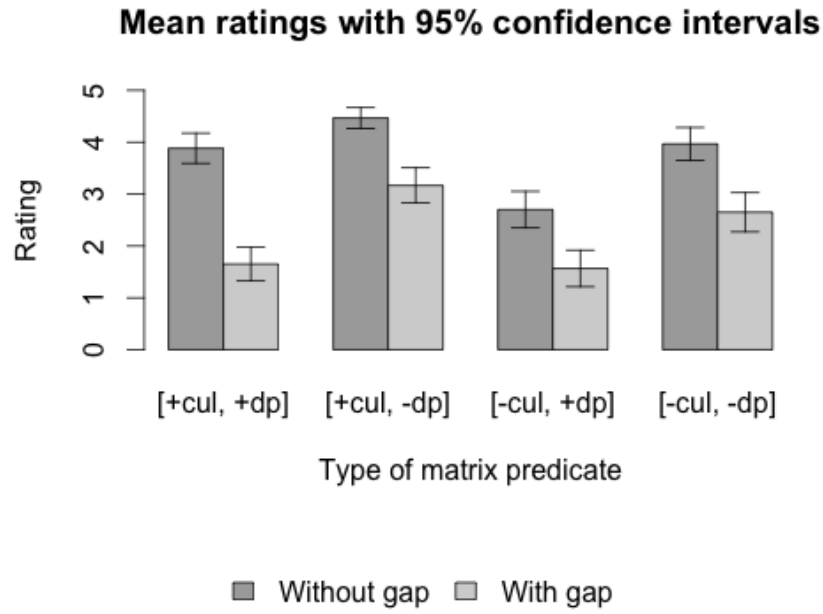
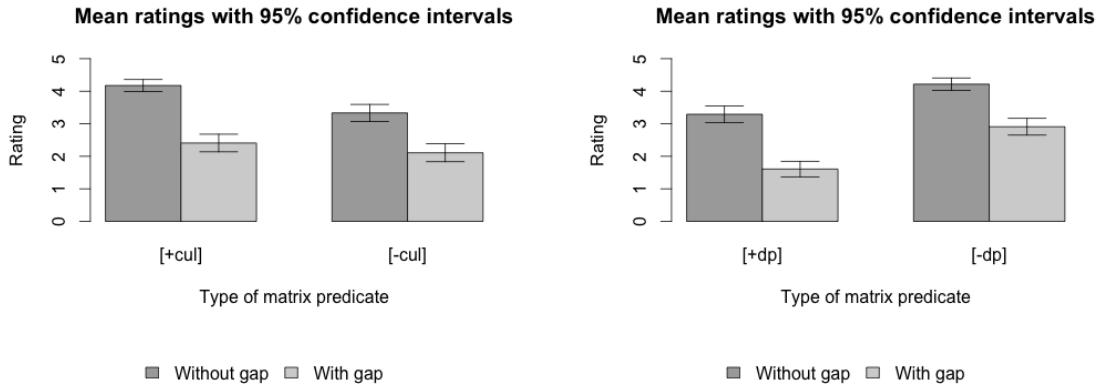


Fig. 6.1 English coordination: mean ratings by type of sentence

three further participants' data were randomly removed using the SORT() function in Excel to yield a multiple of 4, giving a total of 60 completed questionnaires after sorting. The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 15 using the SORT() function in Excel and one rating for each condition was used for each group.

6.1.2 Results

The means for each condition are given in figure 6.1. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There were significant effects at the $p<0.05$ level for all three factors: EXTR ($p<0.001$) and DP ($p<0.001$) and CUL ($p<0.001$). Furthermore there was a significant two-way interaction of CUL and EXTR ($p=0.021$) and a significant three-way interaction between EXTR, DP and CUL ($p<0.017$).



(a) Telicity (b) Transitivity

Fig. 6.2 English coordination: mean ratings

6.1.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would depend on the type of matrix predicate, in particular on the telicity of the matrix predicate. Therefore it was expected that there would be a significant main effect for telicity (CUL) which would be visualised by the four leftmost bars being higher than the four rightmost bars in figure 6.1.

This prediction was partially met: the type of matrix predicate did make a difference, however telicity alone did not. The barplot in figure 6.1 does not show a clearcut division between the leftmost and rightmost four conditions as expected. Instead, transitivity emerges as the key factor. The barplot in figure 6.2b shows the differences in mean ratings between transitive and intransitive conditions, illustrating that the sentences with intransitive matrix predicates are more acceptable than those with transitive matrix predicates. This difference is statistically significant at the $p<0.05$ level.

Nonetheless, telicity (CUL) does have an effect on the acceptability of the sentences but only in sentences without a gap. This effect can be seen by the significant interaction effect of telicity and extraction at the $p<0.05$ level. This interaction is plotted in figure 6.3. From the plot, it can be seen that the mean rating of telic sentences increases when there is no extraction ([-extr]). The difference between sentences with telic and atelic matrix

predicates can also be seen in figures 6.1 and 6.2a. In both cases, the telic sentences have higher rated means but only in the sentences without gap, i.e. only in the dark grey columns.

This division at first sight appears to follow the prediction that acceptability of the sentence will be sensitive to the telicity of the matrix predicate. However the difference is in fact the opposite way to the way it was predicted: rather than sentences with atelic [-cul] matrix predicates being higher, sentences with telic [+cul] matrix predicates are higher. Furthermore, rather than this difference being seen in the conditions with extraction, it is observed in the conditions without extraction. This effect is likely to be due to ambiguity with parallel coordination. In parallel coordination, the telicity of the first conjunct should be parallel to the telicity of the second conjunct. As *bought the book* is telic, the first conjunct will be more acceptable when telic under a parallel coordination reading. Therefore, rather than constituting evidence in favour of an effect of telicity in allowing extraction from within coordinate structures, the effect of telicity (CUL) and particularly its interaction with extraction (EXTR) instead points to a parallel coordination interpretation of the sentences without extraction in this experiment.

Further evidence in favour of a parallel coordination interpretation of the sentences without extraction in this experiment is observed in the three-way interaction of telicity (CUL), transitivity (DP) and extraction (EXTR). The three-way prediction is plotted in figure 6.4. It can be observed that the interaction of telicity and extraction is only seen with transitive sentences, i.e. the plotted lines of telicity and extraction only cross in the [+dp] condition. As the second conjunct, *bought the book* is transitive, under a parallel coordination interpretation, the first conjunct should be more acceptable if it is transitive.

The following interpretation can be achieved by putting the 3-way interaction together with the main effect of transitivity: overall, it is better to have an intransitive main predicate than a transitive main predicate. However, if there is a transitive main predicate, where there is no gap, it is better to have a telic predicate. This is exactly the situation that is expected if: (i) the type of matrix predicate does have an effect on the acceptability of the sentence but the key factor is transitivity rather than telicity; and (ii) the sentence without a gap is ambiguous with a parallel coordination reading where the Condition on Coordination of

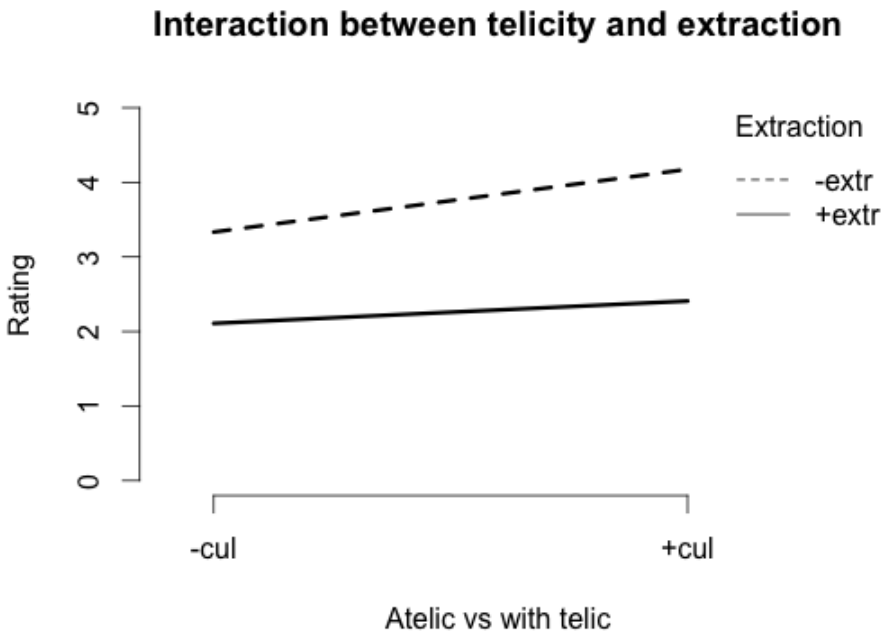
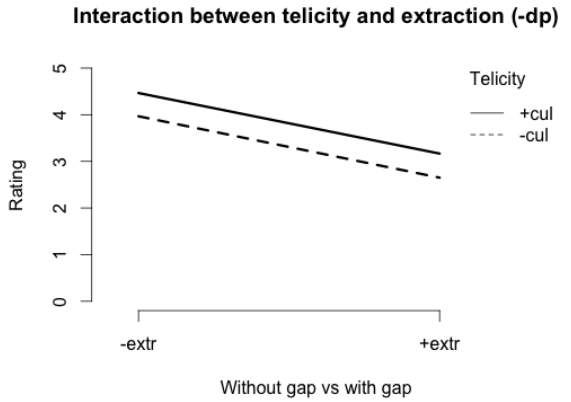


Fig. 6.3 English coordination: 2-way interaction between telicity and extraction

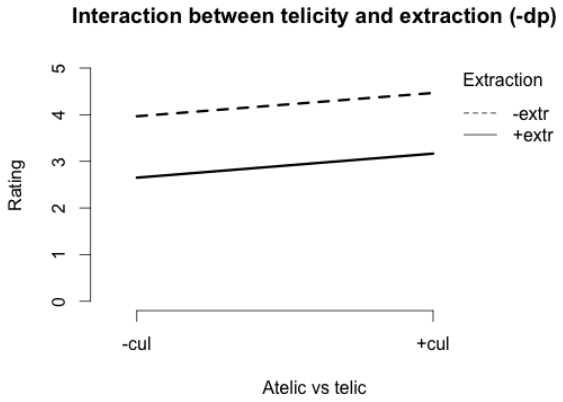
Likes requires the first conjunct to be telic if it is transitive, in order to remain parallel to the transitive second conjunct which is telic.

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each condition. Two conditions, [-cul, -dp, -extr] and [-cul, -dp, +extr], showed a significant effect when the means were compared. Figure 5.5a plots the mean ratings for each of the four predicates, *shiver*, *fight*, *run* and *walk*. It can be observed that the mean rating for *fight* is lower than the mean ratings of the other predicates in this condition, and the mean rating for *run* is higher. This variation is seen both in the condition with extraction and the condition without extraction, suggesting that there is indeed some consistent variation amongst the predicates used in the intransitive atelic class. This discrepancy will be seen to be observed to some degree in the German coordination experiment to some degree and to a larger degree in the Norwegian coordination experiment. Further research is required to pinpoint the cause of the variation.

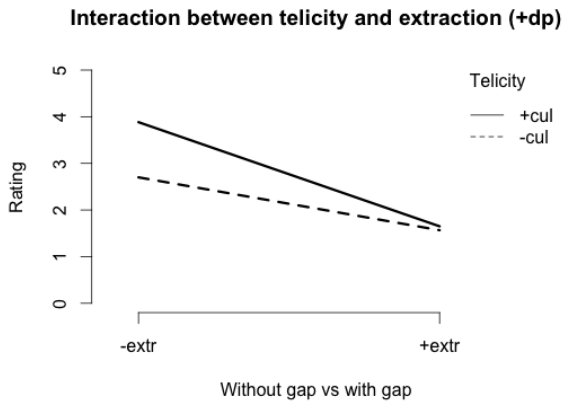
In summary, this experiment shows that the type of matrix predicate does have an effect



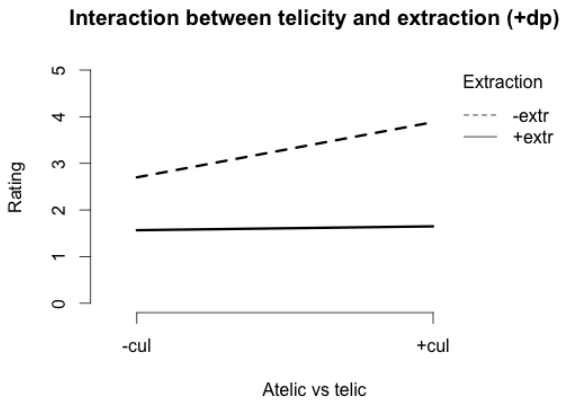
(a) Without gap



(b) Without gap

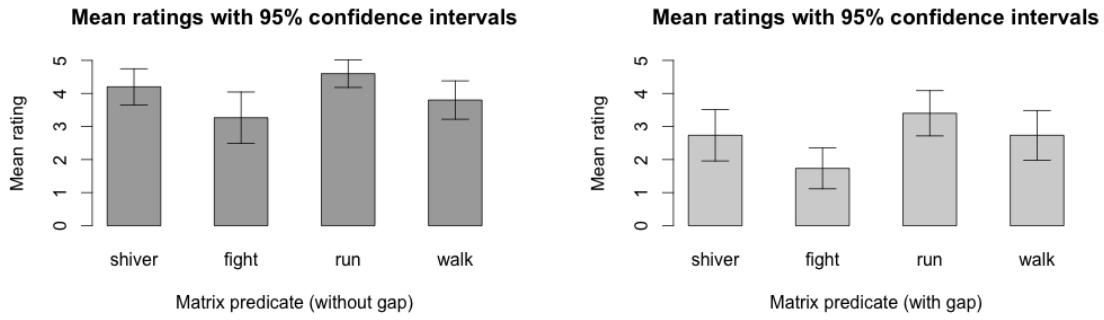


(c) With gap



(d) With gap

Fig. 6.4 English coordination: 3-way interaction



(a) Without gap (b) With gap

Fig. 6.5 English coordination: means of [-cul, -dp]

on the acceptability of participials in English. Intransitivity rather than telicity has emerged as the key factor regarding the type of matrix predicate. Nonetheless, telicity does have an effect within sentences without extraction and with transitive main predicates only. This effect appears to be a result of a parallel coordination interpretation of the sentences without extraction, and does not show that extraction is sensitive to the telicity of the matrix predicate.

6.2 German

6.2.1 Set-up

Set-up was undertaken in parallel with the English coordination judgement task.

Conditions

The same verbs were used as for the German participials, yielding the test sentences in C.3 in appendix C. Examples are given in (128):

(128) Test items

a. Condition 1: Maria wählte die Kandidaten aus und kaufte das Buch.
Mary picked the candidates out and bought the book
'Mary picked the candidates and bought the book.'

b. Condition 2: Welches Buch wählte Julia die Kandidaten aus und kaufte?
which book chose Julia the candidates out and bought
'Which book did Julia pick the candidates and buy?'

c. Condition 3: Luzie kam an und kaufte das Buch.
Lucy came at and bought the book.
'Lucy arrived and bought the book.'

d. Condition 4: Welches Buch kam Monika an und kaufte?
which book came Monica at and bought
'Which book did Monica arrive and buy?'

e. Condition 5: Sofie beendete die Entwürfe und kaufte das Buch.
Sophie ended the drafts and bought the book.
'Sophie finished sketches and bought the book.'

f. Condition 6: Welches Buch beendete Julia Entwürfe und kaufte?
which book finished Julia drafts and bought
'Which book did Julia finish drafts and buy?'

g. Condition 7: Luzie zitterte und kaufte das Buch.
Lucy shivered and bought the book.
'Lucy shivered and bought the book.'

h. Condition 8: Welches Buch zitterte Sofie und kaufte?
which book shivered Sophie and bought
'Which book did Sophie shiver and buy?'

Controls

Four sets of controls were included. In addition to the two types of control used for the participial experiments, i.e. unacceptable extraction from within an adjunct and acceptable extraction from within the matrix clause in a sentence including adjunction, two further types of extraction from within coordinate structures were included. The first type of extraction is canonical pseudocoordination. The second type of extraction is acceptable across-the-board extraction from both conjuncts of a coordinate structure. The full list of controls can be found in table C.4 in appendix C.

The literature on pseudocoordination, e.g. De Vos (2005) and Wiklund (2007), does not mention German in relation to pseudocoordination, suggesting that pseudocoordination is not available in German. In the interrogative form, there are two possibilities for a constructed pseudocoordination structure, depending whether the verb undergoing movement is taken to be the two conjoined verbs (129-a) or only the verb in the first conjunct (129-b). One of the two informants found the construction marginally acceptable when the two conjoined verbs were treated as a cluster as in (129-a). The relatively higher acceptability finds some potential support in the literature, as Fabregas and Jiménez-Fernández (2016) found that there is an adjacency condition in Spanish. The variant in which the two predicates remain adjacent (129-a) was therefore chosen for the control.

(129) Constructed example of pseudocoordination in German

a. Welches Buch ging und kaufte **Maria**?

b. Welches Buch ging **Maria** und kaufte?

Fillers

The same fillers were used as in the German participial judgement task. Fillers for the German experiment are given in table B.4, appendix B, and were translated from the English fillers in table B.1, appendix B, by two informants. Table B.7, appendix B compares the distinguishing properties of the fillers.

Presentation of testing materials

Presentation of testing materials was carried out on *Qualtrics* in parallel to the English survey.

Participants

The coordination experiment was conducted with 48 participants in German. Each participant judged four instances of each condition. All data from partially completed questionnaires were excluded. Of the remaining completed questionnaires from 52 participants, 2

participants had answered *Yes* to the question *Have you ever taken a Linguistics course?* and their data was removed. Finally, the combined rating of all four c2 and c3 controls was compared and participants' data removed if c2<c3, i.e. if the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island was not at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. A further two participants' data was removed due to controls, yielding a total of 48 completed questionnaires after sorting.The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 12 using the SORT() function in Excel and one rating for each condition was used for each group.

6.2.2 Results

The means for each condition are given in figure 6.6. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There were significant main effects at the $p<0.05$ level for EXTR ($p<0.001$) and DP ($p<0.013$). There were no significant effects for interactions.

6.2.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would not depend on the type of matrix predicate, as asymmetric extraction from within coordination is standardly taken to be unacceptable with gaps in German. Therefore it was expected that there would be a significant main effect only for extraction which would be visualised by the light grey bars being lower than the dark grey bars in figure 6.6.

This prediction was partially met: there was indeed a significant difference between sentences with extraction and without extraction. However the type of matrix predicate also made a difference, namely sentences with intransitives matrix predicates had higher mean ratings, both when extraction took place and when extraction did not take place. This variation can be seen in the barplot in figure 6.7b. In contrast, the telicity (CUL) of the

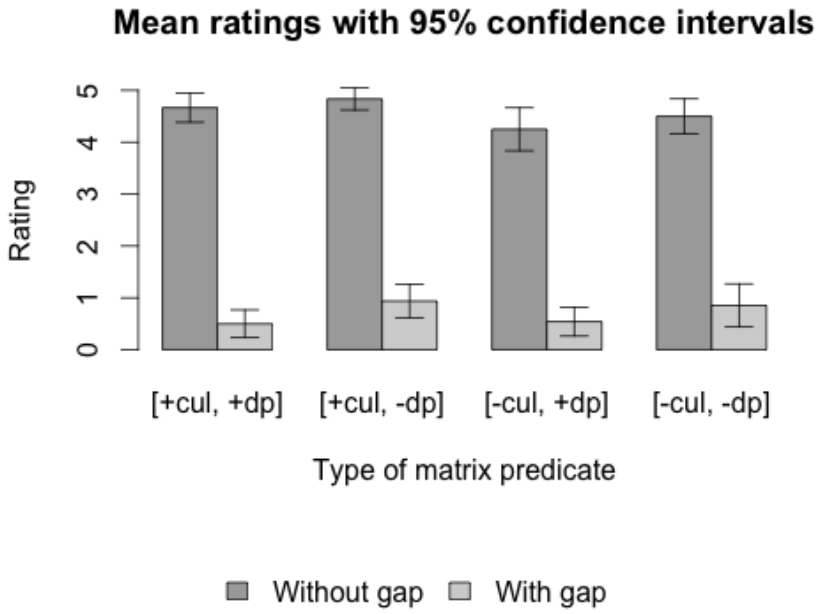
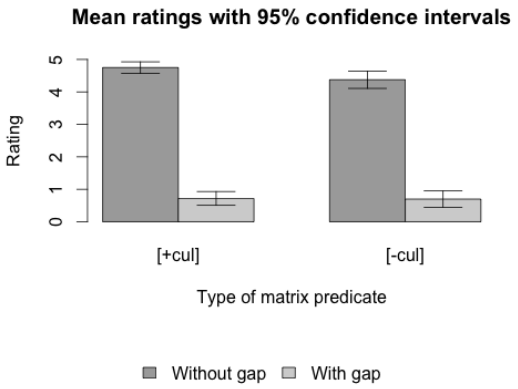


Fig. 6.6 German coordination: mean ratings by type of sentence

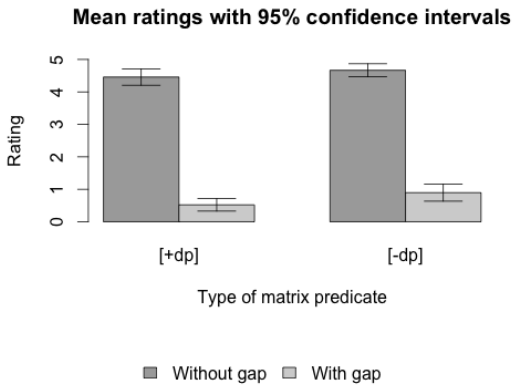
matrix predicate does not have a significant effect on the acceptability of the sentence.

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each condition. One condition, [-cul, -dp, -extr], showed a significant effect when the means were compared. Figure 6.8a plots the mean ratings for each of the four predicates, *shiver*, *fight*, *run* and *walk*. It can be observed that the mean rating for *walk* is lower than the mean ratings of the other predicates in this condition. Nonetheless, the mean rating for *walk* is not significantly lower in sentences with gaps, i.e. [-cul, -dp, +extr]. In fact, the mean rating for *walk* is marginally higher than that of *shiver* and *fight*. It is interesting to note that although it is the same condition as the English participial and English coordination experiments that shows discrepancies amongst the mean ratings for the four lexicalisations, it is not the same verb that patterns differently. Possibly, these differences point to varying levels of grammaticalisation amongst verbs that fall in the [-cul, -dp, -extr] class. However a fuller explanation requires further research.

In summary, this experiment shows that the type of matrix predicate does have an effect

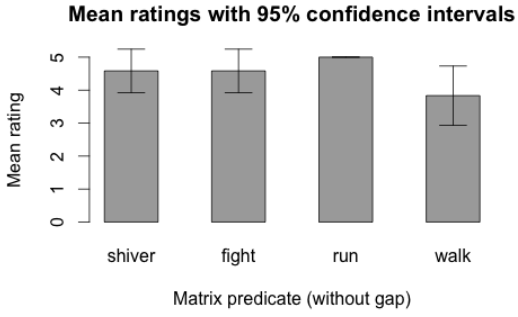


(a) Telicity

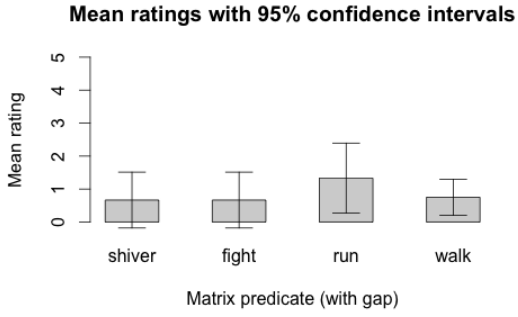


(b) Transitivity

Fig. 6.7 German coordination: mean ratings



(a) Without gap



(b) With gap

Fig. 6.8 German coordination: means of [-cul, -dp]

on the acceptability of coordination in German, despite the fact that German is generally understood not to allow pseudocoordination. The key factor was intransitivity, as with the English and Norwegian (to be demonstrated in section 6.3) coordination experiments and the English participial experiments.

6.3 Norwegian

6.3.1 Set-up

Set-up was undertaken in parallel with the English and German coordination judgement tasks.

Conditions

The same verbs were used as for the German participials, yielding the test sentences in C.5 in appendix C. Examples are given in (130):

(130) Test items

a. Condition 1: Marit valgte kandidatene og kjøpte boka.
Mary picked candidates.DEF and bought book.DEF
'Mary picked the candidates and bought the book.'

b. Condition 2: Hvilken bok valgte Julia kandidatene og kjøpte?
which book.DEF picked Julia candidates.DEF and bought
'Which book did Julia pick the candidates and buy?'

c. Condition 3: Lucie ankom og kjøpte boka.
Lucy arrived and bought book.DEF
'Lucy arrived and bought the book.'

d. Condition 4: Hvilken bok ankom Monika og kjøpte?
which book arrived Monica and bought
'Which book did Monica arrive and buy?'

e. Condition 5: Sofie fullførte skisser og kjøpte boka.
Sophie finished sketches and bought book.DEF
'Sophie finished sketches and bought the book.'

f. Condition 6: Hvilken bok fullførte Julia skisser og kjøpte?
which book finished Julia sketches and bought

'Which book did Julia finish sketches and buy?'

g. Condition 7: Lucie skalv og kjøpte boka.
Lucy shivered and bought book.DEF
'Lucy shivered and bought the book.'

h. Condition 8: Hvilken bok skalv Sofie og kjøpte?
which book shivered Sophie and bought
'Which book did Sophie shiver and buy?'

Controls

Four sets of controls were included. In addition to the two types of control used for the participial experiments, i.e. unacceptable extraction from within an adjunct and acceptable extraction from within the matrix clause in a sentence including adjunction, two further types of extraction from within coordinate structures were included. The first type of extraction is canonical pseudocoordination. The second type of extraction is acceptable across-the-board extraction from both conjuncts of a coordinate structure. The full list of controls can be found in table C.6 in appendix C.

Fillers

The same fillers were used as in the Norwegian participial judgement task. The fillers for the Norwegian experiment are given in table B.6, appendix B, and were translated from the English fillers in table B.1, appendix B by two informants. Table B.7, appendix B, compares the distinguishing properties of the fillers.

Presentation of testing materials

Presentation of testing materials was carried out on *Qualtrics* in parallel to the English and German surveys.

Participants

The coordination experiment was conducted with 20 participants in Norwegian. Each participant judged four instances of each condition. All data from partially completed ques-

tionnaires were excluded. Of the remaining completed questionnaires from 21 participants, all answered *No* to the question *Have you ever taken a Linguistics course?* and for each participant the combined rating of all four c2 and c3 controls was compared and for no participant was c2<c3, i.e. for no participant was the combined rating for the four stimuli with grammatical extraction from within the matrix clause adjacent to an adjunct island at least one higher than the combined rating for the four stimuli with ungrammatical extraction from within an adjunct island. One further participant's data was randomly removed using the SORT() function in Excel to yield a multiple of 4, giving a total of 20 completed questionnaires after sorting. The data analysis used a pseudo-Latin square design where the participants were randomly divided into four groups of 5 using the SORT() function in Excel and one rating for each condition was used for each group.

6.3.2 Results

The means for each condition are given in figure 6.9. A three-way ANOVA was used to measure the effect of extraction, telicity and transitivity of the matrix predicate on acceptability. There were significant main effects at the $p<0.05$ level for EXTR ($p<0.001$) and DP ($p<0.001$). There were no significant effects for interactions.

6.3.3 Discussion

The prediction for this experiment was that the acceptability of the sentences would depend on the type of matrix predicate, in particular on the telicity of the matrix predicate. Therefore it was expected that there would be a significant main effect for telicity (CUL) which would be visualised by the four leftmost bars being higher than the four rightmost bars in figure 6.9.

This prediction was partially met: the type of matrix predicate did make a difference, however telicity did not. There was no significant main effect for telicity (CUL). The barplot in figure 6.1 does not show a clearcut division between the leftmost and rightmost four conditions as expected. The lack of difference between atelic and telic conditions is further

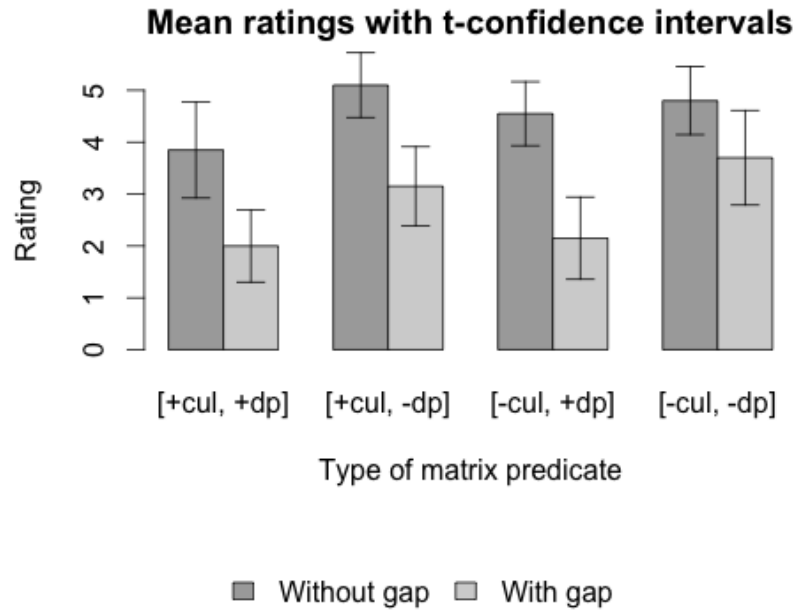


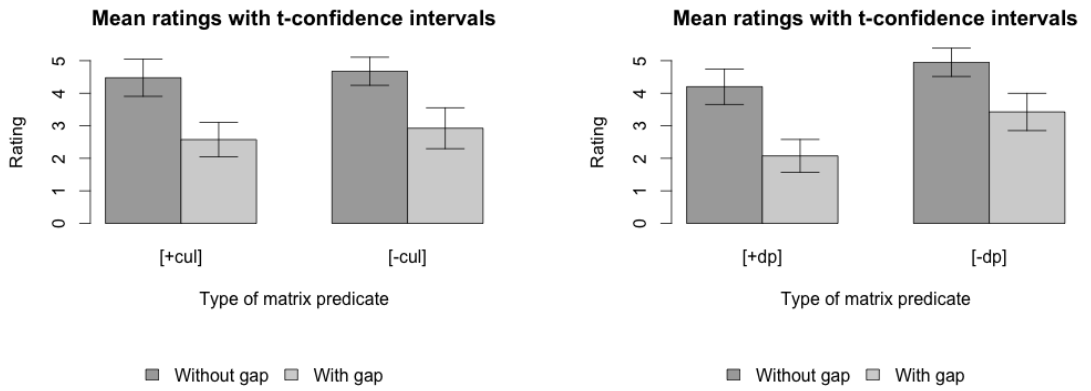
Fig. 6.9 Norwegian coordination: mean ratings by type of sentence

illustrated in figure 6.10a that collapses the two telic conditions together and the two atelic conditions together.

Instead, transitivity emerges as the key factor. The barplot in figure 6.10b shows the differences in mean ratings between transitive and intransitive conditions, illustrating that the sentences with intransitive matrix predicates are more acceptable than those with transitive matrix predicates. This difference is statistically significant at the $p<0.05$ level.

Lexicalisation effects were checked for by means of a Kruskal-Wallis test for one-way variation (Levshina, 2015, 179) comparing the means of the four realisations of each condition. Two conditions, [-cul, +dp, +extr] and [-cul, -dp, +extr], showed a significant effect when the means were compared. These conditions are the two atelic conditions with extraction.

The mean ratings for the four transitive atelic predicates, *finish sketches*, *design engines*, *close gates* and *break plates*, are plotted in figure 6.12. In this case, the mean ratings for *design engines* and *break plates* are much lower than the mean ratings for *finish sketches* and *close gates* in the condition with gap. It is unlikely that the discrepancy has to do



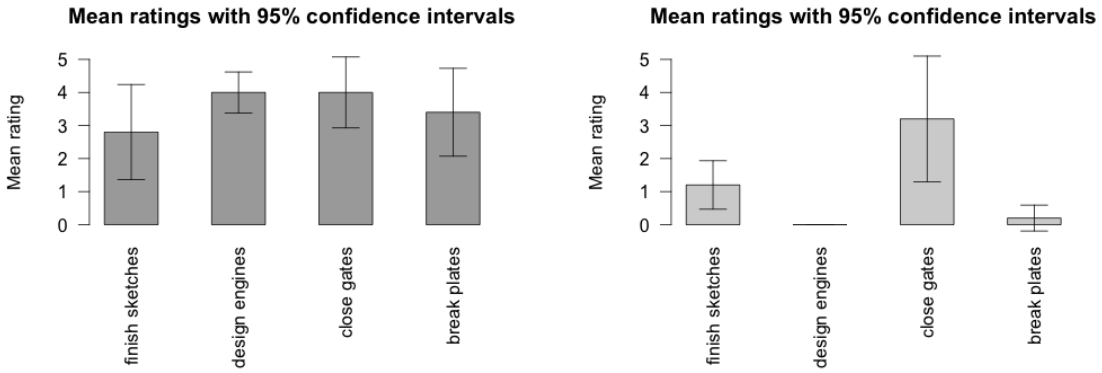
(a) Telicity (b) Transitivity

Fig. 6.10 Norwegian coordination: mean ratings

with intelligibility of the reading, as the discrepancy is not found without gap nor in other languages. Instead the discrepancy appears to relate more fundamentally to the availability of extraction with these predicates, although further research is needed to ascertain why.

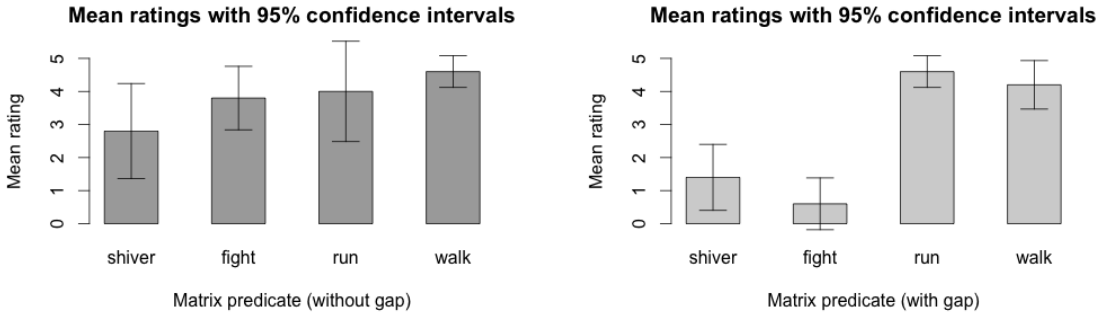
The mean ratings for the four intransitive atelic predicates, *shiver*, *fight*, *run* and *walk* are plotted in figure 6.12. There is a definite split between *shiver* and *fight* versus *run* and *walk* in this condition. Although all four predicates are atelic and intransitive, *run* and *walk* are both semantically more bleached than *shiver* and *fight*. This difference has not come out particularly strongly in the other experiments, but has a clear effect in Norwegian. It is unlikely that this result is just a result of the lower number of participants in Norwegian, particularly as the effect was not observed in the Norwegian participial experiment. Pseudocoordination in Norwegian is known to be more grammaticalised and wide-spread than in English, and it appears that these results tend to suggest that pseudocoordination in English and Norwegian do not behave the same: whilst in English, acceptability appears to vary on the basis of intransitivity, in Norwegian, not just intransitivity but also grammaticalisation appears to have an effect. However this hypothesis is speculative at this point and further research is required into the difference between different atelic intransitive predicates both in English and in Norwegian.

In summary, this experiment shows that the type of matrix predicate does have an effect



(a) Without gap (b) With gap

Fig. 6.11 Norwegian coordination: means of [-cul, +dp]



(a) Without gap (b) With gap

Fig. 6.12 Norwegian coordination: means of [-cul, -dp]

on the acceptability of participials in Norwegian. However it is not the telicity but the transitivity of the matrix predicate that affects acceptability. Nonetheless, there are a number of lexicalisation effects in the atelic conditions with gaps that raise questions for further research. Unlike in the English participial and English and German coordination experiments, where effects are observed in gapless condition but disappear in the condition with gap, here lexicalisation only has an effect in the two conditions with atelic transitives, suggesting that something more than just transitivity or just telicity is at play. However further research is needed to substantiate this conclusion and to determine what those factors are.

6.4 Summary of results

The results for the three participial experiments are summarised in table 6.1.

Table 6.1 Summary of results of coordination experiments

Effect type	**English**	**Norwegian**	**German**
Main	Extraction [-extr] > [+extr]	Extraction [-extr] > [+extr]	Extraction [-extr] > [+extr]
	Telicity (CUL) [+cul] > [-cul]		
	Transitivity (DP) [-dp] > [+dp]	Transitivity (DP) [-dp] > [+dp]	Transitivity (DP) [-dp] > [+dp]
2-way interaction	CUL and EXTR		
3-way interaction	Only where ambiguity exists with parallel coordination	Only where ambiguity exists with parallel coordination	

In order to compare these results to the predicted results in table 5.2, table 6.2 takes table 5.2 and shows in green those predictions that have been met and in red those predictions that have not been met.

Table 6.2 Results compared to predictions in coordination experiments

Effect type	English	Norwegian	German
Main	Extraction [-extr] > [+extr] Telicity (CUL) [-cul]>[+cul]	Extraction [-extr] > [+extr] Telicity (CUL)	Extraction [-extr] > [+extr]
2-way interaction	CUL and DP	CUL and DP	
3-way interaction	Only where ambiguity exists with parallel coordination	Only where ambiguity exists with parallel coordination	

6.5 Conclusions and prospects

The results of the participial and coordination experiments show that (i) acceptability of a gap does not depend primarily on the telicity of the matrix predicate, contrary to suggestions in the literature on pseudocoordination (e.g. De Vos 2005; 2007) and participials (e.g. Truswell 2007b); that (ii) sentences with unaccusative matrix predicates are rated significantly more acceptable than sentences with unergative or transitive matrix predicates in participial constructions, confirming previous claims by Truswell (2011) for English and by Fabregas and Jiménez-Fernández (2016) for Spanish; that (iii) surprisingly this generalisation holds not only in English and Norwegian as expected from the brief cross-linguistic discussions in works such as Truswell (2009, 2011), but also in German; and that (iv) in English, subextraction from participials and *and*-phrases is a gradient phenomenon depending on the type of matrix predicate.

These results reflect both a bias towards intransitives and, within intransitives, a bias towards telic verbs. Although a comprehensive theory of this effect will have to await future work, this phenomenon may be able to be understood in terms of Hopper and Thompson's (1980) Transitivity Hypothesis, with (i) merger of participials and *and*-phrases as adjuncts to VP depending on the extent to which these adjuncts can act as backgrounding information; and (ii) long-distance dependencies being licensed in the syntax following the blindspot

theory in part I, whilst the set of predicates that can occur in matrix position is regulated outside the syntax by grounding in the discourse module. According to the Transitivity Hypothesis, backgrounding information requires lower transitivity than the matrix predicate. Possibly semantic transitivity may correlate with subextraction: the higher the semantic transitivity of the matrix verb, the more acceptable is subextraction.

Crucially, the analysis relies on a purely syntactic account of movement with adjuncts being more or less acceptable depending on the amount of coercion required to achieve a meaningful interpretation, i.e. one that fits with semantic and discourse constraints. The overall effect is one of weak islands, where islands appear to be transparent under certain non-syntactic conditions.

Chapter 7

Conclusion

This thesis argued that a number of constructions that have been analysed as involving complement configurations should be reanalysed as adjunct configurations. I showed how such a theoretical reanalysis could contribute to a unified resolution of two separate empirical problems in the literature: subextraction from coordination and subextraction from participial adjuncts.

Empirically, data was provided showing that acceptability of subextraction depended on the grammatical but not aspectual type of the matrix predicate across three languages, English, German and Norwegian. Interestingly, the patterns were similar across all three languages, despite pseudocoordination and participials not being constructions that are readily available to individual German informants.

Going forward, it will be interesting to see how other Germanic languages compare to the English, German and Norwegian results. Extending the study to other Germanic languages will allow testing of potential differences between Germanic languages with regard to the acceptability of these types of subextraction. If such differences exist, testing languages with varying properties could contribute towards pinpointing the locus of variation in availability of subextraction from within adjuncts across languages. Examples of types of languages that are particularly interesting in this regard include other languages in which both subextraction from asymmetric coordination and from participial adjuncts is not found, such as Dutch. Truswell (2011) gives the ungrammatical example in (131), and De

Vos (2005, 79) cites Sjef Barbiers (p.c.) as saying that asymmetrical coordination examples are 'quite strongly ungrammatical'.

(131) Dutch

*Wat is Jan [_fluitend] gearriveerd?
what is John whistling arrived
'What did John arrive whistling?'

(Truswell, 2011, (28a), 196)

Additionally languages that have different clusters of typological properties will allow testing of whether there are implicational relations between certain typological properties of languages and the availability of subextraction, e.g. Frisian where word order is OV, as in German but unlike English or Norwegian, but where PP-stranding is allowed, as in English and Norwegian, but unlike in German. Data in the literature is too scarce to say whether the constructions are possible in Frisian. One example suggests that pseudocoordination may be found in North Frisian, cf. the progressive reading of the coordination in (132). However the crucial data is missing here, i.e. whether, in a question, the object *sin fründin* can appear at the beginning of the sentence, creating a long-distance dependency.

(132) North Frisian (Wiidinghiird)

Hi läit än driimt fuon sin fründin.
he lies and dreams about/of his girl(friend)
'He is dreaming of his girlfriend.'

(Ebert, 2000, (22),620)

Finally, it will be interesting to see whether there are differences with languages where one but not the other construction is allowed, for instance Danish, where according to Kjeldahl (2010) and Truswell (2009), pseudocoordination is acceptable and productive in Danish (133), but subextraction from participials (134) is not.

(133) Danish coordination

??Hvilken sang ankom John [fløjtende på _]?
which song arrived John whistling on
'Which song did John arrive whistling?'

(Truswell, 2009, (47c),26)

(134) Danish participials

Hvad går hun og synger?
what walks she and sings

(Kjeldahl, 2010, (42c),39)

Besides cross-linguistic directions, a further question to be explored is whether there are other constructions that are traditionally analysed as complement configurations, but whose unexpected syntactic behaviour could be resolved under an adjunct analysis. One potential example is verb clusters in the West Germanic OV languages.

The West Germanic OV languages show two types of puzzles in the ordering of verbs and objects in sentence-final position. First, the order of verbal elements can freely vary across language systems and constructions without a change in meaning. Second, in some varieties the cluster appears to subcategorise for objects as a whole (V-raising), whilst in others, the object can percolate into the cluster (VP-raising). An overview of the two puzzles and the accounts and data proposed in the literature can be found in Wurmbrand (2006) (cf. Evers (1975) for an early discussion in the generative framework).

Whilst the various readings are usually understood as not giving rise to different semantic readings, one particular order, 231, is restricted to constructions in which the final element is the auxiliary *have*, and found only in Afrikaans, West Flemish and some Swiss German dialects. Brown (2012) reports that informants allow this order only with bounded readings, suggesting that *het* marks telicity. This extension would require further research on whether the auxiliary *het* constitutes an aspectual marker in those systems where 231 orders are allowed, and whether the order of merger corresponds with the order of merger of aspectual markers. If this analysis were to work, the account would provide further empirical arguments in favour of theoretically reanalysing complement configurations as involving

adjunct relations.

In conclusion, whilst there are a number of avenues for future research, I have shown that (i) subextraction puzzles in adjuncts can receive a simpler and more unified analysis with adjunction than with complementation; that (ii) such analyses can be formalised without requiring either additional syntactic mechanisms for adjuncts or non-syntactic licensing of movement paths; and that (iii) the gradience hierarchy found in languages where participial and pseudocoordinate constructions are grammatical (English and Norwegian) is also found in a language where those constructions are ungrammatical (German). Whether this effect generalises and gradience hierarchies can be found both in languages where constructions are grammatical and in languages where the same constructions are ungrammatical must be left for future experimental work. However it is clear that the use of experimental methods in theoretical syntax not only increases the reliability and replicability of data, but also has the potential to uncover patterns to which more informal methods are not sensitive.

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Appendix A

Aspectual constructions in Germanic: examples in table 2.3

(135) Subextraction from coordination

a. Afrikaans: Wat sit Jan waarskynlik en eet *t*?
what sit Jan probably and eat t
'What is Jan probably sitting and eating?'

(De Vos, 2005, (1a), 135)

b. Danish: Hvad går hun og synger?
what walks she and sings

(Kjeldahl, 2010, (42c), 39)

c. English: Which dress has she gone and ruined now?

(Ross, 1967, (4.108a), 170)

d. Faroese: Hvat situr Jógvan og etur *e*?
what sit-PRS3SG Jógvan-N and eat-PRS3SG
'What is Jógvan eating?'

(Heycock and Petersen, 2012, (2c), 3)

e. Norwegian: Hva sitter han og skriver?
what sits he and writes
'What is he writing?'

(Lødrup, 2002, (4), 122)

f. Swedish: Vad började han o skrev _?
what start.PAST he & write.PAST
'What did he start writing?'

(Wiklund, 2007, (2a), 16)

(136) Subextraction from participial adjuncts

a. Danish: ??Hvilken sang ankom John [fløjtende på _]?
which song arrived John whistling on
'Which song did John arrive whistling?'

(Truswell, 2009, (47c), 26)

b. Dutch: *Wat is Jan [_ fluitend] gearriveerd?
What is John whistling arrived
'What did John arrive whistling?'

(Truswell, 2011, (28a), 196)

c. English: What$_i$ did John arrive [whistling t$_i$]?

(Borgonovo and Neeleman, 2000, (3a,b), 200)

d. Faroese: %Hvønn sang kom John [bríkslandi _]?
which song came John whistling
'Which song did John arrive whistling?'

(Truswell, 2009, (49c), 27)

e. Icelandic: *Hvað kom Jón [flautandi _]?
what came John whistling
'What did John arrive whistling?'

(Truswell, 2009, (48c), 27)

f. Norwegian: Hvilken sang kom han [plystrende på _]?
Which song came he whistling on
'Which song did he arrive whistling'

(Truswell, 2011, (26), 195)

g. Swedish: Vilken sång kom han in i rummet [visslande på _]?
Which song came he in in room.the whistling on
'Which song did he come into the room whistling?'

(Truswell, 2011, (27), 195)

(137) Preposition stranding under A'-movement (P'-stranding)

a. Danish: Hvem har Peter snakket [med _]?
who has Peter talked with
'Who has Peter talked with?'

(Merchant, 2001, 93, cited in Truswell, 2009, (47a), 26)

b. Dutch: *Wie heb je [op _] gerekend?
who have you on counted
'Who did you count on?'

(van Riemsdijk, 1978, 137, cited in Truswell, 2009, (45a), 26)

c. English: Who did John speak to?

(Truswell, 2009, (42a), 25)

d. Faroese: Hvørjum bili koyrir tú [í _]?
which car drive you in
'Which car do you drive in?'

(Truswell, 2009, (49a), 27)

e. Icelandic: Hvern hefur Pétur talað [við _]?
who has Peter talked with
'Who has Peter talked with?'

(Merchant, 2001, 93, cited in Truswell 2009, (48a), 27)

f. Norwegian: Hvem har Per snakket [med _]?
who has Peter talked with
'Who has Peter talked with?'

(van Riemsdijk, 1978, 137, cited in Truswell,s 2009, (43a), 25)

g. Swedish: Vem har Peter talat [med _]?
who has Peter talked with
'Who has Peter talked with?'

(Merchant, 2001, 93, cited in Truswell, 2009, (44a), 25)

(138) Preposition stranding under A-movement (P-stranding)

a. Danish: *Han blev grinet [af _]?
he was laughed at
'He was laughed at.'

(Merchant, 2001, 93, cited in Truswell, 2009, (47b), 26)

b. Dutch: *Deze argumenten werden niet [over _] gesproken.
these arguments were not about talked
'These arguments were not talked about.'

(Truswell, 2009, (45b), 26)

c. English: John was spoken [to _].

(Truswell, 2009, (42b), 25)

d. Faroese: *John varð tosaður [við _].
John was talked with
'John was talked with.'

(Truswell, 2009, (49b), 27)

e. Icelandic: *Ég tel Vigdísi vera oftast talað vel [um _].
I believe Vigdis be.INF most.often spoken well of
'I believe Vigdis to be most often spoken well of.'

(Maling and Zaenen, 1990, 156, cited in Truswell 2009, (48b), 27)

f. Norwegian: Han ble ledd [av _].
he was laughed at
'He was laughed at'

(van Riemsdijk, 1978, 137, cited in Truswell, 2009, (43b), 25)

g. Swedish: %Skandalen skrattades [åt _].
scandal.the was.laughed at
'The scandal was laughed at.'

(Merchant, 2001, 93, cited in Truswell, 2009, (44b), 25)

Appendix B

Items for participial experiments in chapter 5 and fillers

B.1 English

Table B.1 lists the test items corresponding to the templates in (97) in the English participial experiment, section 5.2.1.

Table B.1 English: participials test items

Condition	**Identifier**	**Sentence**
[+cul,+dp,-extr]	es1a	Mary picked the candidates whistling the national anthem.
	es1b	Sophie sold the paintings whistling the national anthem.
	es1c	Lucy threw the balls whistling the national anthem.
	es1d	Monica identified the flowers whistling the national anthem.
[+cul,+dp,+extr]	es2a	Which tune did Julia pick the candidates whistling?
	es2b	Which tune did Mary sell the paintings whistling?
	es2c	Which tune did Monica throw the balls whistling?
	es2d	Which tune did Sophie identify the flowers whistling?
[+cul,-dp,-extr]	es3a	Lucy arrived whistling the national anthem.
	es3b	Monica surrendered whistling the national anthem.
	es3c	Sophie disappeared whistling the national anthem.

Table B.1 English: participials test items

Condition	Identifier	Sentence
	es3d	Mary appeared whistling the national anthem.
[+cul,-dp,+extr]	es4a	Which tune did Monica arrive whistling?
	es4b	Which tune did Sophie surrender whistling?
	es4c	Which tune did Mary disappear whistling?
	es4d	Which tune did Julia appear whistling?
[-cul,+dp,-extr]	es5a	Sophie finished sketches whistling the national anthem.
	es5b	Mary designed engines whistling the national anthem.
	es5c	Julia closed gates whistling the national anthem.
	es5d	Monica broke plates whistling the national anthem.
[-cul,+dp,+extr]	es6a	Which tune did Julia finish sketches whistling?
	es6b	Which tune did Julia design engines whistling?
	es6c	Which tune did Sophie close gates whistling?
	es6d	Which tune did Sophie break plates whistling?
[-cul,-dp,-extr]	es7a	Lucy shivered whistling the national anthem.
	es7b	Sophie fought whistling the national anthem.
	es7c	Mary ran whistling the national anthem.
	es7d	Monica walked whistling the national anthem.
[-cul,-dp,+extr]	es8a	Which tune did Sophie shiver whistling?
	es8b	Which tune did Julia fight whistling?
	es8c	Which tune did Lucy run whistling?
	es8d	Which tune did Monica walk whistling?

Table B.2 lists the control items in the English participial experiment, referred to in section 5.2.1.

Table B.2 English: participials control items

Identifier	Sentence
	Unacceptable extraction from within an adjunct
ec1a	Which celebrity did Mary eat an ice cream before she saw?

Table B.2 English: participials control items

Identifier	**Sentence**
ec1b	Which song did Julia close the book after she had sung?
ec1c	Which competition did Lucy read the book so that she would win?
ec1d	Which magazine did Sophie play violin before she read?
Acceptable extraction from within matrix clause in a sentence with adjunction	
ec2a	Which ice cream did Mary eat before she saw the celebrity?
ec2b	Which book did Sophie close after she had sung the song?
ec2c	Which book did Lucy read so that she would win the competition?
ec2d	Which instrument did Julia play before she read the magazine?

Table B.3 provides the list of fillers used in the English participial experiment detailed in section 5.2.1. (139) provides a key.

(139) Key to table B.3

a. **Clause types (type)**: simple (1), with PP adjunction (2), with subordination (3), with coordination (4)

b. **Extraction (Extr)**: with extraction (+), without extraction (-)

c. **Tense**: present, past, future

d. **Intended acceptability**: unacceptable (*), intermediate (?), acceptable (✔)

Table B.3 English: participials fillers

Type	**Extr**	**Tense**	***/?/✔**	**ID**	**Sentence**
1	+	present	✔	ef1	Which flowers does Mary like?
	+	past	✔	ef2	What was Julia drinking?
	+	future	✔	ef3	What will Julia eat?
	+	present	*	ef4	Who Monica liking?
	+	past	?	ef5	Why did Lucy reappear earnestly?

Table B.3 English: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	-	present	✔	ef6	Julia loves spinach.
	-	past	✔	ef7	Monica was playing tennis.
	-	future	✔	ef8	Monica will play squash tomorrow.
	-	present	*	ef9	Julia is runnings race.
	-	future	*	ef10	Monica eat will cheeses.
	-	past	?	ef11	Mary danced contentiously.
2	+	past	✔	ef12	What did Monica eat every day before playing squash?
	+	past	✔	ef13	Who was Sophie supporting in the world cup?
	+	future	✔	ef14	How many tests will Julia take in three weeks' time?
	+	present	*	ef15	How many cakes Lucy am eating after he bought?
	+	past	*	ef16	Why Mary rans in an hour?
	+	present	?	ef17	Who does Julia love from Spain?
	-	present	✔	ef18	Sophie jogs for an hour every day.
	-	past	✔	ef19	Lucy was climbing for hours yesterday.
	-	past	✔	ef20	Mary whistled a tune before Monica lay down.
	-	future	✔	ef21	Mary will wear a hat to the party.
	-	present	*	ef22	Mary am watching himself in an mirror.
	-	future	*	ef23	Julia will runned many day five mile before was eaten dinner.
	-	past	?	ef24	Monica was sleeping furiously before breakfast.
3	+	present	✔	ef25	Who is Lucy asking to sing?
	+	past	✔	ef26	Why was Monica trying to play chess?
	+	future	✔	ef27	Which competition will Sophie try to win?
	+	past	*	ef28	What is Lucy knowed how to played?
	+	past	*	ef29	How many exercise Sophie is tried to does?
	+	past	?	ef30	How many people was Sophie declaring silently to know?
	-	present	✔	ef31	Mary knows how to make a plait.
	-	past	✔	ef32	Julia was hoping to meet a celebrity.
	-	future	✔	ef33	Sophie will learn to ride a bicycle tomorrow.
	-	past	*	ef34	Sophie calmly asked to slept.
	-	past	?	ef35	Lucy explained how to hum frankly.
4	+	past	✔	ef36	How many biscuits has Julia bought and then eaten?
	+	past	✔	ef37	Who has Monica kissed and Mary cuddled?

Table B.3 English: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	+	future	✔	ef38	Which cream will Lucy buy and Monica use?
	+	past	*	ef39	Why was Sophie eaten an apple and Mary a bike?
	+	past	*	ef40	Which car did Lucy drived and Monica bakes seven breads?
	+	past	?	ef41	Which test did Mary pass carefully and Sophie fail?
	-	present	✔	ef42	The bank shuts at six but the post office shuts at four.
	-	past	✔	ef43	Lucy was a professional chef and also played the violin.
	-	present	✔	ef44	Julia knits in the evening and Sophie reads the paper in the morning.
	-	present	✔	ef45	Our favourite cafe opens at six and our favourite pub opens at eleven.
	-	past	✔	ef46	Sophie went for a swim and then played volleyball yesterday.
	-	future	✔	ef47	Mary will teach Maths and Lucy will teach English.
	-	present	*	ef48	Lucy is catch balls and big cats.
	-	future	*	ef49	Sophie run will and Monica eat will.
	-	present	?	ef50	Julia is standing still and wore a hat.

Table B.4 provides the English practice sentences referred to in section 5.2.1.

Table B.4 English: participials practice items

Identifier	Sentence
ep1	Lucy is wearing striped trousers.
ep2	Peter is wanting to leave.
ep3	Does Mary like roses?
ep4	Sophie speak Chinese can.
ep5	Does Sophie know the answer?
ep6	Monica had spaghetti on Monday and then a hamburger on Tuesday.
ep7	Lucy had tea on Monday and then coffee on Tuesday.
ep8	John likes roses.

B.2 German

Table B.5 lists the test items in the German participial experiment, referred to in section 5.4. These sentences consist of translations of the sentences in table B.1, built using the templates in (97), section 5.2.1.

Table B.5 German: participials test items

Condition	Identifier	Sentence
[+cul,+dp,-extr]	gs1a	Maria wählte die Nationalhymne pfeifend die Kandidaten aus.
	gs1b	Sofie verkaufte die Nationalhymne pfeifend die Bilder.
	gs1c	Luzie warf die Nationalhymne pfeifend die Bälle.
	gs1d	Monika identifizierte die Nationalhymne pfeifend die Blumen.
[+cul,+dp,+extr]	gs2a	Welches Lied wählte Julia pfeifend die Kandidaten aus?
	gs2b	Welches Lied verkaufte Maria pfeifend die Bilder?
	gs2c	Welches Lied warf Monika pfeifend die Bälle?
	gs2d	Welches Lied identifizierte Sofie pfeifend die Blumen?
[+cul,-dp,-extr]	gs3a	Luzie kam die Nationalhymne pfeifend an.
	gs3b	Monika gab die Nationalhymne pfeifend auf.
	gs3c	Sofie verschwand die Nationalhymne pfeifend.
	gs3d	Julia erschien die Nationalhymne pfeifend.
[+cul,-dp,+extr]	gs4a	Welches Lied kam Monika pfeifend an?
	gs4b	Welches Lied gab Sofie pfeifend auf?
	gs4c	Welches Lied verschwand Maria pfeifend?
	gs4d	Welches Lied erschien Luzie pfeifend?
[-cul,+dp,-extr]	gs5a	Sofie beendete die Nationalhymne pfeifend Entwürfe.
	gs5b	Maria entwarf die Nationalhymne pfeifend Motoren.
	gs5c	Julia schloss die Nationalhymne pfeifend Tore.
	gs5d	Monika zerbrach die Nationalhymne pfeifend Teller.
[-cul,+dp,+extr]	gs6a	Welches Lied beendete Julia pfeifend Entwürfe?
	gs6b	Welches Lied entwarf Julia pfeifend Motoren?
	gs6c	Welches Lied schloss Sofie pfeifend Tore?

Table B.5 German: participials test items

Condition	**Identifier**	**Sentence**
	gs6d	Welches Lied zerbrach Luzie pfeifend Teller?
[-cul,-dp,-extr]	gs7a	Luzie zitterte die Nationalhymne pfeifend.
	gs7b	Sofie kämpfte die Nationalhymne pfeifend.
	gs7c	Maria rannte die Nationalhymne pfeifend.
	gs7d	Monika spazierte die Nationalhymne pfeifend.
[-cul,-dp,+extr]	gs8a	Welches Lied zitterte Sofie pfeifend?
	gs8b	Welches Lied kämpfte Julia pfeifend?
	gs8c	Welches Lied rannte Luzie pfeifend?
	gs8d	Welches Lied spazierte Monika pfeifend?

Table B.6 lists the control items in the German participial experiment, referred to in section (120). These sentences consist of translations of the sentences in table B.2.

Table B.6 German: participials control items

Identifier	**Sentence**
gc1a	Welchen Promi aß Maria ein Eis, bevor sie sah?
gc1b	Welches Lied schloss Julia das Buch, nachdem sie gesungen hatte?
gc1c	Welchen Wettbewerb las Luzie das Buch, um zu gewinnen?
gc1d	Welche Zeitschrift spielte Sofie die Geige, bevor sie las?
gc2a	Welches Eis aß Maria, bevor sie den Promi sah?
gc2b	Welches Buch schloss Sofie, nachdem sie das Lied gesungen hatte?
gc2c	Welches Buch las Luzie, um den Wettbewerb zu gewinnen?
gc2d	Welches Instrument spielte Julia, bevor sie die Zeitschrift las?

Table B.7 provides the list of fillers used in the German participial experiment detailed in section (122), using the key in (139).

Table B.7 German: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
1	+	present	✔	gf1	Welche Blumen mag Maria ?
	+	past	✔	gf2	Was hat Julia getrunken?
	+	future	✔	gf3	Was wird Julia essen?
	+	present	*	gf4	Wen mögend Monika?
	+	past	?	gf5	Warum tauchte Luzie ernst wieder auf?
	-	present	✔	gf6	Julia liebt Spinat.
	-	past	✔	gf7	Monika spielte Tennis.
	-	future	✔	gf8	Monika wird morgen Squash spielen.
	-	present	*	gf9	Julia lauften Wettlauf.
	-	future	*	gf10	Monika wird essen Käse.
	-	past	?	gf11	Maria tanzte verachtungsvoll.
2	+	past	✔	gf12	Was aß Monika jeden Tag bevor sie Squash spielte?
	+	past	✔	gf13	Wen unterstützte Sofie während der Weltmeisterschaft?
	+	future	✔	gf14	Wie viele Tests schreibt Julia in 3 Wochen?
	+	present	*	gf15	Wie viele Kuchen esse Luzie nachdem er gekauft hat?
	+	past	*	gf16	Warum liefst Maria in einer Stunde?
	+	present	?	gf17	Wen aus Spanien liebt Julia?
	-	present	✔	gf18	Sofie läuft jeden Tag eine Stunde.
	-	past	✔	gf19	Luzie kletterte gestern stundenlang.
	-	past	✔	gf20	Maria pfiff ein Lied bevor Monika sich hinlegte.
	-	future	✔	gf21	Maria wird zu der Party einen Hut tragen.
	-	present	*	gf22	Maria schauen er im Spiegel an.
	-	future	*	gf23	Julia wird mehrere Tage 5 Meilen gelaufenbevor zu Abend gegessen wird.
	-	past	?	gf24	Monika schlief wild vor dem Frühstück.
3	+	present	✔	gf25	Wen bittet Luzie zu singen?
	+	past	✔	gf26	Warum versuchte Monika Schach zu spielen?
	+	future	✔	gf27	Welchen Wettbewerb wird Sofie versuchen zu gewinnen?

Table B.7 German: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	+	past	*	gf28	Wovon wisste Luzie wie zu spielten?
	+	past	*	gf29	Wie viele ´Ubungen habt Sofie versuchst zu macht?
	+	past	?	gf30	Wie viele Leute verkündete Sofie schweigend zu kennen?
	-	present	✔	gf31	Maria weiss wie man einen Zopf flechtet.
	-	past	✔	gf32	Julia hoffte einen Promi zu treffen.
	-	future	✔	gf33	Sofie wird morgen Fahrrad fahren lernen.
	-	past	*	gf34	Sofie fragte ruhig, ob sie schlieft könne.
	-	past	?	gf35	Luzie erklärte, wie man richtig summt.
4	+	past	✔	gf36	Wie viele Plätzchen hat Julia gekauft und dann gegessen?
	+	past	✔	gf37	Wen hat Monika geküsst und Maria gekuschelt?
	+	future	✔	gf38	Welche Creme wird Luzie kaufen und Monika benutzen?
	+	past	*	gf39	Warum esste Sofie einen Apfel und Maria ein Fahrrad?
	+	past	*	gf40	Welches Auto fahrte Luzie und backt Monika sieben Brote?
	+	past	?	gf41	Welchen Test bestand Maria mit Vorsicht und Sofie fiel durch?
	-	present	✔	gf42	Die Bank schliesst um sechs aber die Post schliesst um vier.
	-	past	✔	gf43	Luzie war Koch von Beruf und spielte auch Geige.
	-	present	✔	gf44	Julia strickt am Abend und Sofie liest morgens die Zeitung.
	-	present	✔	gf45	Unser Lieblingscafe öffnet um sechs und unsere Lieblingskneipe öffnet um elf.
	-	past	✔	gf46	Gestern ging Sofie schwimmen und dann Volleyball spielen.
	-	future	✔	gf47	Maria wird Mathe unterrichten und Luzie wird Englisch unterrichten.
	-	present	*	gf48	Luzie fangt Bälle und dann grosse Katzen.
	-	future	*	gf49	Sofie laufen wird und Monika essen wird.

Table B.7 German: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	-	present	?	gf50	Julia bleibt gerade stehen und wird einen Hut tragen.

Table B.8 provides the German practice items referred to in section 5.4. These sentences consist of translations of the sentences in table B.4.

Table B.8 German: participials practice items

Identifier	Sentence
gp1	Luzie trägt eine gestreifte Hose.
gp2	Peter möchte gehst.
gp3	Mag Maria Rosen?
gp4	Sofie kann sprechen chinesisch.
gp5	Weiß Sofie die Antwort?
gp6	Monika aß Spaghetti am Montag und dann einen Hamburger am Dienstag.
gp7	Luzie trank Tee am Montag und dann Kaffee am Dienstag.
gp8	Johann mag Rosen.

B.3 Norwegian

Table B.9 lists the test items in the Norwegian participial experiment, referred to in section 5.5. These sentences consist of translations of the sentences in table B.1, built using the templates in (97), section 5.2.1.

Table B.9 Norwegian: participials test items

Condition	Identifier	Sentence
[+cul,+dp,-extr]	ns1a	Marit valgte kandidatene plystrende på nasjonalsangen.
	ns1b	Sofie auksjonerte maleriene plystrende på nasjonalsangen.
	ns1c	Lucie kastet ballene plystrende på nasjonalsangen.
	ns1d	Monika identifiserte blomstene plystrende på nasjonalsangen.
[+cul,+dp,+extr]	ns2a	Hvilken sang valgte Julia kandidatene plystrende på?
	ns2b	Hvilken sang auksjonerte Marit maleriene plystrende på?
	ns2c	Hvilken sang kastet Monika ballene plystrende på?
	ns2d	Hvilken sang identifiserte Sofie blomstene plystrende på?
[+cul,-dp,-extr]	ns3a	Lucie ankom plystrende på nasjonalsangen.
	ns3b	Monika overga seg plystrende på nasjonalsangen.
	ns3c	Sofie forsvant plystrende på nasjonalsangen.
	ns3d	Marit dukket opp plystrende på nasjonalsangen.
[+cul,-dp,+extr]	ns4a	Hvilken sang ankom Monika plystrende på?
	ns4b	Hvilken sang overga Sofie seg plystrende på?
	ns4c	Hvilken sang forsvant Marit plystrende på?
	ns4d	Hvilken sang dukket Julia opp plystrende på?
[-cul,+dp,-extr]	ns5a	Sofie fullførte skisser plystrende på nasjonalsangen.
	ns5b	Marit designet motorer plystrende på nasjonalsangen.
	ns5c	Julia lukket porter plystrende på nasjonalsangen.
	ns5d	Monika knuste tallerkner plystrende på nasjonalsangen.
[-cul,+dp,+extr]	ns6a	Hvilken sang fullførte Julia skisser plystrende på?
	ns6b	Hvilken sang designet Julia motorer plystrende på?
	ns6c	Hvilken sang lukket Sofie porter plystrende på?
	ns6d	Hvilken sang knuste Sofie tallerkner plystrende på?
[-cul,-dp,-extr]	ns7a	Lucie skalv plystrende på nasjonalsangen.
	ns7b	Sofie slåss plystrende på nasjonalsangen.
	ns7c	Marit løp plystrende på nasjonalsangen.
	ns7d	Monika gikk plystrende på nasjonalsangen.
[-cul,-dp,+extr]	ns8a	Hvilken sang skalv Sofie plystrende på?
	ns8b	Hvilken sang slåss Julia plystrende på?
	ns8c	Hvilken sang løp Lucie plystrende på?
	ns8d	Hvilken sang gikk Monika plystrende på?

Table B.9 Norwegian: participials test items

Condition	Identifier	Sentence

Table B.10 lists the control items in the Norwegian participial experiment, referred to in section (124). These sentences consist of translations of the sentences in table B.2.

Table B.10 Norwegian: participials control items

Identifier	Sentence
nc1a	Hvilken stjerne spiste Marit en iskrem før hun så?
nc1b	Hvilken sang lukket Julia boka etter at hun hadde sunget?
nc1c	Hvilken konkurranse leste Lucie boka så hun kunne vinne?
nc1d	Hvilket blad spilte Sofie fiolin før hun leste?
nc2a	Hvilken iskrem spiste Marit før hun så stjernen?
nc2b	Hvilken bok lukket Sofie etter at hun hadde sunget sangen?
nc2c	Hvilken bok leste Lucie så hun kunne vinne konkurransen?
nc2d	Hvilket instrument spilte Julia før hun leste bladet?

Table B.11 provides the list of fillers used in the Norwegian participial experiment detailed in section (126). These sentences consist of translations of the sentences in table B.3, using the key in (139).

Table B.11 Norwegian: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
1	+	present	✔	nf1	Hvilke blomster liker Marit?
	+	past	✔	nf2	Hva drakk Julia?

Table B.11 Norwegian: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	+	future	✔	nf3	Hva kommer Julia til å spise?
	+	present	*	nf4	Hvem likende Monika?
	+	past	?	nf5	Hvorfor dukket Lucie oppriktig opp?
	-	present	✔	f6	Julia elsker spinat.
	-	past	✔	f7	Monika spilte tennis.
	-	future	✔	f8	Monika kommer til å spille tennis i morgen.
	-	present	*	f9	Julia løpet racet.
	-	future	*	nf10	Monika spise vil oster.
	-	past	?	nf11	Marit danset omstridt.
2	+	past	✔	nf12	Hva spiste Monika hver dag før hun spilte squash?
	+	past	✔	nf13	Hvem heide Sofie på i verdensmesterskapet?
	+	future	✔	nf14	Hvor mange tester tar Julia om omtrent tre uker?
	+	present	*	nf15	Hvor mange kaker Lucie spise etter at han kjøpte?
	+	past	*	nf16	Hvorfor Marit løpde på en time?
	+	present	?	nf17	Hvem elsker Julia fra Spania?
	-	present	✔	nf18	Sofie jogger en time hver dag.
	-	past	✔	nf19	Lucie klatret i timesvis i går.
	-	past	✔	nf20	Marit plystret en melodi fôr Monika la seg.
	-	future	✔	nf21	Marit kommer til å ha på seg en hatt på festen.
	-	present	*	nf22	Marit se ham selv i et speil.
	-	future	*	nf23	Julia kommer til å løpte mange dag fem mil før ble spist middag.
	-	past	?	nf24	Monika sov illsindt før frokost.
3	+	present	✔	nf25	Hvem spør Lucie om å synge?
	+	past	✔	nf26	Hvorfor forsøkte Monika å spille sjakk?
	+	future	✔	nf27	Hvilken konkurranse vil Sofie forsøke å vinne?
	+	past	*	nf28	Hva viter Lucie hvordan å spille?
	+	past	*	nf29	Hvor mange oppgave Sofie er forsøkt å gjør?
	+	past	?	nf30	Hvor mange personer erklærte Sofie stille å kjenne?
	-	present	✔	nf31	Marit vet hvordan man lager en flette.
	-	past	✔	nf32	Julia håpte å møre en kjendis.
	-	future	✔	nf33	Sofie kommer til å lære å sykle i morgen.

Table B.11 Norwegian: participials fillers

Type	Extr	Tense	*/?/✔	ID	Sentence
	-	past	*	nf34	Sofie spurte rolig om hun kunne sovd.
	-	past	?	nf35	Lucie forklarte hvordan man nynner ærlig.
4	+	past	✔	nf36	Hvor mange kjeks har Julia kjøpt og så spist?
	+	past	✔	nf37	Hvem har Monika kysset og Marit slått?
	+	future	✔	nf38	Hvilken flöte vil Lucie kjöpe og Monika bruke?
	+	past	*	nf39	Hvorfor ble Sofie spist et eple og Marit en sykkel?
	+	past	*	nf40	Hvilken bil kjøre Lucie og Monika baker syv brød?
	+	past	?	nf41	Hvilken test bestod Marit forsiktig og Sofie ikke?
	-	present	✔	nf42	Banken stinger klokken seks men postkontoret stenger klokken fire.
	-	past	✔	nf43	Lucie var en profesjonell kokk og spilte også fiolin.
	-	present	✔	nf44	Julia strikker på kveldene og Sofie lester avisen om morgenen.
	-	present	✔	nf45	Vår favorittkafe åpner klokken seks og vår favorittpub åpner klokken elleve.
	-	past	✔	nf46	Sofie tok en svømmetur og spilte så volleyball i går.
	-	future	✔	nf47	Marit kommer til å undervise matematikk og Lucie kommer til å undervise engelsk.
	-	present	*	nf48	Lucie ta i mot baller og så store katter.
	-	future	*	nf49	Sofie løpe kommer til og Monika spise kommer til.
	-	present	?	nf50	Julia står stille og kommer til å ha på seg en hatt.

Table B.12 provides the Norwegian practice items referred to in section 5.5. These sentences consist of translations of the sentences in table B.4.

Table B.12 Norwegian: participials practice items

Identifier	Sentence
np1	Lucie har på seg stripede bukser.
np2	Petter vil gå.

Table B.12 Norwegian: participials practice items

Identifier	Sentence
np3	Liker Marit roser?
np4	Sofie snakke kinesisk kan.
np5	Vet Sofie svaret?
np6	Monika spiste spaghetti på mandag og så en hamburger på tirsdag.
np7	Lucie drakk te på mandag og så kaffe på tirsdag.
np8	Jon liker roser.

B.4 Filler comparison

Table B.13 Filler comparison

Property	Variations	English	German	Norwegian
Extraction	+	23	23	23
	-	27	27	27
wh-word	*which*	5	*welche(s/n)*: 5	*hvilke(n)*: 5
	what	4	*was*: 3	*hva*: 4
			wovon: 1	
	who	5	*wer (wen)*: 5	*hvem*: 5
	why	4	*warum*: 4	*hvorfor*: 4
	how many	5	*wie viele*: 5	*hvor mange*: 5
Names	*Julia*	11	11	11
	Lucy	11	*Luzie*: 11	11
	Mary	11	*Maria*: 11	*Maria*: 11
	Monica	12	*Monika*: 12	*Monika*: 12
	Sophie	*Sofie*: 12	12	*Sofie*: 12
Tenses	Past	24	15	11
	Present	24	15	11
	Future	24	15	11
Sentence Types	Conjunction: *and*	14	*und*: 14	*og*: 14

Table B.13 Filler comparison

Property	**Variations**	**English**	**German**	**Norwegian**
	Conjunction: *but*	1	*aber*: 1	*men*: 1
	With modifiers: *before*	4	*bevor*: 3	*før*: 4
			vor: 1	
	With modifiers: *in*	4	*in*: 3	i: 1
			während: 1	
				på: 2
				om: 1
	With modifiers: *after*	1	*nachdem*: 1	*etter at*: 1
	With modifiers: *from*	1	*aus*: 1	*fra*: 1
	With modifiers: *to* (prep.)	1	*zu* (prep.): 1	*på*: 1
	With modifiers: *for*	2	0	i: 1
			∅: 2	∅: 1
	Subordination: *to* + infinitive	11	*zu* + infinitive: 7	*å* + infinitive: 8
			wie + finite verb: 2	*hvordan*: 2
			ob + finite verb: 1	*om*: 1
			verb cluster: 1	
	Subordination	10	10	10

Appendix C

Items for asymmetrical coordination experiments in chapter 6

This appendix provides the test items and controls for the experiments on pseudocoordination in English, Norwegian and German, chapter 6.

C.1 English

Table C.1 lists the test items in the pseudocoordination experiment in English, corresponding to the templates in (99) in the English participial experiment, section 5.2.1.

Table C.1 English: pseudocoordination test items

Condition	**Identifier**	**Sentence**
[+cul,+dp,-extr]	pes1a	Mary picked the candidates and bought the book.
	pes1b	Sophie sold the paintings and bought the book.
	pes1c	Lucy threw the balls and bought the book.
	pes1d	Monica identified the flowers and bought the book.
[+cul,+dp,+extr]	pes2a	Which book did Julia pick the candidates and buy?
	pes2b	Which book did Mary sell the paintings and buy?
	pes2c	Which book did Monica throw the balls and buy?

Table C.1 English: pseudocoordination test items

Condition	Identifier	Sentence
	pes2d	Which book did Sophie identify the flowers and buy?
[+cul,-dp,-extr]	pes3a	Lucy arrived and bought the book.
	pes3b	Monica surrendered and bought the book.
	pes3c	Sophie disappeared and bought the book.
	pes3d	Mary appeared and bought the book.
[+cul,-dp,+extr]	pes4a	Which book did Monica arrive and buy?
	pes4b	Which book did Sophie surrender and buy?
	pes4c	Which book did Mary disappear and buy?
	pes4d	Which book did Julia appear and buy?
[-cul,+dp,-extr]	pes5a	Sophie finished sketches and bought the book.
	pes5b	Mary designed engines and bought the book.
	pes5c	Julia closed gates and bought the book.
	pes5d	Monica broke plates and bought the book.
[-cul,+dp,+extr]	pes6a	Which book did Julia finish sketches and buy?
	pes6b	Which book did Julia design engines and buy?
	pes6c	Which book did Sophie close gates and buy?
	pes6d	Which book did Sophie break plates and buy?
[-cul,-dp,-extr]	pes7a	Lucy shivered and bought the book.
	pes7b	Sophie fought and bought the book.
	pes7c	Mary ran and bought the book.
	pes7d	Monica walked and bought the book.
[-cul,-dp,+extr]	pes8a	Which book did Sophie shiver and buy?
	pes8b	Which book did Julia fight and buy?
	pes8c	Which book did Lucy run and buy?
	pes8d	Which book did Monica walk and buy?

Table C.2 lists the control items in the pseudocoordination experiment in English.

Table C.2 English: pseudocoordination controls

Identifier	**Sentence**
	Pseudocoordination with canonical verb *go*
pec1a	Which book did Mary go and buy?
pec1b	Which song did Monica go and write?
pec1c	Which shelf did Julia go and fix?
pec1d	Which picture did Sophie go and paint?
	Unacceptable subextraction from within an adjunct
pec2a	Which celebrity did Mary eat an ice cream before she saw?
pec2b	Which song did Julia close the book after she had sung?
pec2c	Which competition did Lucy read the book so that she would win?
pec2d	Which magazine did Sophie play violin before she read?
	Acceptable subextraction from within matrix clause in a sentence with adjunction
pec3a	Which ice cream did Mary eat before she saw the celebrity?
pec3b	Which book did Sophie close after she had sung the song?
pec3c	Which book did Lucy read so that she would win the competition?
pec3d	Which instrument did Julia play before she read the magazine?
	Acceptable across-the-board subextraction from both conjuncts of a coordinate structure
pec4a	Which ice cream did Mary buy and eat?
pec4b	Which song did Julia write and sing?
pec4c	Which competition did Lucy organise and win?
pec4d	Which magazine did Sophie read and tear up?

C.2 German

Table C.3 lists the test items in the pseudocoordination experiment in German.

Table C.3 German: pseudocoordination test items

Condition	Identifier	Sentence
[+cul,+dp,-extr]	pgs1a	Maria wählte die Kandidaten aus und kaufte das Buch.
	pgs1b	Sofie verkaufte die Bilder und kaufte das Buch.
	pgs1c	Luzie warf die Bälle und kaufte das Buch.
	pgs1d	Monika identifizierte die Blumen und kaufte das Buch.
[+cul,+dp,+extr]	pgs2a	Welches Buch wählte Julia die Kandidaten aus und kaufte?
	pgs2b	Welches Buch verkaufte Maria die Bilder und kaufte?
	pgs2c	Welches Buch warf Monika die Bälle und kaufte?
	pgs2d	Welches Buch identifizierte Sofie die Blumen und kaufte?
[+cul,-dp,-extr]	pgs3a	Luzie kam an und kaufte das Buch.
	pgs3b	Monika gab auf und kaufte das Buch.
	pgs3c	Sofie verschwand und kaufte das Buch.
	pgs3d	Maria erschien und kaufte das Buch.
[+cul,-dp,+extr]	pgs4a	Welches Buch kam Monika an und kaufte?
	pgs4b	Welches Buch gab Sofie auf und kaufte?
	pgs4c	Welches Buch veschwand Maria und kaufte?
	pgs4d	Welches Buch erschien Julia und kaufte?
[-cul,+dp,-extr]	pgs5a	Sofie beendete Entwürfe und kaufte das Buch.
	pgs5b	Maria entwarf Motoren und kaufte das Buch.
	pgs5c	Julia schloss Tore und Kaufte das Buch.
	pgs5d	Monika zerbrach Teller und kaufte das Buch.
[-cul,+dp,+extr]	pgs6a	Welches Buch beendete Julia Entwürfe und kaufte?
	pgs6b	Welches Buch entwarf Julia Motoren und kaufte?
	pgs6c	Welches Buch schloss Sofie Tore und kaufte?
	pgs6d	Welches Buch zerbrach Sofie Teller und kaufte?
[-cul,-dp,-extr]	pgs7a	Luzie zitterte und kaufte das Buch.
	pgs7b	Sofie kämpfte und kaufte das Buch.
	pgs7c	Maria rannte und kaufte das Buch.
	pgs7d	Monika spazierte und kaufte das Buch.
[-cul,-dp,+extr]	pgs8a	Welches Buch zitterte Sofie und kaufte?
	pgs8b	Welches Buch kämpfte Julia und kaufte?
	pgs8c	Welches Buch rannte Luzie und kaufte?
	pgs8d	Welches Buch spazierte Monika und kaufte?

Table C.3 German: pseudocoordination test items

Condition	Identifier	Sentence

Table C.4 lists the control items in the pseudocoordination experiment in German.

Table C.4 German: pseudocoordination control items

Identifier	Sentence
	Pseudocoordination with canonical verb *go*
pgc1a	Welches Buch ging und kaufte Maria?
pgc1b	Welches Lied ging und schrieb Monika?
pgc1c	Welches Regalbrett ging und reparierte Julia?
pgc1d	Welches Welches Bild ging und malte Sofie?
	Unacceptable subextraction from within an adjunct
pgc2a	Welchen Promi aß Maria ein Eis, bevor sie sah?
pgc2b	Welches Lied schloss Julia das Buch, nachdem sie gesungen hatte?
pgc2c	Welchen Wettbewerb las Luzie das Buch, um zu gewinnen?
pgc2d	Welche Zeitschrift spielte Sofie die Geige, bevor sie las?
	Acceptable subextraction from within matrix clause in a sentence with adjunction
pgc3a	Welches Eis aß Maria, bevor sie den Promi sah?
pgc3b	Welches Buch schloss Sofie, nachdem sie das Lied gesungen hatte?
pgc3c	Welches Buch las Luzie, um den Wettbewerb zu gewinnen?
pgc3d	Welches Instrument spielte Julia, bevor sie die Zeitschrift las?
	Acceptable across-the-board subextraction from both conjuncts of a coordinate structure
pgc4a	Welches Eis kaufte und aß Maria?
pgc4b	Welches Lied schrieb und sang Julia?
pgc4c	Welchen Wettbewerb organisierte und gewann Luzie?
pgc4d	Welche Zeitschrift las und zerriss Sofie?

C.3 Norwegian

Table C.5 lists the test items in the pseudocoordination experiment in Norwegian.

Table C.5 Norwegian: pseudocoordination test items

Condition	Identifier	Sentence
[+cul,+dp,-extr]	pns1a	Marit valgte kandidatene og kjøpte boka.
	pns1b	Marit auksjonerte maleriene og kjøpte boka.
	pns1c	Lucie kastet ballene og kjøpte boka.
	pns1d	Monika identifiserte blomstene og kjøpte boka.
[+cul,+dp,+extr]	pns2a	Hvilken bok valgte Julia kanditatene og kjøpte?
	pns2b	Hvilken bok auksjonerte Marit maleriene og kjøpte?
	pns2c	Hvilken bok kastet Monika ballene og kjøpte?
	pns2d	Hvilken bok identifiserte Sofie blomstene og kjøpte?
[+cul,-dp,-extr]	pns3a	Lucie ankom og kjøpte boka.
	pns3b	Monika overga seg og kjøpte boka.
	pns3c	Sofie forsvant og kjøpte boka.
	pns3d	Marit dukket opp og kjøpte boka.
[+cul,-dp,+extr]	pns4a	Hvilken bok ankom Monika og kjøpte?
	pns4b	Hvilken bok overga Sofie seg og kjøpte?
	pns4c	Hvilken bok forsvant Marit og kjøpte?
	pns4d	Hvilken bok dukket Julia opp og kjøpte?
[-cul,+dp,-extr]	pns5a	Sofie fullførte skisser og kjøpte boka.
	pns5b	Marit designet motorer og kjøpte boka.
	pns5c	Julia lukket dører og kjøpte boka.
	pns5d	Monika knuste tallerkner og kjøpte boka.
[-cul,+dp,+extr]	pns6a	Hvilken bok fullførte Julia skisser og kjøpte?
	pns6b	Hvilken bok designet Julia motorer og kjøpte?
	pns6c	Hvilken bok lukket Sofie dører og kjøpte?
	pns6d	Hvilken bok knuste Sofie tallerkner og kjøpte?
[-cul,-dp,-extr]	pns7a	Lucie skalv og kjøpte boka.
	pns7b	Sofie slåss og kjøpte boka.
	pns7c	Marit løp og kjøpte boka.
	pns7d	Monika gikk og kjøpte boka.

Table C.5 Norwegian: pseudocoordination test items

Condition	**Identifier**	**Sentence**
[-cul,-dp,+extr]	pns8a	Hvilken bok skalv Sofie og kjøpte?
	pns8b	Hvilken bok sloss Julia og kjøpte?
	pns8c	Hvilken bok løp Lucie og kjøpte?
	pns8d	Hvilken bok gikk Monika og kjøpte?

Table C.6 lists the control items in the pseudocoordination experiment in Norwegian.

Table C.6 Norwegian: pseudocoordination control items

Identifier	**Sentence**
	Pseudocoordination with canonical verb *go*
pnc1a	Hvilken bok gikk Marit og kjøpte?
pnc1b	Hvilken sang gikk Monika og skrev?
pnc1c	Hvilken hylle gikk Julia og reparerte?
pnc1d	Hvilket bilde gikk Sofie og malte?
	Unacceptable subextraction from within an adjunct
pnc2a	Hvilken stjerne spiste Marit en iskrem før hun så?
pnc2b	Hvilken sang lukket Julia boka etter at hun hadde sunget?
pnc2c	Hvilken konkurranse leste Lucie boka så hun kunne vinne?
pnc2d	Hvilket blad spilte Sofie fiolin fôr hun leste?
	Acceptable subextraction from within matrix clause in a sentence with adjunction
pnc3a	Hvilken iskrem spiste Marit fôr hun så stjernen?
pnc3b	Hvilken bok lukket Sofie etter at hun hadde sunget sangen?
pnc3c	Hvilken bok leste Lucie så hun kunne vinne konkurransen?
pnc3d	Hvilket instrument spilte Julia fôr hun leste bladet?
	Acceptable across-the-board subextraction from both conjuncts of a coordinate structure
pnc4a	Hvilken iskrem kjøpte Marit og spiste?
pnc4b	Hvilken sang skrev Julia og sang?
pnc4c	Hvilken konkuranse organiserte Lucie og vant?

Table C.6 Norwegian: pseudocoordination control items

Identifier	Sentence
pnc4d	Hvilket blad leste Sofie og rev istykker?

Appendix D

Items for ordering experiments in chapter 6

This appendix provides the test items and controls for the English and Norwegian experiments on ordering effects in chapter 6.

D.1 English

Table D.1 lists the test items in the ordering effects experiment in English.

Table D.1 English: ordering effects test items

Condition	Identifier	Sentence
[order1, -partextr, -psextr]	oes1a	Lucy went and sold the book eating an ice-cream.
	oes1b	Monica went and wrote the song wearing a hat.
	oes1c	Sophie went and fixed the shelf reciting a poem.
	oes1d	Mary went and painted the picture singing happy birthday.
	oes1e	Julia went and bought the newspaper whistling the national anthem.
[order1, +partextr, -psextr]	oes2a	Which ice-cream did Lucy go and sell the book eating?
	oes2b	Which hat did Monica go and write the song wearing?
	oes2c	Which poem did Sophie go and fix the shelf reciting?
	oes2d	Which song did Mary go and paint the picture singing?

Table D.1 English: ordering effects test items

Condition	Identifier	Sentence
	oes2e	Which tune did Julia go and buy the newspaper whistling?
[order1, -partextr, +psextr]	oes3a	Which book did Lucy go and sell eating an ice-cream?
	oes3b	Which song did Monica go and write wearing a hat?
	oes3c	Which shelf did Sophie go and fix reciting a poem?
	oes3d	Which picture did Mary go and paint singing happy birthday?
	oes3e	Which newspaper did Julia go and buy whistling the national anthem?
[order1, +partextr, +psextr]	oes4a	Which cheese did Lucy go and sell eating?
	oes4b	Which name tag did Monica go and write wearing?
	oes4c	Which rhyme did Sophie go and fix reciting?
	oes4d	Which words did Mary go and paint singing?
	oes4e	Which song did Julia go and buy whistling?
[order2, -partextr, -psextr]	oes5a	Lucy went eating an ice-cream and sold the book.
	oes5b	Monica went wearing a hat and wrote the song.
	oes5c	Sophie went reciting a poem and fixed the shelf.
	oes5d	Mary went singing happy birthday and painted the picture.
	oes5e	Julia went whistling the national anthem and bought the newspaper.
[order2, +partextr, -psextr]	oes6a	Which ice-cream did Lucy go eating and sell the book?
	oes6b	Which hat did Monica go wearing and write the song?
	oes6c	Which poem did Sophie go reciting and fix the shelf?
	oes6d	Which song did Mary go singing and paint the picture?
	oes6e	Which tune did Julia go whistling and buy the newspaper?
[order2, -partextr, +psextr]	oes7a	Which book did Lucy go eating an ice-cream and sell?
	oes7b	Which song did Monica go wearing a hat and write?
	oes7c	Which shelf did Sophie go reciting a poem and fix?
	oes7d	Which picture did Mary go singing happy birthday and paint?
	oes7e	Which newspaper did Julia go whistling the national anthem and buy?
[order2, +partextr, +psextr]	oes8a	Which cheese did Lucy go eating and sell?
	oes8b	Which name tag did Monica go wearing and write?
	oes8c	Which rhyme did Sophie go reciting and fix?
	oes8d	Which words did Mary go singing and paint?
	oes8e	Which song did Julia go whistling and buy?

Table D.2 lists the control items in the ordering effects experiment in English.

Table D.2 English: ordering effects controls

Identifier	Sentence
	Pseudocoordination with subextraction
oec1a	Which book did Mary go and sell?
oec1b	Which song did Monica go and write?
oec1c	Which shelf did Julia go and fix?
oec1d	Which picture did Sophie go and paint?
oec1e	Which newspaper did Lucy go and buy?
	Participial adjunct with subextraction
oec2a	Which ice-cream did Monica arrive eating?
oec2b	Which hat did Sophie arrive wearing?
oec2c	Which poem did Mary arrive reciting?
oec2d	Which song did Julia arrive singing?
oec2e	Which tune did Lucy arrive whistling?

D.2 Norwegian

Table D.3 lists the test items in the ordering effects experiment in Norwegian.

Table D.3 Norwegian: ordering effects test items

Condition	Identifier	Sentence
[order1, -partextr, -psextr]	ons1a	Lucie gikk og solgte boka spisende på en iskrem.
	ons1b	Monika gikk og skrev sangen holdende en hatt.
	ons1c	Sofie gikk og reparerte hylla lesende på et dikt.
	ons1d	Marit gikk og malte bildet syngende på bursdagssangen.
	ons1e	Julia gikk og kjøpte avisa plystrende på nasjonalsangen.

Table D.3 Norwegian: ordering effects test items

Condition	Identifier	Sentence
[order1, +partextr, -psextr]	ons2a	Hvilken iskrem gikk Lucie og solgte boka spisende på?
	ons2b	Hvilken hatt gikk Monika og skrev sangen holdende?
	ons2c	Hvilket dikt gikk Sofie og reparerte hylla lesende på?
	ons2d	Hvilken sang gikk Marit og malte bildet syngene på?
	ons2e	Hvilken låt gikk Julia og kjøpte avisa plystrende på?
[order1, -partextr, +psextr]	ons3a	Hvilken bok gikk Lucie og solgte spisende på en iskrem?
	ons3b	Hvilken sang gikk Monika og skrev holdende en hatt?
	ons3c	Hvilken hylle gikk Sofie og reparerte lesende på et dikt?
	ons3d	Hvilket bilde gikk Marit og malte syngende på bursdagssangen?
	ons3e	Hvilken avis gikk Julia og kjøpte plystrende på nasjonalsangen?
[order1, +partextr, +psextr]	ons4a	Hvilken ost gikk Lucie og solgte spisende på?
	ons4b	Hvilken naunelapp gikk Monika og skrev holdende?
	ons4c	Hvilket barnerim gikk Sofie og forbedret lesende på?
	ons4d	Hvilke ord gikk Marit og malte syngende på?
	ons4e	Hvilken sang gikk Julia og kjøpte plystrende på?
[order2, -partextr, -psextr]	ons5a	Lucie gikk spisende på en iskrem og solgte boka.
	ons5b	Monika gikk hldende en hatt og skrev sangen.
	ons5c	Sofie gikk lesende på et dikt og reparerte hylla.
	ons5d	Marit gikk syngende på bursdagssangen og malte bildet.
	ons5e	Julia gikk plystrende på nasjonalsangen og kjøpte avisa.
[order2, +partextr, -psextr]	ons6a	Hvilken iskrem gikk Lucie spisende på og solgte boka?
	ons6b	Hvilken hatt gikk Monika holdende og skrev sangen?
	ons6c	Hvilket dikt gikk Sofie lesende på og reparerte hylla?
	ons6d	Hvilken sang gikk Marit syngende på og malte bildet?
	ons6e	Hvilken låt gikk Julia plystrende på og kjøpte avisa?
[order2, -partextr, +psextr]	ons7a	Hvilken bok gikk Lucie spisende på en iskrem og solgte?
	ons7b	Hvilken sang gikk Monika holdende en hatt og skrev?
	ons7c	Hvilken hylle gikk Sofie lesende på et dikt og reparerte?
	ons7d	Hvilket bilde gikk Marit syngende på bursdagssangen og malte?
	ons7e	Hvilken avis gikk Julia plystrende på nasjonalsangen og kjøpte?
[order2, +partextr, +psextr]	ons8a	Hvilken ost gikk Lucie spisende på og solgte?
	ons8b	Hvilken naunelapp gikk Monika holdende og skrev?

Table D.3 Norwegian: ordering effects test items

Condition	**Identifier**	**Sentence**
	ons8c	Hviket barnerim gikk Sofie lesende på og forbedret?
	ons8d	Hvilke ord gikk Marit syngende på og malte?
	ons8e	Hvilken sang gikk Julia plystrende på og kjøpte?

Table D.4 lists the control items in the ordering effects experiment in Norwegian.

Table D.4 Norwegian: ordering effects controls

Identifier	**Sentence**
	Pseudocoordination with subextraction
onc1a	Hvilken bok gikk Marit og solgte?
onc1b	Hvilken sang gikk Monika og skrev?
onc1c	Hvilken hylle gikk Julia og reparerte?
onc1d	Hvilket bilde gikk Sofie og malte?
onc1e	Hvilken avis gikk Lucie og kjøpte?
	Participial adjunct with subextraction
onc2a	Hvilken iskrem ankom Monika spisende på?
onc2b	Hvilken hatt ankom Sofie holdende?
onc2c	Hvilket dikt ankom Marit lesende på?
onc2d	Hvilken sang ankom Julia syngende på?
onc2e	Hvilken låt ankom Lucie plystrende på?