The Syntactic Structures of Relativisation

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October 2016

**This dissertation is submitted for the degree of
Doctor of Philosophy**

Declaration

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 currently submitted for a degree, 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 any other University or similar institution except as declared in the Preface and specified in the text.

It does not exceed the prescribed word limit for the relevant Degree Committee.

Word count: 79,996

Jamie Douglas, October 2016

Acknowledgements

Na vedui tollen i lû a theithad i hennaid nín. Aníron hannad i 'olthanner a golthar nin a vellyn nín phain vi lugiant, a edregol edhryn a muinthêl nín. Goheno nin teithiel edhellen – taur i úthaes!

I first became aware of linguistics when I was 12. I had just finished reading J.R.R. Tolkien's *The Lord of the Rings* (for the first time) – anyone who knows me well enough will know that calling it my favourite book does not even begin to qualify as gross understatement – and I was spell-bound by the fact that Tolkien had created an entire legendarium in which his invented languages could play out. In my mind, language and languages took on a previously unimagined potency. I wanted to learn more about them and soon came across the subject of linguistics.

I came to Cambridge as an undergraduate in 2008. I knew that I wanted to pursue all the linguistics that I could (the Linguistics Tripos did not exist yet), so I took all the linguistics-related papers available to a French and German student before making the switch to Part II of the newly introduced Linguistics Tripos in 2010. This was when I first seriously encountered syntax, and Ian Roberts and Theresa Biberauer were there from the beginning.

I am immensely grateful to Ian, my PhD and MPhil supervisor, and Theresa, my undergraduate syntax supervisor, for many things great and small. They have a boundless energy and enthusiasm and true dedication to their students, always ensuring that there is a real syntax *community* in Cambridge. They are both genuinely generous people, be it with their time, advice, expertise, knowledge, supervision, conversation, and (dare I say it) wallets – I've lost count of how many drinks they have bought me and other students over the years! When they told me at the Granta pub one evening back in 2013 "Y'know, some of our best work has been done here," I inferred that attending the pub after syntax events was part of my PhD training. Suffice it to say, I have taken my training *very* seriously.

I wish to thank Michelle Sheehan, Jenneke van der Wal, David Willis (whose T-shirts I vowed to give a special mention to!), Bert Vaux (particularly for his linguistics parties from several years back), Anders Holmberg, Sten Vikner, Craig Sailor, Guglielmo Cinque, Luigi Rizzi, Diane Massam, Mitcho Erlewine, Coppe van Urk, Sandhya Sundaresan, Tom McFadden and Will Harwood for their advice, support, encouragement and/or discussion of my ideas at various points throughout my time at Cambridge as well as at conferences at home and abroad. I am particularly grateful to Michelle for these things and for the chance of collaborating with her on research into the Mayan languages.

I also wish to thank my friends from various places and from various years for everything from great discussions to great times. In particular, I would like to thank Peer Nowack, who has been my friend through the thick and thin of student and personal life. I would also like to thank my linguist friends – Joe Perry, Alison Biggs, Freddy Hu, Tim Bazalgette, Jeffrey Watamull, George Walkden, András Bárány, Georg Höhn, Sam Wolfe, Norma Schifano, Gigi Andriani, Kari Kinn, Cherry Lam, Jim Baker, Julio Song, Nicos Neocleous, Louise Raynaud and Eszter Ótott Kovács – for sharing thoughts, data and advice, and in many cases providing excellent company at the aforementioned Granta (among other pubs!).

A special mention goes to my friends in the Grad Centre. A big thank you to Oliver Mayeux, Hanna Danbolt Ajer, Afra Pujol i Campeny, Abhimanyu Sharma, Anna Hollingsworth, Alice Corr, Draško Kašćelan, Kim Groothuis, Eleonora Serra, Valentina Colasanti and Olimpia Squillaci. They are a wonderful group of people both in and out of the Grad Centre, and have lavishly provided a heady mix of fun, humour, support and relief particularly during my thesis-writing.

Finally, I would like to thank my mum, my dad and my sister. I'm still not sure if they actually know what it is I do in linguistics, but they have never stopped encouraging me to pursue my interests. Their unconditional love and support is invaluable. This thesis is for them.

Abstract

This thesis examines the syntactic structures of restrictive relativisation in English. English exhibits a variety of different relative constructions with different syntactic properties. We pursue the hypothesis that these properties are accounted for by the systematic variation in the structural size of English relatives.

We review the major competing analyses of relative clauses in the literature, with a particular focus on reconstruction effects, ultimately arguing in favour of the Matching Analysis (Chapter 2). The rest of the thesis is dedicated to the 'size hypothesis' and its application to finite, infinitival and reduced relatives in English, with cross-linguistic comparisons being made with Italian, Welsh, Malagasy and French where appropriate.

We show that there is systematic variation in the structural size of finite and infinitival clausal relatives, i.e. variation in the degree of articulation of their C-domains, and uncover a categorial distinctness effect in the English C-domain (Chapter 3). Differences in structural size combined with anti-locality are argued to provide a novel perspective on subject-object asymmetries in relative clauses and other related phenomena in English, with a close formal similarity between relativisation and topicalisation emerging as an important result (Chapter 4). We describe and analyse a novel construction involving control into infinitival relatives which offers independent yet complementary insights into the structure of the English C-domain (Chapter 5). We argue that systematic size variation also plays a key role in accounting for the properties of reduced relatives, including their restrictions on auxiliaries and participles, the interpretation of the present/progressive participle and the subject restriction, whilst evidence from high adverbs indicates close similarities between the clausal and clause-medial left peripheries (Chapter 6).

This thesis thus contributes a range of novel observations, generalisations and analyses with both empirical and theoretical implications for the nature of variation both within and across languages.

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Chapter 1

Introduction

1   The focus of the thesis

This thesis is concerned with the syntactic structures of relativisation. We focus predominantly on English, a language with a rich variety of relativisation structures. Despite the vast amount of literature dedicated to relativisation in English, there is still much to be observed, described and explained, as this thesis will demonstrate.

Our focus is on restrictive relativisation, i.e. we do not discuss non-restrictive relatives or free relatives, or types of relative not found in English, such as internally-headed relatives and correlatives. We refer to a restrictive relative as the RC (*relative clause* or, more neutrally, *relative construction*), and to the noun modified by the RC as the RC head (not to be confused with the term *head*, i.e. X°, from X'-Theory). In restrictive relativisation the RC head specifies a set of elements and the RC (a subordinate clause) restricts this set to some subset of which the RC is true (see Keenan & Comrie, 1977: 63). As De Vries (2002: 14) stresses, the RC head (aka *pivot*) is a constituent semantically shared by both the RC and matrix clause. To illustrate these terms, consider (1):

(1)   I bought the pizza that you ate.

In (1), the RC head is *pizza*. Semantically, it plays a role both in the matrix clause, as the patient/direct object of *buy/bought*, and in the RC, as the patient/direct object of *eat/ate*. Note that the determiner, *the* in (1), is not considered to be part of the RC head (see Chapter 2). We refer to it as the external determiner. The RC head specifies the set of pizzas and the RC, i.e. *that you ate*, restricts this set to the subset of pizzas for which it is true that you ate them. In this case, use of the definite determiner and a singular RC head implies that this subset contains a single, contextually relevant pizza.

Implicit in our use of the term *RC* is the idea that it must contain some sort of verbal core or verbal predicate. In other words, we use the term *RC* to cover both full clausal

relatives and reduced relatives (RRCs), as in (2), but exclude restrictive adjectives and restrictive prepositional phrases, as in (3).

(2)   a.   the pizza [that you ate]   (full clausal RC)

          b.   the man [sitting on the bench]   (RRC)

(3)   a.   the [cheesy] pizza   (restrictive adjective)

          b.   the man [with the hat]   (restrictive PP)

We do this purely to restrict the scope of this thesis to canonical RCs. We remain agnostic about whether (some) restrictive adjectives and restrictive PPs are derived from or share a common syntax with RCs (see, e.g., Cinque, 2010; Kayne, 1994). Therefore, whilst our definitions are not particularly formal or precise, they will serve our purposes here (for further discussion of the definition of RCs, see Andrews, 2007; De Vries, 2002; Downing, 1978; Keenan & Comrie, 1977; Lehmann, 1984, 1986; among many others).

Discussions of the syntax of RCs generally focus on the syntactic *derivation* of the RC, i.e. the way in which relativisation is syntactically achieved. We consider this in Part I. However, in Parts II and III we pursue a different issue, namely the structural/syntactic size of RCs. We will highlight differences and similarities in size between different types of RC and pursue the hypothesis that such differences and similarities play a key role in accounting for various properties of these RCs. This idea is not new *per se*, for example, RRCs and full clausal RCs are generally considered to differ in structural size. However, we explore in a more systematic fashion whether there are size differences *within* the class of RRCs and full clausal RCs, and the extent to which any such differences influence the syntactic properties of those RCs.

2   Overview of the thesis

The thesis is subdivided into three parts. Part I (Chapter 2) focuses on the syntactic derivation of (full clausal) RCs, the issue that arguably dominates the literature on RCs. Parts II and III focus predominantly on the syntactic size of RCs, an issue that, relatively speaking, has received little attention, at least in the formal syntactic literature. Part II (Chapters 3 to 5) deals with full clausal RCs, whilst Part III (Chapter 6) deals with RRCs. A brief description of each chapter follows below:

Chapter 2 provides a brief review of the major issues in the syntactic literature on RCs. These issues typically concern the syntactic derivation of RCs. We review how the restrictive modification relation can be captured syntactically, and give a broad overview of the major competing families of the analysis of RCs, namely the Head External Analysis, the Head Raising Analysis and the Matching Analysis. We dedicate much of this chapter to reconstruction (aka connectivity) effects since they have come to play a significant and central role in the literature, being used to compare and contrast the aforementioned analyses.

Chapter 3 focuses on full clausal RCs, i.e. finite and infinitival RCs. We investigate the structural size of different types of full clausal RC by comparing the extent to which they permit adverbial and argument fronting in their left peripheries. We show that argument fronting, which we identify as focus fronting, is constrained. Specifically, we make the novel observation that, when possible at all, argument fronting in RCs exhibits a categorial distinctness effect (in the sense of Richards, 2010). We observe that categorial distinctness effects are found in the English C-domain and use them to probe the structure of the English left periphery.

Chapter 4 considers subject-object asymmetries, an issue that arises in RC-contexts in the form of the anti-*that*-trace effect, i.e. the ban on short subject Ø-RCs. On the basis of the systematic structural size differences identified in Chapter 3, we propose that the size of the clause affects subject extraction, appealing to the notion of anti-locality. We explore the implications of this analysis for the famous *that*-trace effect and the mechanics of successive cyclicity, as well as considering whether anti-locality plays a role in the subject-object asymmetries of other English A'-constructions, namely topicalisation and questions. Finally, we briefly consider the sorts of insights that our analyses from Chapters 3 and 4 may offer us from a more cross-linguistic perspective, comparing English with Italian, Welsh and Malagasy with respect to different aspects of our proposals.

Chapter 5 focuses on a construction involving infinitival RCs that has, to our knowledge, never before received empirical or theoretical attention. The construction is one like *This is John's book to read*, an infinitival RC with a prenominal possessor attached to the RC head. We argue that there is a control relation between the prenominal possessor and

the infinitival RC subject. Interestingly, this relation bears the structural hallmarks of obligatory control but, interpretively, control is non-obligatory. We provide an empirical description of this construction and attempt an initial analysis in terms of Landau's (2015) Two-Tiered Theory of Control. Our analysis suggests that the C-domain of infinitival RCs has certain properties consistent with what we hypothesised in Chapter 3.

Chapter 6 is concerned with RRCs. We show that RRCs are reduced compared to full clausal RCs in that they contain less syntactic structure. We also show that the upper boundary of RRCs is not unique to RRCs but is implicated in various other English phenomena. More specifically, we adopt Harwood's (2016) analysis whereby RRCs can be as large as Asp_{PROG} (progressive aspect) but no larger. We identify and attempt to solve some potential problems for this analysis involving differences in the interpretive range of the present/progressive participle in RRCs vs. full clauses, and the acceptability of high adverbs. We also consider stative and absolute RRCs, two RRC-types that have received relatively little attention in the literature. We then turn to French RRCs, arguing that French passive participle RRCs are akin to English passive participle RRCs but that French present participle RRCs are more akin to English absolute RRCs. Finally, we consider how relativisation is achieved in RRCs.

Chapter 7 provides a summary of the major findings of this thesis and highlights some avenues for future research.

Chapter 2

The derivation of relative clauses: a review of the evidence

1   Introduction

In this chapter, we introduce some of the major issues in the literature on the syntax of relativisation. It is not intended to be an exhaustive or comprehensive review of this vast and venerable literature (see De Vries, 2002; Salzmann, 2006, 2014 for detailed reviews). Instead, it aims (i) to highlight trends and families of analyses so that the contribution of this thesis can be situated in a more general context, and (ii) to motivate the choice of derivational analysis that is used throughout the following chapters.

As far as English restrictive RCs are concerned, the literature has tended to focus on two (largely independent) issues. The first concerns how the modification relation between the RC and the RC head is captured syntactically: is the RC an adjunct or a complement, and is it attached to the RC head or the determiner? The second concerns how the RC head is related to the RC-internal gap. The second issue has probably generated the most literature in recent years, arguably thanks to the prominence and predominance of reconstruction effects.

The structure of this chapter is as follows: in Section 2, we briefly review the issue of how the restrictive modification relation between the RC and the RC head is to be captured syntactically. In Section 3, we turn to the relation between the RC head and RC-internal gap. We introduce the three major families of analysis (the Head External Analysis, the Head Raising Analysis, and the Matching Analysis, including mixed analyses involving Head Raising and Matching) before considering some of their predictions relating to Case and locality. Section 4 evaluates the significance of reconstruction effects in deciding between the Head Raising and Matching Analyses, arguing that both are in fact able to capture these effects contrary to the assumption in most of the literature. In Section 5, various types of reconstruction evidence are illustrated and evaluated, namely idioms, binding, variable binding, scope, amount RCs, superlative adjectives, and antecedent-contained deletion. We will see evidence for reconstruction, anti-reconstruction, and simultaneous and distributed

reconstruction and anti-reconstruction, thus showing that the empirical facts are more complicated than most analyses assume or predict. Finally, Section 6 provides a summary and ultimately comes down in favour of the Matching Analysis.

2　The restrictive modification relation

There are many different proposals from the past 50 years or so concerning how the restrictive modification relation between the RC and the RC head should be captured syntactically. Ross (1967) proposes that the RC is adjoined to a constituent containing both the RC head and the determiner.

(1)　　[$_{NP}$ [$_{NP}$ Det NP] [$_{RC}$ RC]]

However, Partee (1975) argues that the determiner must scope over the RC head and the RC to derive the correct semantics for restrictive relativisation. Assuming the DP-hypothesis (Abney, 1987) and adjunction of the RC, this is represented in (2).[1]

(2)　　[$_{DP}$ D [$_{NP}$ [$_{NP}$ N] [$_{RC}$ RC]]]

Adjunction of the RC straightforwardly captures the adjunct-like behaviour of RCs: they are optional and iterable, and are not semantically selected by the RC head.

However, as Salzmann (2014) points out, most nominal modifiers are optional even if they are standardly taken to be complements of the noun (though see Adger, 2013; Cecchetto & Donati, 2015; Donati & Cecchetto, 2011; Kayne, 2008; among others, on the idea that nouns do not take true complements). Therefore, a complementation analysis is not immediately implausible.

Some authors propose that the RC is the complement of the RC head (De Vries, 2002; Platzack, 2000).[2] However, the currently standard analysis is arguably that the RC is

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[1] A (still unresolved) problem for this approach comes from so-called *hydras* (Link, 1984), i.e. cases where a single RC restrictively modifies two (or more) conjoined DPs, as in (i) (Link, 1984: 245).

(i)　　the boy and the girl who met yesterday

[2] Platzack (2000) argues that this is correct for Swedish and explains why extraction from RCs is acceptable in this language.

the complement of the external determiner D (Bianchi, 1999, 2000a, 2000b; Kayne, 1994; Schmitt, 2000).[3] This D-CP analysis is often associated with a Head Raising Analysis of RCs, i.e. the RC head is at the left edge of the RC and the RC is the complement of D, though this is not logically necessary (Aoun & Li, 2003; De Vries, 2002). The evidence for the D-CP analysis comes from a variety of sources. First, the type of determiner plays a role in determining what type of RC is possible, something that is plausibly due to selection between the determiner and the RC (Kayne, 1994; Smith, 1964). For example, Smith (1964: 38) observes that 'unspecified' determiners like *any* may appear with restrictive but not non-restrictive RCs, whilst 'specified' determiners like *the* may appear with both types, as in the following examples ('(un)specified' is Smith's terminology):

(3) a. The book which is about linguistics is interesting.   (restrictive)

     b. The book, which is about linguistics, is interesting.   (non-restrictive)

(4) a. Any book which is about linguistics is interesting.   (restrictive)

     b. *Any book, which is about linguistics, is interesting.   (non-restrictive)

Second, a determiner that is otherwise impossible can be made licit by the presence of an RC (or various other types of modifier phrase) (Carlson, 1977; Kayne, 1994; Schmitt, 2000).

(5) a. Mary made (*the) headway.

     b. Mary made *(the) headway that John had expected.

(6) a. (*The) Paris has changed forever.

     b. *(The) Paris that I knew has changed forever.

Third, Alexiadou et al. (2000) note that comparative *more*, equative *as* and degree *too* all seem to select different types of clause, i.e. *more … than*, *as … as*, etc. D-CP complementation thus seems to be a more general phenomenon. For more evidence for the D-CP structure, see Salzmann (2014).

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[3] Precursors to this idea can be found in Smith (1964), Chomsky (1965) and Stockwell, Schachter & Partee (1973). For example, Chomsky (1965) proposes that RCs start as complements of D and are then obligatorily extraposed. Alternatively, Sternefeld (2006) proposes that the external determiner is ditransitive, i.e. it takes both the RC head and the RC as complements.

A third type of analysis says that the restrictive modification relation is mediated by a predication head or Relator (Den Dikken, 2006).[4] According to this analysis, the RC (essentially a derived predicate) is the complement of a Relator R (where R is any functional head that can fulfil the function of mediating a predication relation) and the RC head (the element that the RC is predicated of) is in R's specifier. When necessary for concreteness, we will assume that the external determiner takes RP as its complement, i.e. the external determiner scopes over/c-commands the RC head and the RC.

(7) $[_{DP}$ D $[_{RP}$ [RC head] $[_{R'}$ R [RC]]]]

We will not be too concerned with the identity of R, i.e. whether it is a nominal or clausal head, as it does not play a significant role in our analysis (though see Chapter 3, Section 4.4.5.2, for some speculations that R could be a C head, at least in clausal RCs).

3   The relation between the RC head and the gap

The second major issue in the literature concerns how the RC head is related to the RC-internal gap. This issue seems to be far more controversial in the literature and has arguably generated the majority of the discussions within the last 20 years, particularly since Kayne's (1994) revival of the Head Raising analysis. There are essentially three families of approaches, which we call the Head External Analysis (HEA), the Head Raising Analysis (HRA) and the Matching Analysis (MA), following Salzmann (2006, 2014). We stress that these are *families* of approaches; particular analyses may differ in various respects and details, most of which we ignore for the sake of exposition. Reconstruction evidence has come to play a significant role in choosing which type of analysis to adopt. In this section, reconstruction is only mentioned in passing, but given the significance placed on it in the literature, Sections 4 and 5 are dedicated to illustrating and evaluating these effects in detail.

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[4] Bowers (1993) proposes that predication relations are mediated by predication heads, but he does not discuss relativisation.

3.1 Head External Analysis (HEA)

According to the HEA, the RC head is base-generated externally to the RC and there is no RC-internal representation of the RC head apart from an operator.[5]

(8) the man that Mary likes

  the man [Op_i that Mary likes t_i]

The HEA seems to have fallen out of favour, particularly in the literature on English RCs. The main reason for this seems to be evidence from reconstruction and various other effects suggesting that the RC-internal representation of the RC head must be more complex than a simple operator/variable.

3.2 Head Raising Analysis (HRA)

The HRA (aka the Promotion Analysis) says that the RC head originates inside the RC and moves to its surface position. The very first arguments in favour of the HRA involved reconstruction effects (Brame, 1968; Schachter, 1973; Vergnaud, 1974), and reconstruction continues to be considered the strongest evidence for the HRA by many authors.

The HRA has arguably become the dominant approach for English RCs, especially since Kayne (1994) and Bianchi (1999, 2000b), though specific analyses are by no means uniform. Broadly speaking, two major variants seem to have emerged (bearing on the complementation issue from Section 2). In one variant, the RC head ends up in the specifier of a C head (Åfarli, 1994; Aoun & Li, 2003; Bianchi, 1999, 2000a, 2000b; De Vries, 2002; Kayne, 1994; Sauerland, 1998, 2003), i.e. all RCs are effectively internally-headed RCs with variation in the structural height at which the RC head is spelled out. In the second variant, the RC head moves to the clause edge but (re)projects to create a nominal (Bhatt, 2002; Cecchetto & Donati, 2015; Donati, 2006; Donati & Cecchetto, 2011; Iatridou, Anagnostopoulou, & Izvorski, 2001, 2003). These two variants are schematically illustrated in (9).

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[5] This was arguably the mainstream approach in the literature until Kayne's (1994) reintroduction of the HRA. Bhatt (2015: 728-729) notes that the HEA was so widespread in the literature that its origins are obscure. It should also be noted that many authors illustrate RCs using a structure akin to (8) without necessarily or explicitly committing themselves to the HEA (as opposed to the HRA or MA).

(9) a.   the $[_{CP}$ [man]$_i$ that Mary likes t$_i$]

  b.   the $[_{NP}$ [man]$_i$ $[_{CP}$ that Mary likes t$_i$]

The derivations are, in fact, more complicated than this, particularly when relative pronouns are involved. According to virtually all versions of the HRA, *wh*-RCs generate the relative pronoun and the RC head as a constituent inside the RC.[6] This constituent moves to the edge of the clause before the RC head is subextracted, either to the specifier of a higher C head, as in (10a) (Bianchi, 1999, 2000b), or to a higher position where it then reprojects, as in (10b).

(10) a.   the $[_{CP1}$ [book]$_i$ C$_1$ $[_{CP2}$ $[_{DP}$ which t$_i$]$_j$ C$_2$ $[_{TP}$ Mary likes t$_j$]]]

  b.   the $[_{NP}$ [book]$_i$ $[_{CP}$ $[_{DP}$ which t$_i$]$_j$ C $[_{TP}$ Mary likes t$_j$]]]

These sorts of structures can apply to *that*-RCs as well, either by treating *that* as a relative pronoun (see Cecchetto & Donati, 2015; Kayne, 2014; Manzini, 2014), or by having the RC head move through a C-domain position, such as a Topic position (Bianchi, 1999, 2004), prior to reaching its final landing site.

These more articulated structures can account for RC extraposition and RC co-ordination. One of the problems with Kayne's (1994) specific HRA proposal, which is essentially the one illustrated in (9a), is that the RC does not form a constituent to the exclusion of the RC head, which incorrectly predicts that, if the RC is extraposed or co-ordinated, the RC head would be contained in the extraposed or co-ordinated constituent as

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[6] This is potentially problematic. In English, [+human] RC heads can appear with the relative pronoun *who* but not *which*. According to the HRA (and potentially the MA as well), this would require being able to base-generate $[_{DP}$ who man] but not $[_{DP}$ which man], for example. However, in all contexts where a *wh*-determiner appears as a constituent with a [+human] noun, only $[_{DP}$ which man] is permitted, $[_{DP}$ who man] being ungrammatical (Aoun & Li, 2003).

(i) a.   Which man does Mary like?

  b.   *Who man does Mary like?

Aoun & Li (2003) propose that *wh*-RCs are not derived by the HRA, but by the HEA. They claim that *wh*-RCs do not exhibit reconstruction effects, as predicted by the HEA. However, we do not think their claims are empirically correct (see Section 5).

well (Borsley, 1997). In the more articulated structures in (10), however, this can be accounted for if extraposition and co-ordination target CP$_2$ in (10a) and CP in (10b).

3.3   Matching Analysis (MA)

The final family of approaches is the MA (Chomsky, 1965; Citko, 2001; Lees, 1960, 1961; Munn, 1994; Salzmann, 2006, 2014, Sauerland, 1998, 2003). It bears similarities to both the HEA and HRA. Like the HEA, the MA says that the overt RC head is base-generated externally to the RC, i.e. it does not move into its surface position from inside the RC, unlike the HRA. However, unlike the HEA and like the HRA, the MA says that there is a complex RC-internal representation of the RC head, i.e. more than just an operator/variable. This is illustrated schematically in (11) (the RC-internal copies of the RC head are not pronounced).

(11)   the [[man] [$_{CP}$ [man] that Mary likes t$_{man}$]]

We will refer to the RC-external and RC-internal *copies* of the RC head, but note that these copies are not related by movement according to the MA.[7] Instead, they are related by *matching*. This is the core (eponymous) relation in the MA, yet it is arguably the least well understood aspect of MA approaches (see Citko, 2001; Munn, 1994; Salzmann, 2006; Sauerland, 1998, 2003; for specific proposals).[8] We will not be concerned with the details of the matching relation in this thesis, though it is undoubtedly an outstanding challenge.

3.4   Mixed analyses

The standard assumption in the literature is that the MA cannot account for reconstruction effects because the RC head does not originate inside the RC itself (Aoun & Li, 2003; Bhatt, 2002, 2015, Cinque, 2008, 2013; Hulsey & Sauerland, 2006; Sauerland, 1998, 2003). These

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[7] We remain deliberately vague about the label of the constituent containing the RC head and RC since this depends on one's assumptions about the representation of the modification relation (see Section 2).

[8] The matching relation cannot be one of *strict* identity since the external and internal copies of the RC head can differ in Case (Citko, 2001), as in (i).

(i)   The man that Mary likes fled the country.

The RC-external copy of the RC head is nominative (the subject of the matrix clause), but the RC-internal copy of the RC head would be accusative (the direct object of the RC).

authors claim that both the MA and HRA are required in English: the HRA for cases of reconstruction and the MA for cases of anti-reconstruction.

For most of these authors, this means two independent derivations. However, Cinque (2008, 2013) proposes that the HRA and MA are two manifestations of a single underlying structure (seemingly RC-specific (see De Vries, 2014: 517)). The underlying structure is illustrated in (12) (Cinque, 2013: 172):

(12)   the two nice books that John bought

Like the canonical MA, there is an RC-external and an RC-internal copy of the RC head, labelled dP_1 and dP_2 respectively, which are not related by movement. However, note that the C-domain of the RC is located higher than both copies of the RC head. For English, the HRA results from dP_2 (the RC-internal copy of the RC head) moving to $SpecCP_2$, where it is spelled out since it is the highest copy of the RC head. Since it originated inside the RC, we get reconstruction effects (as well as island sensitivity). The MA in English is like the HRA above but with one extra step: dP_1 (the RC-external copy of the RC head) moves to $SpecCP_1$.

dP_1 is spelled out since it c-commands dP_2, and because dP_1 did not originate inside the RC itself, there are no reconstruction effects. Note that this means that dP_2 is not interpreted, though its movement is still responsible for island sensitivity.

On this analysis, we must ensure that PF and LF target the same chain, i.e. either that of dP_1 or that of dP_2, but not both or parts of each. If we did not, the correlation between reconstruction and the HRA, and anti-reconstruction and the MA would be lost. For example, it would possible for PF to interpret dP_1 in $SpecCP_1$ and for LF to interpret dP_2 within the RC resulting in an MA derivation with reconstruction. This is only desirable to the extent that the correlation is correct.

Cinque's (2013) analysis is intended to account for all types of restrictive RC (externally-, internally- and double-headed RCs, post- and pre-nominal RCs, RCs exhibiting reconstruction and anti-reconstruction, RCs exhibiting island sensitivity and those not, etc.). Consequently, there are many more analytic possibilities than the two described above, though only these two are found in English.[9]

If the HRA and MA/HEA are distinct derivations, we expect there to be phenomena sensitive to this distinction. Various authors have claimed that there are. First, Krapova (2010) claims that, in Bulgarian, topic/focus phrases may appear between the RC head and the complementiser *deto* in *deto*-RCs provided that the MA and not the HRA is involved. If the HRA is involved, topic/focus phrases are not allowed at all. Krapova (2010) argues that this supports Cinque's (2008, 2013) analysis where the RC head in the MA is higher than the RC head in the HRA. Second, Szczegielniak (2004) claims that *co/čto*-RCs in Polish and Russian are derived by the HRA, whilst *który/kotoryj*-RCs are derived by the HEA based on the presence/absence of reconstruction effects. He also observes that bare VP ellipsis (described as VP ellipsis where only the subject survives) is only permitted in *co/čto*-RCs, i.e. RCs derived by the HRA.

As for English, Aoun & Li (2003) claim, based on the presence/absence of reconstruction effects, that *that*- and Ø-RCs can be derived via the HRA, but that *wh*-RCs are always derived via the HEA. We take issue with their empirical claims at various points in

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[9] It is not immediately clear how *wh*-RCs or reduced RCs would be analysed on this approach.

this chapter. Hulsey & Sauerland (2006) make a different claim, namely that extraposed RCs do not permit reconstruction, i.e. cannot be derived by the HRA. We postpone discussion of this claim until Section 5.8.2, where we argue that the claimed correlation is considerably weaker than reported and thus does not warrant a difference between the HRA and MA.

We do not discuss the Bulgarian, Polish and Russian data any further here, though they certainly require future consideration given what we argue below. We instead focus on the claims concerning English, arguing that English at least does not support mixed HRA+MA/HEA analyses. In brief, if the HRA and MA both derive RCs, but the HRA involves obligatory reconstruction whilst the MA involves obligatory anti-reconstruction, then the two are predicted to be mutually exclusive. This means that reconstruction and anti-reconstruction are predicted never to occur simultaneously. However, as we will see in Section 5, such cases *do* exist thereby casting serious doubt on mixed analyses of this sort.[10] Furthermore, we argue that the MA *can* in fact account for reconstruction as well as anti-reconstruction effects (see also Citko, 2001; Munn, 1994; Salzmann, 2006, 2014), therefore making mixed analyses of this sort unnecessary.[11]

3.5   HRA vs. MA(/HEA)

The fundamental difference between the HRA and MA lies in how the top-most copy of the RC head gets to its position. In the HRA, we have movement, whilst in the MA, we have base-generation. In this section, we discuss two major problems for the HRA that are avoided on the MA (and the HEA), namely case and locality.

According to the HRA, the RC head originates in the RC. As pointed out by Borsley (1997), we would thus expect the RC head to be case-marked (and theta-marked) according to its position in the RC head. However, on the surface, the RC head is case-marked

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[10] See Henderson (2007) for an attempt to derive the effects of the HRA and MA from a single underlying structure using sidewards movement, i.e. Henderson argues that the MA should be eliminated. However, this analysis would still run into the Case and locality problems intrinsic to the HRA (see Section 3.5).

[11] That is not to say that different analyses may not exist from a cross-linguistic perspective. After all, we might well imagine that there are multiple syntactic paths to achieve the semantics associated with restrictive relativisation. However, this may not be necessary if reconstruction effects are able to be captured by the MA.

according to its position in the matrix clause. English does not show this since case morphology is absent outside the pronominal paradigm, but in other languages this is clear to see. The following example is from Polish (Borsley, 1997: 638):

(13) Widziałem   tego   pana,   który   zbił   ci
      saw-1SG   the-ACC   man-ACC   who-NOM   broke your-SG
      szybę.
      glass-ACC
      'I saw the man who broke your glass.'

In (13), both the external determiner and the RC head are in the accusative case form as expected given their position/role in the matrix clause. However, according to the HRA, the RC head originates as the subject of the RC and so should be marked for nominative case.

A number of HRA proposals have attempted to account for how the RC head gets its case. De Vries (2002), for example, argues that the RC head, an NP, is base-generated in a DP with the relative pronoun. According to De Vries, both D and N have formal features (including φ-features). The formal features of D must be checked otherwise the derivation will crash. De Vries proposes that there are in principle three ways for D's features to be checked.[12]

(14) a. N incorporates into D covertly, i.e. the formal features of N move to D.
      b. N incorporates into D overtly.
      c. NP moves to SpecDP.

Although all three options are possible, De Vries claims they are not all equally economical. Specifically, (14a) is more economical than (14b), and (14b) is more economical than (14c). Crucially, the availability of a more economical derivation blocks the use of a less economical derivation. For example, in a normal English DP, (14a) is available and blocks the less economical options of (14b,c).

For incorporation to be possible, there must be no contradictory features on D and N. If D and N have different Case features, (14a,b) is ruled out, but (14c) is not. Ordinarily,

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[12] Note that a lot of De Vries' (2002) assumptions no longer hold in current theory.

the option in (14c) would eventually result in crash because N's Case feature would remain unchecked, but in RCs under the HRA, N's Case feature may be checked by the external determiner (although as Salzmann (2006: 16) points out, this effectively means that there is a checking configuration unique to RCs).[13]

When all Case features happen to be equal, however, De Vries's system runs into a severe look-ahead problem. De Vries claims that all three options in (14) are available. In English, we would expect (14a) to be picked and to block the other options because it is the most economical. However, if we take this option in an RC-context, the ɸ-features on the external determiner will never be checked against an N. De Vries (2002: 125) thus claims that the option in (14c), although less economical than (14a), is the only surviving derivational option in an RC-context. However, for this to work, the system needs to know it is dealing with an RC-context at the point in the derivation when the options in (14) are being compared in terms of economy. In other words, we can maintain local economy but at the expense of introducing look-ahead. Alternatively, we could compute economy globally but this generally seems to be undesirable (see Collins, 1997).

Bianchi (2000b: 129-130) proposes a different solution to the case problem. Bianchi assumes that being Case-marked is a property of D, and that N morphologically agrees with the D that governs it (this sort of solution also seems to be adopted by Donati & Cecchetto (2011) and Cecchetto & Donati (2015)). As Salzmann (2006: 17) points out, since Bianchi (2000b) analyses *that*-RCs as involving incorporation of D_{rel} (the silent relative pronoun) into the external determiner, D_{rel}'s Case feature must be checked and deleted before incorporation. But as soon as such deletion is permitted, it becomes very difficult to account for the case-matching effects in free relatives (see Citko, 2001). However, it seems that there are ways around this, for example, by treating *that* as a relative pronoun (Cecchetto & Donati, 2015),[14] so this criticism is perhaps not particularly severe.

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[13] Movement of NP to SpecDP checks D's (and N's) ɸ-features and D's Case feature is assumed to be checked by a head in the clausal spine, e.g. AgrO.

[14] See Daskalaki (2008, 2011) for an analysis of case-mismatches in free relatives in terms of K(ase)-stranding, which, if applied to full RCs, would be formally similar in several ways.

The MA (and the HEA), however, do not run into any of these problems because the RC-external copy of the RC head is not Case-licensed in the RC in the first place, although admittedly there are questions about how the RC-external and RC-internal copies of the RC head can differ in Case.

A more severe problem for the HRA involves locality (Bhatt, 2002; Heck, 2005; Salzmann, 2006, 2014). First, there is the issue of subextraction out of a moved element, which is traditionally thought to be opaque to movement (C.-T. J. Huang, 1982). Whilst this view has been weakened somewhat (see, e.g., Collins, 2005a, 2005b; Sheehan, 2013), possessor RCs in English are still problematic. Bhatt (2002: 81) points out that to derive the RC in (15) via the HRA, we would have to postulate a movement that violates the Left Branch Condition (and one that can do so unboundedly).

(15)   the student whose brother's band Jonah likes

         the $[_{CP1}$ [student] C_1 $[_{CP2}$ [[[which $t_{student}$]'s brother]'s band]$_j$ C_2 Jonah likes t_j]]

As Salzmann (2014) points out, a similar point can be made for German. In German, as in many other languages, PPs are islands, i.e. preposition stranding is not permitted. We would thus expect that extraction of the RC head out of a PP would be ruled out. However, examples like (16) are grammatical (Salzmann, 2014: 20).

(16)   der   Mann   mit   dem   ich   geredet   habe
         the   man   with   whom   I   talked   have
         'the man with whom I spoke'

         der $[_{CP1}$ [Mann] $[_{CP2}$ $[_{PP}$ mit $[_{DP}$ dem t_{Mann}]]$_j$ C_2 ich t_j geredet habe]]

One possibility is to say that such examples are not derived by the HRA, i.e. some RCs are derived by the HRA and others by the MA (a mixed analysis). Therefore, such examples may only serve to show that the HRA cannot be adopted as the *only* analysis for RCs in English. The MA or HEA are viable candidates for the alternative analysis of such examples since neither of these analyses involves this locality-violating movement. But then this begs the question of whether we really need the HRA at all. If either the MA or HEA can account for the reconstruction effects that the HRA handles so straightforwardly, the HRA could well be unnecessary. In Section 4 and 5, we argue that the MA can do this whilst also being able to

capture anti-reconstruction, as well as simultaneous reconstruction and anti-reconstruction, thereby making the HRA redundant.

4   The significance of reconstruction

As pointed out above, reconstruction effects have come to play a central role in syntactic analyses of RCs both in English and beyond (Åfarli, 1994; Aoun & Li, 2003; Bhatt, 2002, 2015; Bianchi, 1999; Brame, 1968; Carlson, 1977; Cinque, 2013; Citko, 2001; De Vries, 2002; Fox, 1999; Grosu & Landman, 1998; Hulsey & Sauerland, 2006; Kayne, 1994; Munn, 1994; Safir, 1999; Salzmann, 2006; Sauerland, 1998, 2003; Schachter, 1973; Vergnaud, 1974). But what is reconstruction and what can it tell us?

It may be instructive to distinguish between *reconstruction effects* and *reconstruction*. Reconstruction effects refer to cases where an overt element is interpreted in a lower position, i.e. reconstruction effects are *phenomena*. Reconstruction, on the other hand, typically refers to an *analysis*. Consequently, one's a priori assumptions about how to account for reconstruction effects determines what reconstruction consists of and in, and thus what it is considered to tell us about the way that the RC head is related to the RC-internal gap.[15]

We assume, without discussion, that reconstruction is syntactic (see Fox, 1999). For RCs, this means that reconstruction effects indicate the presence of some RC-internal representation of the RC head, i.e. something more substantive than a simple place-holder trace/variable, thereby automatically ruling out the HEA. The syntactic literature, for the most part, also assumes that reconstruction is intimately tied to movement. In other words, reconstruction effects are taken to show: (i) the presence of an RC-internal representation of the RC head, and (ii) that this representation is a copy in a movement chain headed by the overt RC head. These assumptions are widespread and typically made by proponents of the HRA. In fact, as we saw above, many scholars argue that a mixed analysis of RCs is required since RCs show evidence of reconstruction and anti-reconstruction (see especially Aoun & Li, 2003; Bhatt, 2002, 2015; Cinque, 2013; Hulsey & Sauerland, 2006; Sauerland,

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[15] Reconstruction effects may also be found with (some kinds of) resumptive pronouns in languages beyond English in cases of so-called apparent resumption (see Aoun, Choueiri, & Hornstein, 2001). We do not discuss resumptives in RCs here.

1998, 2003). In other words, the presence of reconstruction effects indicates movement of the RC head (the HRA) and their absence indicates the absence of movement of the RC head (the MA/HEA).

However, it is not clear that tying reconstruction to movement is strictly necessary. What is necessary on a syntactic reconstruction approach is an RC-internal representation of the RC head. Whilst this could be a copy in a movement chain, it could also be an elided element. For example, Guilliot (2008) and Guilliot & Malkawi (2006, 2011) observe that reconstruction for variable binding is possible into strong adjunct islands with weak resumptive pronouns in Jordanian Arabic and French, as in the following examples (Guilliot & Malkawi, 2006: 170):

(17)　Jordanian Arabic

[ṭalib-[ha]$_j$　l-kassul]$_i$　ma　ziʕlat　[wala　mʕalmih]$_j$
student-her　the-bad　NEG　upset.3SF　no　teacher

laʔannuh　l-mudiirah　kaħʃat-uh$_i$/-uh$_i$　hu$_i$　mn　l-madrase.
because　the-principal　expelled.3SF-CL/-CL　he　from　the-school

'Her bad student, no teacher was upset because the principal expelled him from school.'

(18)　French

La　photo$_i$ de　sa$_j$　classe, tu　es　fâché
the　photo of　his　class　you　are　furious

parce que　chaque　prof$_j$　l$_i$'a　déchirée.
because　each　teacher　**it**-has　torn

'The picture of his class, you are furious because each teacher tore **it**.'

On the standard assumption that movement from strong islands is prohibited (*pace* Boeckx, 2003), the reconstruction effect into the strong adjunct island cannot be due to interpretation of a copy in a movement chain. Guilliot & Malkawi (2006, 2011) propose that, when such reconstruction effects are present, the weak pronoun is a determiner with an elided NP complement (see Elbourne, 2001). If this analysis is on the right lines, this provides evidence that reconstruction requires a representation of the reconstructed element, but that this representation need not be a copy in a movement chain.

Returning to RCs, there are indeed some proponents of the MA who claim that it can account for reconstruction effects (Citko, 2001; Munn, 1994; Salzmann, 2006, 2014), meaning that it is not necessary for the overt RC head to be related to its RC-internal representation via movement. We adopt this position in what follows.

5 Reconstruction evidence

In this section, we review and evaluate the reconstruction evidence that has been put forward in the literature on RCs involving idioms, binding, variable binding, scope, amount RCs, superlative adjectives, and antecedent-contained deletion. We will also see evidence for anti-reconstruction in RCs, as well as cases where reconstruction and anti-reconstruction effects occur simultaneously. These empirical facts are hard to capture on traditional approaches to reconstruction. We argue that, overall, the MA is best suited to capturing the full range of (anti-)reconstruction facts.[16]

5.1 Idioms[17]

The argument from idioms goes back to the very earliest HRAs (Brame, 1968; Schachter, 1973; Vergnaud, 1974). The main observation is that the RC head can be interpreted as part of an idiom that is licensed RC-internally. This argument is based on the assumption that idioms are licensed or interpreted in a local configuration (see, e.g., Marantz, 1984; Schachter, 1973; Vergnaud, 1974). Consider the following examples:

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[16] Something that is not generally acknowledged in the reconstruction literature is just how subtle or difficult some of the critical judgements can be. Whilst this may not necessarily be a problem, it does raise questions about how robust the empirical generalisations in the literature are.

[17] As pointed out by de Vries (2002: 78, fn 13), a more accurate term would be *collocation*, as 'true' idioms cannot be split by relativisation. This is illustrated in (i) and (ii) (see also Nunberg, Sag, & Wasow, 1994):

(i)   *The bucket that Mary kicked yesterday was kicked by John last week.
        (Intended: 'Mary died yesterday and John died last week.')

(ii)   *The Z's that I was catching didn't last long.
        (Intended: 'The nap that I was taking didn't last long.')

However, we continue to use the term *idiom* as it is far more widespread.

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(19)   a.   Mary could see the headway [that John had made].

       b.   Bill appreciated the strings [that Sue pulled to get him the job].

The relevant idioms are *make headway* 'make progress' and *pull strings* 'use one's influence'. Assuming that these interpretations are licensed in a local configuration, i.e. assuming that *headway* and *strings* are interpreted in the complement position of *make* and *pull* respectively, (19) shows that the RC head can be interpreted RC-internally. If the RC-internal representation of the RC head were a trace or simple operator, it would be unclear how the relevant reading is licensed. These facts thus speak against the HEA. This is the general conclusion of the reconstruction literature as far as idioms are concerned.

What is less widely acknowledged is that the RC head may be licensed as part of an idiom in the matrix clause (McCawley, 1981). Consider the following examples:

(20)   a.   Mary made the headway [on which the team's success was built].

       b.   Parky pulled the strings [that got me my job].   (McCawley, 1981: 137)

(20) suggests that the RC head does not have to reconstruct, i.e. reconstruction is not obligatory. If it were, we would not expect the idiom to be licensed as the RC head would not be interpreted in a local configuration with the necessary predicate in the matrix clause. For some, the lack of reconstruction effects in (20) would be taken to indicate either that the RC head has not raised from an RC-internal position or that there is no RC-internal representation of the RC head (other than a trace or variable). For others, (20) could well have an RC-internal representation of the RC head, but it is simply not interpreted at the interfaces.

Even less widely acknowledged is the fact that the RC head may be licensed as part of an idiom in the matrix clause and in the RC simultaneously.

(21)   They made the headway [that they had hoped to make].   (Bhatt, 2015: 732)

The RC head *headway* is licensed by *make* in both the RC and in the matrix clause. This suggests that reconstruction both occurs and does not occur simultaneously. This is seriously problematic for the idea that reconstruction indicates the raising analysis and lack of reconstruction indicates the matching analysis (Aoun & Li, 2003; Bhatt, 2015; Cinque,

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2013; Hulsey & Sauerland, 2006; Sauerland, 1998, 2003), since, according to this idea, these two analyses are supposed to be in complementary distribution.

Finally, Aoun & Li (2003) claim that *wh*-RCs in general do not permit reconstruction.[18] In the context of idioms, this means that, if an RC head must reconstruct into the RC for idiom interpretation, the RC cannot be a *wh*-RC. However, if the RC head is licensed for idiom interpretation in the matrix clause, a *wh*-RC is acceptable. They provide the following examples (and judgements) illustrating this contrast (Aoun & Li, 2003: 110-111):

(22) a. ??The careful track which she's keeping of her expenses pleases me.

　　　b. ??The headway which Mel made was impressive.

　　　c. ??I was offended by the lip service which was paid to the civil liberties at the trial.

(23) John pulled the strings which got Bill the job.　　　　　　(see also (20a) above)

However, (22b) and (22c) may also be counted as amount RCs (see Section 5.5), and amount readings are generally said to be incompatible with *wh*-RCs (Aoun & Li, 2003; Carlson, 1977). This leaves (22a) as the only example showing that *wh*-RCs do not permit reconstruction for idiom interpretation specifically and, according to our judgements at least, (22a) seems far more acceptable than (22b) and (22c). We have also found the following example from a Google search:

(24) He was noted for the careful track [which he kept of his cases].[19]

We conclude that reconstruction for idiom interpretation into *wh*-RCs is permitted and that Aoun & Li's strongest evidence (examples like (22b) and (22c)) actually shows that *wh*-RCs do not permit reconstruction for amount interpretations.

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[18] However, they note that this only seems to be true for some speakers (Aoun & Li, 2003: 244, note 15).

[19] The Pittsburgh Daily Post (Saturday 27th November, 1915, page 6):
 https://www.newspapers.com/newspage/86481704/

To summarise, the RC head can be licensed for idiom interpretation RC-internally (reconstruction), RC-externally (anti-reconstruction), or both simultaneously. This last point was especially problematic for mixed analyses, where the HRA and MA are assumed to be mutually exclusive.

5.2   Binding

The arguments from binding concern the classical Binding Conditions A and C (Chomsky, 1981).[20] Such arguments are extremely common but also problematic in many ways, as has been pointed out repeatedly in the literature. Nonetheless, they continue to be widely used and cited as examples of (anti-)reconstruction effects.

Unlike the idiom evidence, the evidence and arguments from binding typically involve modifiers of the RC head, not the RC head itself (though see Section 5.2.3). The traditional assumption is that, if we find reconstruction effects for the modifiers of the RC head, the RC head must also be reconstructed. Conversely, if we find anti-reconstruction effects for the modifiers of the RC head, the RC head is also thought not to be reconstructing. We return to this assumption and related empirical issues in more detail in Section 5.8.1.

5.2.1   Condition A

The standard English example involving Condition A is one like the following:

(25)   the picture of himself$_i$ [that John$_i$ likes]

The standard claim (see, e.g., Aoun & Li, 2003; Kayne, 1994) is that (25) shows reconstruction of the RC head and its modifier because *himself* (assumed to be an anaphor subject to Condition A) is felicitously co-referential with (i.e. bound by) the RC subject *John*.

However, this sort of evidence has been challenged. In brief, the two main challenges are as follows: (i) English reflexives in *picture*-NP contexts behave more like logophors than anaphors and so are not subject to Condition A, thereby avoiding the need for reconstruction; and (ii) *picture*-NPs in some contexts may contain an implicit PRO

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[20] Condition B seems to play much less of a role in the traditional literature.

meaning binding effects may be determined within the RC head independently of whether reconstruction takes place or not.

Turning to the first challenge, it has been observed that –*self* forms in *picture*-contexts (among others) in English do not behave like regular anaphors (Pollard & Sag, 1992; Reinhart & Reuland, 1993). First, such reflexives or reciprocals are not subject to Condition A since they can be felicitously bound across intervening subjects in English, and second, it does not seem to be necessary for the binder to c-command the reflexive, as shown in the following examples (Salzmann, 2006: 24):

(26)   a.   **Bill**$_i$ remembered that the Times had printed a picture of **himself**$_i$.

       b.   **Bill**$_i$ thought that nothing could make a picture of **himself**$_i$ in the Times
            acceptable to Sandy.

       c.   **The men**$_i$ knew that there were pictures of **each other**$_i$ on sale.

(27)   a.   **Her**$_i$ pleasant smile gives most pictures of **herself**$_i$ an air of confidence.

       b.   This is the picture of **herself**$_i$ that was most to **Mary**$_i$**'s** taste.

In these instances, the reflexives seem to be logophors rather than anaphors (Reinhart & Reuland, 1993). Based on these considerations, examples like (25) cannot be used as evidence for reconstruction, at least in English.

In other languages, such examples may be more appropriate as the reflexives at issue are genuine anaphors subject to Condition A. Hence, Bianchi (1999: 115ff) uses Italian data, where logophors and anaphors are distinct, to make the point that the English data are traditionally intended to make. For example, Bianchi shows that Italian *proprio* 'one's own' is a possessive anaphor that cannot be used logophorically, as in (28). When contained inside an RC head, it can undergo reconstruction and be bound by the RC subject, as in (29). (28) and (29) are from Bianchi (1999: 117).

(28)   *Questo   è   il   proprio$_i$ contributo   al   volume

       this   is   the   his.own   contribution   to.the volume

       [di   cui   Gianni$_i$ è   il   curatore].

       of   which   Gianni is   the   editor

       'This is his own contribution to the volume of which Gianni is the editor.'

(29) ?Questi   sono   i   contributi   al   proprio$_i$ volume

these   are   the   contributions to.the his.own   volume

[dei   quali   Gianni$_i$ è   soddisfatto].

with   which Gianni is   satisfied

'These are the contributions to his volume that Gianni is satisfied with.'

A second problem relates to the transitivity of the RC head (Bianchi, 1999; Cecchetto, 2005). The potential confound relates to the potential presence of an implicit PRO in *picture*-nominals. If this PRO can bind the anaphor, binding will succeed regardless of whether reconstruction takes place or not. Bianchi (1999), Cecchetto (2005) and Salzmann (2006) avoid the problem entirely by using RC heads which are incompatible with PRO, as in (30) (Bianchi, 1999: 119; Salzmann, 2006: 27):

(30) Il   poeta descrive   il   riflesso   di   se stesso$_i$

the   poet described   the   reflection   of   himself

[che Narciso$_i$ vide   nella   fonte].

which Narcissus   saw   in.the fountain

'The poet describes the reflection of himself$_i$ that Narcissus$_i$ saw in the fountain.'

Assuming that *riflesso* 'reflection' only has a single theta-role to assign, there can be no PRO in addition to the anaphor. The anaphor must therefore undergo reconstruction into the RC to be bound by the RC subject.

In idioms such as *take a picture*, it has been claimed that PRO is present inside the *picture*-nominal (Chomsky, 1986b; Williams, 1985). This captures the fact that reflexives and pronouns in *picture*-contexts *are* in complementary distribution (Salzmann, 2006: 26-27).

(31) a.   John$_i$ took [a PRO$_i$ picture of *him$_i$/himself$_i$].

b.   John$_i$ painted [a PRO$_i$ picture of *him$_i$/himself$_i$].

c.   John$_i$ told [a PRO$_i$ story about *him$_i$/himself$_i$].

d.   John$_i$ has [a PRO$_i$ favourable opinion of *him$_i$/himself$_i$].

e.   John$_i$ spread [a PRO$_i$ rumour about *him$_i$/himself$_i$].

Co-indexation with PRO results in satisfaction of Condition A but violation of Condition B, hence the complementary distribution of anaphors and pronominals in these contexts.

Salzmann (2006) suggests that when such nominals are relativised, reconstruction of the RC head is required, not for binding purposes, but to ensure that PRO is controlled by a c-commanding controller. He notes that, if this is correct, such examples are probably better assimilated to the idiom cases.

(32)   the PRO_i picture of $himself_i$ [that $John_i$ took]

In (32), the anaphor is bound by PRO (and so reconstruction plays no role in the satisfaction of Condition A in such contexts), but the RC head still reconstructs so that *John* c-commands and controls PRO.[21]

Other languages which show reconstruction for Condition A and avoid the potential pitfalls present in English are Norwegian (Åfarli, 1994), Dutch (De Vries, 2002) and German (Salzmann, 2006).

An anaphor in the modifier of an RC head can also be bound by an antecedent in the matrix clause. This suggests that reconstruction is not obligatory; if it were, Condition A would not be satisfied. English is not a particularly good test case for the reasons discussed above. However, German, which allows reconstruction for Condition A, clearly permits anti-reconstruction for Condition A as well (Salzmann, 2006: 117):

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[21] Aoun & Li (2003: 111-112) claim that reconstruction is impossible when a *wh*-RC is used (though recall footnote 18).

(i)   a.   The picture of $himself_i$ (that) $John_i$ painted in art class is impressive.

        b.   The picture of $himself_i$ (that) $John_i$ likes best is impressive.

(ii)   a.   *[?]The picture of $himself_i$ which $John_i$ painted in art class is impressive.

        b.   *[?]The picture of $himself_i$ which $John_i$ likes best is impressive.

We do not find any such contrast (both (i) and (ii) are fully acceptable). In fact, given the difficulties associated with English reflexives in *picture*-NP contexts discussed above, and given what we concluded about reconstruction for idiom interpretation, it is not clear why Aoun & Li's (2003) reported correlation should hold.

(33)   Schicken   Sie$_i$ uns   ein   Foto   von   sich$_i$,   [das   beweist,

send   you   us   a   picture of   self   which proves

dass Sie   ein   wahrer   Ferrari-Anhänger   sind].

that you a   true   Ferrari-fan   are

'Send us a picture of yourself which proves that you are a true Ferrari-fan.'

In German, *sich* is an anaphor subject to Condition A. It is bound in the matrix clause by *Sie* 'you'. If the RC head and its modifier underwent reconstruction, *sich* would be too far from its antecedent and Condition A would not be satisfied. Therefore, reconstruction is not obligatory.

Whilst testing certain examples with native-English informants, we found a surprising result. All of our informants (including both (syntactician) linguists and non-linguists) completely rejected examples of the following form:

(34)   *Mary likes the picture of himself$_i$ that John$_i$ hates.

Regardless of how one thinks *himself* is licensed, all theories we are familiar with predict this example to be grammatical. This example would suggest not only that reconstruction is not obligatory, but that it is impossible. If it were at all possible, we would expect *John* to be able to bind *himself*. This is at odds with the other evidence we have reviewed so far. We suggest that (34) is grammatically well-formed but ruled out for processing/parsing reasons. More specifically, we suggest that there is a processing/parsing preference to try and bind *himself* with a matrix antecedent even though this is clearly inappropriate with respect to gender. Our reasons for thinking this are twofold. First, when the 'potential' matrix antecedent does not match in number or person, the result is judged to be much better.

(35)   a.   Mary and Sue like the picture of himself$_i$ that John$_i$ hates.

          b.   You like the picture of himself$_i$ that John$_i$ hates.

This seems to be consistent with findings from the processing literature on anaphora resolution where person and number pattern together and differently from gender in terms of effects on processing time (see, e.g., Carminati, 2005; Clackson & Heyer, 2014).

Second, when there is no potential matrix antecedent at all, for example, when the RC head is the matrix subject, the result is fine.

(36)   The picture of himself$_i$ that John$_i$ hates is liked by Mary.

If nothing else, these examples highlight the need for caution when testing for reconstruction effects.

To summarise, English evidence purporting to show reconstruction of the modifier of the RC head for binding (Condition A) is problematic in a number of ways and so may not offer particularly reliable evidence. Evidence from other languages, however, shows that such reconstruction is possible without being obligatory.

5.2.2   Condition C

The standard English example involving Condition C is one like the following:

(37)   a.   the picture of John$_i$ [that he$_i$ likes]
          b.   the pictures in John$_i$'s office [that he$_i$ likes best]

The standard claim is that reconstruction does not take place, i.e. we have anti-reconstruction. If reconstruction occurred, the R-expression in the RC head would be c-commanded and bound by a co-indexed element, resulting in a Condition C violation. It apparently makes no difference whether the R-expression is part of an argument or adjunct attached to the RC head; both are fully acceptable.

Interestingly, *wh*-questions seem to be different in this respect and to exhibit an adjunct/argument asymmetry (Citko, 2001; Munn, 1994; Salzmann, 2006; Sauerland, 1998, 2003). Thus, compare (37) with (38).

(38)   a.   *Which picture of John$_i$ does he$_i$ like?
          b.   Which pictures in John$_i$'s office does he$_i$ like best?

The standard claim is that, when the R-expression is contained in an argument, as in (38a), there is a Condition C violation but, if the R-expression is contained in an adjunct, as in (38b), there is not. This is often interpreted in terms of late-merger of adjuncts (Freidin, 1986; Lebeaux, 1990). On a copy theory approach, this means that there is actually no copy

of the adjunct in the base-position of the *wh*-phrase, hence no chance of reconstruction of the adjunct and hence no Condition C violation. Arguments, on the other hand, cannot undergo late-merger so there will be a copy of the argument in the base-position of the *wh*-phrase.[22] Furthermore, reconstruction in such cases is obligatory; if it were optional, we would expect it to be possible to avoid a Condition C violation by not reconstructing.[23]

The argument/adjunct asymmetry seen in *wh*-questions seems to emerge in RC contexts when the R-expression is contained in the operator phrase (rather than in the RC head) (Safir, 1999: 600; Salzmann, 2006: 33). The examples in (39) are from Safir (1999: 600).

(39)   a.   *[?]I always respect a journalist [whose depiction of Jesse$_i$ he$_i$ objects to].

         b.   The guys [whose pictures in Sam$_i$'s office I am sure he$_i$ is most proud of] are the guys from his home town.

Assuming that the judgements are robust, (39a) suggests that arguments inside the operator phrase undergo obligatory reconstruction (just like arguments inside the *wh*-phrase in *wh*-questions) but that arguments inside the RC head do not. This contrast is somewhat puzzling on the HRA where the RC head is thought to head an A'-chain. If, as in

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[22] Thoms (2010) argues that reconstruction of the *wh*-phrase is actually to SpecvP (the intermediate landing site of *wh*-movement) rather than to the base position of the *wh*-phrase. Since the co-indexed pronoun is a (non-quantified) subject (which does not reconstruct because it is not a quantifier in accordance with Thoms' Scope Economy-based theory of reconstruction), a Condition C violation is expected. When the co-indexed pronoun is vP-internal, however, Thoms' theory predicts that Condition C violations will not exist. This prediction is borne out (Thoms, 2010: 3):

(i)   a.   Which of Tam$_i$'s assignments did Morag help him$_i$ with?

        b.   Which of Tam$_i$'s friends did you introduce him$_i$ to (at high school)?

        c.   Which of Tam$_i$'s mistakes did the teacher punish him$_i$ for?

[23] It should be pointed out that there is quite a bit of judgement variation on many of these points. Not all speakers find such a (strong) contrast between RCs and *wh*-questions, and not all speakers find such a (strong) contrast between adjuncts and arguments (see Safir, 1999: 609). In fact, in nominal contexts, the contrast between arguments and adjuncts in general is notably weaker (if it exists at all) compared to verbal contexts, leading some to argue that nominal 'arguments' are in fact adjuncts (see, e.g., Adger, 2013; Cecchetto & Donati, 2015).

wh-questions, the head of the A'-chain and its arguments obligatorily reconstruct, we would expect obligatory reconstruction of the RC head and its arguments as well, but this is not what we find.

Returning to the issue of R-expressions contained in modifiers of the RC head, there have been several attempts to account for the absence of Condition C effects. One approach is to say that these data show that reconstruction is optional, i.e. both reconstruction and anti-reconstruction are possible (Aoun & Li, 2003; Citko, 2001; Munn, 1994; Sauerland, 1998, 2003). For some authors, this means that there are two potential syntactic derivations for RCs available, one permitting reconstruction and one not (Aoun & Li, 2003; Sauerland, 1998, 2003). For others, there is a single derivation with reconstruction or anti-reconstruction being determined according to which copies are interpreted at LF (Citko, 2001; Munn, 1994; Sportiche, 2016). The idea that reconstruction is optional is certainly compatible with the other evidence we have seen already.

Another approach is to say that R-expressions do reconstruct into the RC but that they undergo Vehicle Change (i.e. they are turned into pronouns) and so become subject to Condition B (Safir, 1999; Salzmann, 2006) (see also Sauerland, 2003).

A third approach is to say that R-expressions are contained in modifiers that are late-merged (Thoms & Heycock, 2014), or even that all modifiers of the RC head are late-merged (Cecchetto & Donati, 2015; Donati & Cecchetto, 2011). If all modifiers are late-merged, cases of reconstruction must be handled by semantic reconstruction as, on this approach, there would be no RC-internal representation of such modifiers in the narrow syntax. If only modifiers containing elements that are not interpreted RC-internally are late-merged, we would expect no correlation between reconstruction of the RC head and reconstruction of its modifiers, since the modifiers could always be late-merged.[24] Furthermore, this sort of approach would need separate mechanisms for anti-reconstruction of the RC head and anti-reconstruction of the RC head's modifiers, which is arguably an undesirable redundancy.[25]

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[24] See Section 5.8.1 for more detailed discussion.

[25] Donati & Cecchetto (2011) and Cecchetto & Donati (2015) avoid this since they claim that the RC head obligatorily reconstructs (see Section 5.2.3).

5.2.3 A note on Condition C and Strong Crossover

Evidence concerning Condition C reconstruction typically involves R-expressions contained inside modifiers (arguments or adjuncts) of the RC head. From this evidence, we conclude that reconstruction is optional, as in (37). However, the picture apparently changes when the relevant R-expression is the RC head itself. Consider the following data:

(40)   a.   *the professor$_i$ [who$_i$ he$_i$ always praises]

        b.   *the professor$_i$ [that he$_i$ always praises]

        c.   *the professor$_i$ [he$_i$ always praises]

(41)   a.   *the cat$_i$ [which$_i$ it$_i$ is licking]

        b.   *the cat$_i$ [that it$_i$ is licking]

        c.   *the cat$_i$ [it$_i$ is licking]

These examples very clearly show a strong crossover (SCO) effect. The RC head (or the relative pronoun/operator (see Safir, 1986)) cannot be co-indexed with any RC-internal element c-commanding the gap. It is very common in the literature to assimilate SCO and Condition C (see Chomsky, 1981). In other words, it is commonly said that SCO examples involve obligatory reconstruction of the *wh*-element (an R-expression) to its base position. From here it is bound by a c-commanding element in violation of Condition C.

In the case of RCs, this approach would suggest that the relative pronoun/operator (or RC-internal copy of the RC head) undergoes obligatory reconstruction in the RC. Cecchetto & Donati (2015) interpret such evidence as suggesting that reconstruction of the RC head is obligatory and hence an argument in favour of the HRA.

However, there are problems with assimilating SCO and Condition C violations under reconstruction. Büring (2005) observes that a topicalised pronoun can be bound from a higher clause, but embedding a full nominal phrase in the pronoun's trace position yields a canonical Condition C violation. He provides the following Danish examples (Büring, 2005: 174):

(42) a. Henrik/han   tror   at   ham   kunne ingen lyve   over   for t$_{ham}$.

        Henrik/he   thinks that him   could no-one lie   over   for

        'Henrik/he thinks that him, nobody could lie to.'

    b. *Henrik/han tror   at   her   kunne ingen lyve   over   for Henrik.

        Henrik/he   thinks that here   could no-one lie   over   for Henrik

        'Henrik/he thinks that here, no one could lie to Henrik.'

In (42a), the embedded topicalised pronoun can be bound or co-referent with an R-expression or pronoun in the matrix clause. However, if the topicalised pronoun leaves behind a *wh*-trace (an R-expression), we would expect this to violate Condition C because it is co-referent with the R-expression/pronoun in the matrix clause, analogous to the Condition C violation in (42b). On the basis of the contrast in (42), Büring (2005) concludes that traces of *wh*-movement are probably not subject to Condition C and, consequently, that SCO and Condition C should not be assimilated.[26]

Further evidence against assimilating SCO and Condition C comes from comparing examples like (40) and (41) with our idiom examples. Recall that the RC head may be licensed as part of an idiom in the RC, i.e. the RC head can reconstruct, as in (43a). However, we also saw that the RC head may be licensed as part of an idiom in the matrix clause, suggesting that reconstruction of the RC head is not obligatory, as in (43b).

(43) a.   The strings [that John pulled] got Bill the job.
    b.   John pulled the strings [that got Bill the job].

The examples in (40) and (41) on the other hand suggest that there is obligatory reconstruction. If it were possible not to reconstruct, we would expect no SCO or Condition C violation. The data from idiom licensing very strongly suggests that the content of the nominal does not need to be interpreted inside the RC. But Condition C seems to require the content of the nominal to be interpreted. We thus seem to have a contradiction.

Therefore, either our ideas about idiom licensing have to change, or SCO is not derived from Condition C. We will pursue the latter option, but can offer only some

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[26] Büring (2005: 174) leaves open what the correct analysis of SCO should be.

speculative remarks on how SCO might be derived. With regards to Weak Crossover (WCO), it has been suggested that WCO is a semantic effect (see, e.g., Büring, 2005; Ruys, 2000; Sauerland, 1998; Van Urk, 2015a). Van Urk (2015a: 37ff), for instance, proposes that A'-movement always creates an abstraction over choice functions and that pronouns denote variables over individuals (ignoring the issue of resumptives). If this is correct, A'-movement cannot serve to bind a pronoun to the *wh*-phrase because choice function abstraction is of the wrong type to bind an individual variable. Suppose that something similar happens with SCO. A'-movement of the *wh*-phrase creates an abstraction over choice functions. The gap position thus contains a variable over choice functions. However, if we want to co-index the gap with a c-commanding R-expression or pronoun, the gap needs to be interpreted as an individual. But if the gap is interpreted as an individual, it cannot also be interpreted as a variable over choice functions. On this account, SCO is a failure to establish any co-indexation relation at all between the trace of movement and a c-commanding antecedent.[27]

To summarise, we tentatively suggested that SCO and Condition C should not be assimilated, i.e. SCO does not rely on Condition C. This allows us to maintain the idea that reconstruction of the RC head is possible but not obligatory.

5.3   Variable binding

The basic observation is that RC-internal quantifiers can bind a pronoun embedded in a modifier of the RC head, provided that the RC-internal quantifier c-commands the RC-internal gap. The following examples are from Safir (1999: 613):

(44)   a.   The picture of his_i mother [that every $soldier_i$ kept wrapped in a sock] was not
              much use to him.
         b.   John generally has an opinion of his_i book [that every $novelist_i$ respects].
         c. $^{??}$John generally has an opinion of his_i book [that is useful to every $author_i$].

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[27] This proposal is tentative and makes a close connection between WCO and SCO. An account of the differences between SCO and WCO would take us too far afield. Differences include the difference in the strength of the effect; the fact that SCO, but not WCO, is found in cases of Weakest Crossover; and the fact that some languages, e.g. German, seem to exhibit SCO but not WCO (see Büring, 2005: 173).

In (44a) and (44b), reconstruction of the RC head allows the pronoun in the RC head to be variable bound by the RC-internal quantifier. In (44c), the RC head would reconstruct to the subject position of the RC. However, it would not be c-commanded by the RC-internal quantifier, so the variable binding reading is unavailable (or highly degraded). This observation also holds for Norwegian (Åfarli, 1994), Italian (Bianchi, 1999), Mandarin (Aoun & Li, 2003) and German (Salzmann, 2006).

As pointed out by Bhatt (2015: 734), Sharvit (1999) observes that an RC-internal subject quantifier can bind a variable in the matrix predicate, which potentially weakens the idea that reconstruction is responsible for the bound variable readings in (44a) and (44b).

(45)   The picture of himself$_i$ that everybody$_i$ likes is gracing his$_i$ homepage.

It has also been noted that the RC subject quantifier must be able to scope over the external determiner of the RC, which is generally thought not to reconstruct (Hulsey & Sauerland, 2006: 121).

(46)   The picture of himself$_i$ [that everybody$_i$ sent in] annoyed the teacher.

Hulsey & Sauerland (2006) note that, if the RC head (but not the external determiner) is reconstructed into the RC, the interpretation should be one where there is a unique picture that everybody sent in, e.g. a class photo with every individual student on it. However, the most salient interpretation is one where everybody sends in a different picture, namely the one showing himself and no others. This suggests that *everybody* quantifier raises out of the RC to scope over the external determiner *the*. Quantifier raising (QR) of an RC-subject quantifier has also been proposed for Mandarin based on scope data (Aoun & Li, 2003: 134ff) (see Section 5.4).

However, such QR only applies to RC subject quantifiers. If any RC-internal quantifier could quantifier raise out of the RC, we would expect (44c) to exhibit a bound variable interpretation, which it does not. Therefore, examples involving a non-subject RC-internal quantifier, as in (47) (Sauerland, 2003: 21), are more reliable for showing that reconstruction can be responsible for bound variable interpretations.

(47)   The letters by him$_i$ to her$_j$ [that John$_i$ told every girl$_j$ to burn] were published.[28]

In (47), the RC-internal quantifier is a direct object and the RC head reconstructs to the direct object position of *burn*. In this position, it is c-commanded by the RC-internal quantifier and the bound variable interpretation is licensed.

Another interesting observation of Safir's (1999) concerning variable binding is that the modifiers of the RC head seem to exhibit the same pattern of variable binding as the modifiers of the operator phrases in RCs. Furthermore, both seem to show the same argument/adjunct asymmetry. Consider the following examples (Safir, 1999: 602):

(48)   a.   *I respect any writer [[whose depiction of everyone$_i$] he$_i$ will object to].

        b.   *$^?$I respect any writer [[whose depiction of everyone$_i$] his$_i$ mother surely wouldn't recognise].

        c. $^?$I respect any writer [[whose depiction of everyone$_i$] will offend him$_i$].

Safir (1999) claims that (48a) is an SCO violation, (48b) a WCO violation, and that (48c) is acceptable.[29] In these cases, the modifier of the operator phrase, i.e. *of everyone*, is an argument of *depiction*. If the modifier of the operator phrase is an adjunct, the results are much better (Safir, 1999: 602-603):

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[28] Sauerland contrasts this sentence with that in (i) to argue that reconstruction for variable binding can feed a Condition C violation.

(i)   *The letters by John$_i$ to her$_j$ [that he$_i$ told every girl$_j$ to burn] were published.

However, we find no such contrast: (i) seems on a par with (47) (see the discussion of RC head modifiers in Section 5.8.1).

[29] Though recall the discussion in Section 5.2.3 on SCO and Condition C.

(49) a. $^?$Can you think of a single politician [[whose picture in any civil servant's$_i$ office] he$_i$ is truly proud of]?

b. $^?$I can think of several politicians [[whose picture in any civil servant's$_i$ office] his$_i$ job depends upon].

c. $^?$There is at least one politician [[whose picture in any civil servant's$_i$ office] shows he$_i$ is a Republican.

In (49), the modifier of the operator phrase, i.e. *in any civil servant's office*, is an adjunct. The argument/adjunct asymmetry can be accounted for if adjunct modifiers can be late merged (Lebeaux, 1990).

Interestingly, exactly the same pattern is found with respect to modifiers of the RC head (compare these cases with the cases in Section 5.2.2 concerning R-expressions: R-expressions and quantifiers behave differently in this respect, at least according to Safir (1999)).[30] An argument modifier can be a nominal complement, as in (50) (Safir, 1999: 611), or a possessor, as in (51) (Safir, 1999: 612). These exhibit the same SCO and WCO effects. If the modifier is an adjunct, as in (52) (Safir, 1999: 612), SCO and WCO effects are absent.

(50) a. *Pictures of anyone$_i$ [which he$_i$ displays prominently] are likely to be attractive ones.

b. *$^?$Pictures of anyone$_i$ [that his$_i$ agent likes] are likely to be attractive.

c. Pictures of anyone$_i$ [which put him$_i$ in a good light] are likely to be attractive ones.

d. Pictures of anyone$_i$ [that please his$_i$ agent] are likely to be attractive.

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[30] In order to capture the difference between R-expressions and quantifiers, Safir (1999) proposes an extension of the vehicle change mechanism to A'-chains in general. As Safir shows, vehicle change can apply to R-expressions (turning them into pronominals) but cannot apply to quantifiers. As Salzmann (2006) points out, Safir's judgements differ in several respects from the standard literature's and, if the standard judgements are considered, Safir's proposal seems to overgenerate.

(51) a. *Anyone's$_i$ pictures [which he$_i$ displays prominently] are likely to be attractive ones.

b. *$^?$Anyone's$_i$ pictures [that his$_i$ agent likes] are likely to be attractive ones.

c. Anyone's$_i$ pictures [which put him$_i$ in a good light] are likely to be attractive ones.

d. Anyone's$_i$ pictures [that please his$_i$ agent] are likely to be attractive ones.

(52) a. Pictures on anyone's$_i$ shelf [which he$_i$ displays prominently] are likely to be attractive ones.

b. Pictures on anyone's$_i$ shelf [that his$_i$ agent likes] are likely to be attractive.

c. Pictures on anyone's$_i$ shelf [which put him$_i$ in a good light] are likely to be attractive ones.

d. Pictures on anyone's$_i$ shelf [that please his$_i$ agent] are likely to be attractive.

As Bhatt (2015) points out, these facts can be accounted for on the HRA by saying that the RC head and its modifiers undergo obligatory reconstruction, and on the MA by saying that the RC-internal copy of the RC head undergoes obligatory reconstruction. What these facts clearly show is that the RC-internal representation of the RC head must have content, i.e. it cannot be an empty operator. These facts thus speak against the HEA, and in favour of the HRA and MA.

However, whilst these examples suggest that both the RC head and the operator phrase (and any argument modifiers) undergo obligatory reconstruction, other evidence suggests that reconstruction is not obligatory. Citko (2001: 135) provides the following examples involving quantifiers and negative polarity items (NPIs):

(53) a. Nobody found a picture of anyone that everybody liked.

b. Mary didn't throw away pictures of anyone that everybody wanted to have.

Following Linebarger (1980, 1987), Citko assumes that NPI-licensing is subject to the Immediate Scope Constraint. This is stated in (54) (Linebarger, 1987: 338).

(54)   *Immediate Scope Constraint*

A negative polarity item is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negation operator. An operator is in the immediate scope of NOT only if (i) it occurs in a proposition that is the entire scope of NOT, and (ii) within this proposition there are no logical elements intervening between it and NOT.

If the examples in (53) involved obligatory reconstruction of the RC head and its modifier, the RC subject quantifier *everybody* would intervene between NOT and the NPI in violation of the Immediate Scope Constraint. We would thus expect (53) to be ungrammatical, contrary to fact. Therefore, reconstruction cannot be obligatory.

5.4   Scope

The argument from scope involves a quantifier/determiner of the RC head being reconstructed into the RC, typically below an RC-internal quantifier. This can be seen in examples like the following:

(55)   I phoned the two patients that every doctor will examine tomorrow.

$2 > \forall; \forall > 2$

(55) is ambiguous: either the numeral *two* scopes over the universal quantifier *every* (this is the surface scope and means the number of patients I phoned is two), or the numeral *two* scopes below the universal quantifier *every* (this is the inverse scope, which yields a distributive reading, i.e. if there are three doctors in context, the number of patients I phoned is six).

However, there are various complications with examples like (55) and there are other facts to consider before we can conclude that the presence of inverse scope readings are due to reconstruction.

First, the external determiner does not reconstruct. In (55), if *the* reconstructed with the RC head, we would not expect the distributive reading (this reading is unavailable in (56)).

(56)   Every doctor will examine the two patients tomorrow.

$2 > \forall$; $*\forall > 2$

The same point can also be seen from the fact that the RC-internal gap can appear in positions requiring an indefinite.

(57)   a.   the man that there was in the garden

        b.   *There was the man in the garden.

        c.   There was a man in the garden.

(56) and (57) only show that the external determiner does not have to reconstruct. Evidence that it cannot reconstruct comes from examples like (58).

(58)   every girl that Mary saw

$\forall x$ [girl(x) $\land$ Mary saw x]

The quantifier *every* can only be interpreted as taking scope over the RC head and RC. It cannot take scope inside the RC. Furthermore, in contrast to (55), if the numeral *two* does not co-occur with a higher quantifier or determiner, it cannot reconstruct.

(59)   I phoned two patients that every doctor will examine tomorrow.

$2 > \forall$; $*\forall > 2$

These facts suggest that the outermost determiner or quantifier is truly external to the RC, i.e. there is no RC-internal representation of it.

More generally, there is a distinction between so-called Type I and Type II determiners (Aoun & Li, 2003: 108; Carlson, 1977: 525):

(60)   Type I and Type II determiners

Type I	Type II
the forty men	*ten many people
these few insects	*few several incidents
every ten minutes	*lots of many boys
any five cigars	*many twelve pounds
all fifty Vikings	*a several clods
what few remarks	*some eight mammals
-er many bottles	*a few ten oboes
these two answers	*several many ladies
these five criminals	*most nine squids
my many dreams	*each fifty minutes

Type II determiners cannot co-occur with a number expression, unlike Type I determiners. Furthermore, Type I determiners never reconstruct into RCs. Type II determiners can reconstruct into RCs provided there is an external determiner (of Type I). If the Type II determiner is the outermost determiner, it cannot reconstruct into the RC.[31] Aoun & Li (2003) speculate that Type II determiners are conflations of the D and Number nodes. Alternatively, we may say that Type II determiners effectively are instances of the Number node when they co-occur with a Type I determiner, which is an instance of the D node. If a Type II determiner does not co-occur with a Type I determiner, then it could be a conflation of Number and D. Because of this relationship with the external determiner D, which does

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[31] Note that in Arabic, definite RCs permit reconstruction of the RC head, whilst indefinite RCs do not (Aoun, Benmamoun, & Choueiri, 2010).

not reconstruct into the RC, reconstruction of Type II determiners is blocked in these contexts.

Second, as pointed out above, there are cases where an RC-internal subject quantifier seems to scope over the external determiner. Recall the variable binding example from Section 5.3.

(61)   The picture of himself$_i$ [that everybody$_i$ sent in] annoyed the teacher.

As Hulsey & Sauerland (2006) noted, the most salient interpretation of (61) is one where everybody sends in a different picture, namely the one of himself. In other words, *everybody* must scope over the external determiner. However, if the external determiner cannot reconstruct, this inverse reading cannot be due to reconstruction. Instead, it seems that the RC subject quantifier must undergo QR out of the RC.

Aoun & Li (2003) reach the same conclusion for Mandarin based on scope. Consider the following examples (Aoun & Li, 2003: 133):

(62)   wo   hui   zhengli
        I   will   arrange
        [[**mei**-ge-ren   **dou**   hui   kan   *t*   de]   **san**-ben   shu
        every-CL-person   **all**   will   read   DE   **three**-CL   book
        'I will put the three books that everyone will read in order.'

In (62), the RC head *san-ben shu* 'three books' cannot have a distributive reading. In other words, *three* scopes over *every*, but *every* does not scope over *three* (3 > ∀; *∀ > 3). Aoun & Li observe that *dou* 'all' seems to be playing a crucial role here. If *dou* 'all' is absent, both scope readings are available (Aoun & Li, 2003: 134).

(63)   wo   hui   zhengli
        I   will   arrange
        [[**mei**-ge-ren   hui   kan   *t*   de]   **san**-ben   shu]
        every-CL-person   will   read   DE   **three**-CL   book
        'I will put the three books that everyone will read in order.'

In (63), *three* can scope over *every*, but *every* can also scope over *three* (3 > ∀; ∀ > 3). The effect of *dou* could either be that it blocks reconstruction of the RC head or that it blocks QR of the RC subject quantifier. Aoun & Li argue for the latter. The evidence comes from when the subject quantifier is further embedded inside the RC. If the subject quantifier obtains wide scope via QR in (62), a more deeply embedded subject quantifier should be unable to take wide scope since QR is clause-bound.[32] However, if wide scope is obtained via reconstruction of the RC head, we would expect a distributive reading to be possible (provided *dou* is absent) no matter how deeply embedded the subject is. As Aoun & Li (2003: 137) show, in such cases the RC-internal quantifier cannot take wide scope over the RC head.

(64) wo   hui   zhengli
      I   will   arrange
      [[ta   xiwang   **mei**-ge-ren   hui   kan   *t*   de]   **san**-ben
      he   hope   **every**-CL-person will   read   DE   **three**-CL
      shu]
      book
      'I will put the three books that he hopes that everyone will read in order.'
      (3 > ∀; *∀ > 3)

(64) thus provides evidence that, if the highest RC subject is a quantifier, it may obtain wide scope over the RC head by QR.

The point then is that English examples like (55), repeated as (65), do not provide conclusive evidence for reconstruction of the RC head since the inverse reading could be obtained via QR of the RC subject quantifier.

(65) I phoned the two patients that every doctor will examine tomorrow.
      2 > ∀; ∀ > 2

However, if we further embed the subject quantifier, the inverse scope interpretation is still available (unlike in Mandarin).

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[32] The definition of *clause-bound* needs refinement if subject quantifiers are able to scope over the external determiner, which is external to the RC.

(66)   I phoned the two patients that you said every doctor will examine tomorrow.

         2 > ∀; ∀ > 2

Examples like (66) are thus better for showing that inverse scope readings arise via reconstruction.

Another potential problem comes from examples like (67), where it looks as if an indefinite can scope over the external determiner (and even quantifiers outside the external determiner) (Inada, 2008: 3):

(67)   a.   Ford recalled *all* the '75 models which were put out by *a* factory of theirs in
               Detroit.
               (*all > a, a > all*)   (from Fodor & Sag, 1982: 371)

         b.   John wants to date *exactly half* the girls who go out with *a* professor who
               flunked him out of Linguistics 101.
               (*exactly half > a, a > exactly half*)   (from Fodor & Sag, 1982: 372)

         c.   Mary dates *at least five* men who know *a* producer I know.
               (*at least five > a, a > at least five*)   (from Fodor & Sag, 1982: 372)

         d.   Mary dates *every* man who has met *a* producer I know.
               (*every > a, a > every*)   (from Ruys, 2006: 184)

However, as Inada points out, this seems to have something to do with indefinites rather than the reconstruction of the RC head (see also Reinhart, 1992, 1998, 2006) (note that in the case of subject RCs, the RC head would still c-command the indefinite under reconstruction).

Indefinites are also known to be able to take wide scope out of (other) adjunct islands (Inada, 2008: 4).

(68)   *Every* girl will be happy [if *some* movie is shown].
         (*every > some*, *some > every*)

To capture the behaviour of wide scope indefinites, Reinhart (1992, 1998, 2006) proposes a Choice Function mechanism.

(69)   *Choice Function*: A function f is a choice function (CH (f)) if it applies to any nonempty set and yields a member of that set.   (Reinhart, 2006: 81)

Thus an example like (67d) would have the following interpretation (Inada, 2008: 6):

(70)   Mary dates every man who has met a producer I know.

       ∃f(CH (f) ∧ ∀y (man(y) ∧ y has met f(producer) → Mary dates y))

(70) reads: there is a function, f, where f is a Choice Function, CH (f), and for all y, if y is a man and y has met the producer selected by the Choice Function, then Mary dates y.

Crucially, the Choice Function mechanism only applies to indefinites (more generally, determiners/quantifiers of Type II). The universal quantifier, and other Type I determiners/quantifiers more generally, cannot take wide scope via this mechanism and must rely on QR, hence the clause-boundedness effect (Inada, 2008: 4).

(71)   Mary dates *a* man who *e* has met *every* producer I know.

       (*a > every*, **every > a*)   (from Ruys, 2006: 185)

(72)   *Some* girl will be happy [if *every* movie is shown].

       (*some > every*, **every > some*)

Therefore, when indefinites are concerned, inverse scope readings may not necessarily be due to reconstruction. This is only really a problem when two indefinite (Type II) quantifiers are at stake.

(73)   I phoned the **two** patients that you said **three** doctors will examine tomorrow.

       2 > 3; 3 > 2

In examples such as (73), the inverse scope reading could be obtained either through reconstruction of the RC head or through the Choice Function mechanism applied to the RC-internal quantified subject.

Aoun & Li (2003) claim that *wh*-RCs do not permit scope reconstruction (or any reconstruction for that matter), unlike *that*- and Ø-RCs. Consider the following examples (Aoun & Li, 2003: 113):

(74)   a.   I phoned the two patients (that) every doctor will examine tomorrow.

           $2 > \forall; \forall > 2$

       b.   I phoned the two patients who every doctor will examine tomorrow.

           $2 > \forall; *\forall > 2$

According to Aoun & Li (2003), who attribute these judgements to Barry Schein, (74b) does not permit the distributive reading where *every* scopes over *two* (note that given what we said above, *who* not only blocks reconstruction of the RC head, it would also have to block QR of the RC subject quantifier).

It is not clear that this judgement holds for all speakers though (see also Aoun & Li, 2003: 244, endnote 15). Consider the following example from Salzmann (2006: 22), who claims that a distributive reading is available.

(75)   the band which every student likes best

       $\exists > \forall; \forall > \exists$

For us, the distributive reading is still available if the RC subject is further embedded, thus ruling out the possibility that inverse scope is the result of QR of the RC subject.

(76)   the band which you told me every student likes best

       $\exists > \forall; \forall > \exists$

To summarise, Type II determiners can reconstruct into the RC to take scope below an RC-internal quantifier (provided that there is a Type I external determiner). QR of quantified subjects is a potential confound, but once this is controlled for, reconstruction for scope can be clearly seen in English, though it is evidently not obligatory.

5.5   Amount/degree/maximalising RCs

Amount RCs (also known as degree RCs or maximalising RCs) (Carlson, 1977; Grosu & Landman, 1998; Heim, 1987) are argued to be sortal-internal, i.e. cases where the RC head is interpreted RC-internally (see Grosu & Landman, 1998).[33] Consider the following example (Heim, 1987: 33) (via Bhatt, 2015: 732):

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[33] Carlson (1977) observes that amount readings seem to be impossible with *wh*-RCs.

(77)   The very few books that there were on his shelves were all mysteries.

        LF: The very few *λd* that there were *d*-many-books on his shelves were all mysteries.

This example only allows a degree/amount reading since *there be* in the RC does not permit a following variable (see Heim, 1987). According to Bhatt (2015), the RC head is reconstructed into the RC and abstraction is over a degree variable. This yields the (approximate) LF representation given in (77).

Amount interpretations thus suggest that there is an RC-internal representation of the RC head (see also Bhatt, 2002; Salzmann, 2006; Sauerland, 1998).

5.6   Superlative adjectives

Bhatt (2002) observes that adjectives like *first, only* and *longest* modifying an RC head can have high and low readings in the RC, hence (78) is ambiguous (Bhatt, 2002: 57).

(78)   the first book [that John said that Tolstoy has written]

On the high reading, it is the book that John first said that Tolstoy has written, whilst on the low reading, it is the book that John said that Tolstoy has written first. Bhatt notes that these two readings can be distinguished by using NPIs (such adjectives can locally license NPIs) (Bhatt, 2002: 60).

(79)   a.   the first book that John ever said that Tolstoy wrote   (high)

        b.   the first book that John said that Tolstoy had ever written   (low)

Bhatt argues that this favours the HRA over the MA, since he claims that the MA would have to interpret *first* twice, once in the low position and once in the RC-external position.

However, Heycock (2005) argues that the low readings are actually much more restricted than a reconstruction analysis would predict. Bhatt (2002) observes that low readings are blocked in the presence of negation. Heycock (2005) points out that negation does not block other types of reconstruction and that, furthermore, low readings are blocked in a much wider range of contexts (none of which seem to block other types of reconstruction either). If Heycock is correct, this suggests that the low readings in such examples do not arise due to reconstruction.

5.7   Antecedent-contained deletion

The observation concerning antecedent-contained deletion (ACD) comes from Sauerland (2003) and involves double headed ACD constructions. This is not really a reconstruction effect but it provides evidence that there is a complex RC-internal representation of the RC head, i.e. it argues against the HEA. Consider the following examples (Sauerland, 2003: 217):

(80)   a.   *Polly visited every town that's near the lake Eric did <visit t>.

        b.   Polly visited every town that's near the town Eric did <visit t>.

(80) has examples of double headed ACD constructions. They differ in that in (80b) the two DP heads are the same (namely, *town*), whilst in (80a) they are different (*town* and *lake*). Sauerland notes that double headed ACD constructions are only acceptable if the NP parts of the two DPs are the same, hence (80b) is fine but (80a) is not. To see the reason for this, consider the relevant structures:

(81)   *every [λx x is near the lake [λ y Eric visited [y, lake]]] λx Polly visited [x, town].

(82)   every [λx x is near the town [λ y Eric visited [y, town]]] λx Polly visited [x, town].

In (81), the 'trace' in the RC is [y, lake] but the 'trace' left by QR is [x, town]. The two 'traces' are thus distinct. Consequently, the VP cannot be elided felicitously. (81), corresponding to (80a), is thus ungrammatical. In (82), however, the two 'traces' are identical in content, i.e. the content is *town* in both cases. VP ellipsis is thus licensed and the result is grammatical.

Sauerland (2003) points out that this analysis requires the RC-internal representation of the RC head to have content. If it did not, we would not expect a contrast between (80a) and (80b) since the structures in (81) and (82) would be indistinguishable as far as VP ellipsis licensing is concerned. Furthermore, Sauerland (2003) argues that English requires both the HRA and MA, but that the HRA is only forced if reconstruction effects are present. Consequently, for him, because the examples in (80) do not require reconstruction, these are instances of the MA. Sauerland's conclusion that there is a contentful RC-internal representation of the RC head therefore holds of both the HRA and MA.

5.8 Reconstruction correlations/interactions

5.8.1 Correlations and conflicting requirements

A widespread assumption is that reconstruction of the RC head entails reconstruction of modifiers of the RC head and vice versa, and that anti-reconstruction of the RC head entails anti-reconstruction of modifiers of the RC head and vice versa. This assumption predicts that, if reconstruction of the RC head is forced for some reason, the modifiers of the RC head will also reconstruct (and vice versa). Conversely, it also predicts that it will be impossible to interpret the RC head in one position and its modifiers in another. These predictions are argued to be borne out by cases where reconstruction feeds a Condition C violation (Fox, 1999, 2000, Sauerland, 1998, 2003).

However, as Salzmann (2006) shows, much of the traditional evidence purporting to show a Condition C violation under independently forced reconstruction is problematic for independent reasons. Salzmann thus highlights the need to be more careful with such evidence. However, we argue that, even when such care is taken, it is possible to find contexts where the correlation does not hold. We argue that the grammar is thus capable of interpreting the RC head and its modifiers in different positions, but that there may well be a processing or parsing preference to interpret them in the same position in the general case.

We first consider the claim that reconstruction for idiom interpretation may trigger a Condition C violation. The traditional evidence put forward in support of this are examples like the following (Salzmann, 2006: 35):

(83)   a.   *the picture of Bill$_i$ [that he$_i$ took]

   b.   *The headway on Mary$_i$'s project [that she$_i$ had made] pleased the boss.

Examples like (83a) were already shown to be potentially problematic as these examples arguably contain an implicit PRO in the RC head which is responsible for the Condition C effect regardless of reconstruction. However, Salzmann (2006) argued that reconstruction is still required for PRO to be controlled. Nonetheless, if this is correct, it is not reconstruction *per se* that forces idiom interpretation, so such examples do not show what they are claimed to show.

Examples like (83b) are also potentially problematic. Sauerland (2003: 214) claims that examples like (83b) are markedly improved if the R-expression is replaced by a pronoun, as in (84). This would suggest that the problem with (83b) is indeed a Condition C violation triggered by reconstruction for idiom interpretation.

(84)   The headway on her$_i$ project [that Mary$_i$ had made] pleased the boss.

However, Salzmann (2006: 36) points out two potential problems with this. The first is empirical: many speakers still seem to find (84) degraded. The second is analytic: the constituency of the RC head in (83b) and (84) is incorrect for its interpretation. Salzmann argues that, according to the semantics, the PP *on Mary's/her project* is not dependent on the RC head, but rather on the verb (or maybe verb phrase). Indeed, the most natural option is to leave the PP inside the RC (Salzmann, 2006: 36).

(85)   The headway [that Mary$_i$ had made on her$_i$ project] pleased the boss.

Salzmann thus highlights that examples like (83b) and (84) are odd to start with and so should not be taken as conclusive evidence for a correlation between independently forced reconstruction and Condition C effects.

We now turn to the claim that reconstruction for amount interpretation may trigger a Condition C effect. This typically involves evidence like the following (Salzmann, 2006: 35):

(86)   a.   *The many books for Gina$_i$'s vet school [that she$_i$ needs] will be expensive.

        b.   *I visited all the relatives of Mary$_i$'s [that she$_i$ said there are left].

Again, Salzmann points out several potential problems with such examples. In (86a), the constituency is incorrect for the natural/intended interpretation. The PP *for Gina's vet school* is not dependent on *(many) books*, but rather on the verb *need*. Furthermore, Salzmann (2006: 39) claims that replacing the R-expression with a pronoun does not markedly improve the judgement, as in (87), suggesting that Condition C is not responsible for the deviance of (86a).

(87) $^{??}$the many books for her$_i$ vet school [that she$_i$ needs]

Once again, the most natural option is to leave the PP inside the RC, as in (88) (Salzmann, 2006: 39).

(88)   the many books [that she$_i$ needs for her$_i$ vet school]

Examples like (86b) do not run into the constituency problem, but Salzmann points out that judgements are quite variable, even within the extant literature: Sauerland (2003: 215) judges such examples as ungrammatical, whilst Safir (1999: 613, fn 22) judges them as acceptable.

Salzmann (2006: 39-40) claims that examples like the following avoid the constituency problems and seem to exhibit a robust Condition C effect.

(89)   *the many bottles of Peter$_i$'s Merlot [that he$_i$ drank in just one evening]

Many bottles only really admits an amount interpretation, which requires reconstruction of the RC head. Furthermore, the PP *of Peter's Merlot* is (semantically) dependent on the RC head, so there are no constituency problems. However, according to our judgement, the Condition C effect is either weak or non-existent. We thus conclude that such data are simply not robust enough to argue for a correlation between Condition C effects and independently forced reconstruction.

Salzmann (2006: 40) also provisionally suggests that a Condition C effect is found when superlative adjectives are interpreted with the low reading (recall that the high and low readings are enforced by the use of the NPI).

(90)   a.   the first book about John$_i$ [that I ever said he$_i$ liked]   (high reading)
         b.   *the first book about John$_i$ [that I said he$_i$ ever liked]   (low reading)

However, again, we do not find the contrast to be all that strong (although, to the extent that there is a contrast, we think it goes in the predicted direction).

We turn now to the claimed correlation between reconstruction for variable binding and Condition C effects. This evidence involves contrasts such as the following ((91a) is taken from Salzmann, 2006: 35):

(91) a. *The letters by John$_i$ to her$_j$ [that he$_i$ told every girl$_j$ to burn] were published.

  b. The letters by him$_i$ to her$_j$ [that John$_i$ told every girl$_j$ to burn] were published.

The RC head has two PP modifiers. In (91a), *her* must be interpreted inside the RC in order to be variable bound by *every girl*. On standard assumptions, this means that the RC head (including its modifiers) reconstructs into the RC. This triggers a Condition C violation because *John* would be interpreted RC-internally where it is c-commanded (and bound) by *he*. In (91b), on the other hand, reconstruction of *him* satisfies Condition B and the structure is permitted. As Salzmann (2006) points out, such examples do not run into potential constituency problems and are thus analytically more reliable. Furthermore, although such examples are very difficult to process online, the contrast seems to be reasonably generally accepted. Such examples are therefore probably the best candidates for showing that there is a correlation between reconstruction that is independently forced (in this case for variable binding) and Condition C effects.

However, we believe there are contexts where such examples do not exhibit this correlation. The observation is an extension of one made by Bianchi (1999: 112-115). She claims that, in Italian, Condition C effects are present in RCs with a null subject but absent (or at least, not as apparent) with a strong (or tonic) pronoun. In other words, Condition C effects are most obviously absent when the pronoun is emphatic or stressed in some way. Consider the following contrast from Bianchi (1999: 110, 112):

(92) a. *La   recensione   del   libro   di   Gianni$_i$
      the   review   of.the book   of   Gianni
      [che **pro$_i$**   ha   letto   sul   giornale]   era   negativa.
      that   he   has   read   in.the   newspaper   was   negative
      'The review of Gianni's book that (he) read in the newspaper was negative.'

  b. $^?$La   recensione   del   libro   di   Gianni$_i$
      the   review   of.the book   of   Gianni
      [che **lui$_i$**   ha   letto   sul   giornale]   era   negativa.
      that   he   has   read   in.the   newspaper   was   negative
      'The review of Gianni's book that he read in the newspaper was negative.'

In (92a), the RC subject, which is co-indexed with the R-expression in the RC head, is a null *pro*. According to Bianchi, there is a Condition C violation in such cases. However, when the RC subject is changed to a strong (or tonic) pronoun, the Condition C effect is considerably weakened or even vanishes altogether, as in (92b).[34]

As pointed out in Section 5.2.2, Condition C effects seem to be absent in the general case in English, i.e. even when the co-indexed pronoun is not particularly emphatic or stressed, as in (93).[35]

(93) a. the picture of John$_i$ that he$_i$ likes

b. the picture of John$_i$ that HE$_i$ likes

c. the picture of John$_i$ that he$_i$ himself$_i$ likes

However, what is interesting is that, when an emphatic or stressed co-indexed pronoun is used, Condition C effects are virtually completely absent, even in cases where reconstruction is forced for independent reasons.

(94) a. the picture of Bill$_i$ [that he$_i$ himself$_i$ took]

b. the many bottles of Peter$_i$'s Merlot [that he$_i$ himself$_i$ drank in just one evening]

c. The letters by John$_i$ to her$_j$ [that he$_i$ himself$_i$ told every girl$_j$ to burn] were published.

We propose that this sort of emphasis/stress permits the relevant RC head modifier to be interpreted RC-externally. It is not the case that the modifier reconstructs but that Condition C somehow does not hold in such contexts. As (95) shows, such configurations still exhibit a standard Condition C effect (though see Reinhart, 1983a, 1983b).

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[34] Bianchi (1999: 114) suggests that strong pronouns with emphatic functions involve accidental co-reference rather than binding, and that accidental co-reference is not sensitive to reconstruction, perhaps due to its pragmatic nature (see Reinhart, 1983a, 1983b).

[35] English does not have *pro*, so perhaps even the weakest pronouns in English are strong enough to avoid a Condition C effect.

(95) a.   *He$_i$ (himself$_i$) took a picture of Bill$_i$.[36]

   b.   *He$_i$ (himself$_i$) drank many bottles of Peter$_i$'s Merlot in just one evening.

   c.   *He$_i$ (himself$_i$) told every girl$_j$ to burn the letters by John$_i$ to her$_j$.

The same alleviation effect is found in other contexts of A'-movement, including questions.

(96) a.   *Which picture of John$_i$ did he$_i$ take?

   b.   Which picture of John$_i$ did he$_i$ himself$_i$ take?

We can also see this effect in the cases reported by Safir concerning R-expressions and quantifiers inside the operator-phrase, though the effect is perhaps not as strong in the quantifier cases.

(97) a.   *$^?$I always respect a journalist [whose depiction of Jesse$_i$ he$_i$ objects to].

   b.   I always respect a journalist [whose depiction of Jesse$_i$ he$_i$ himself$_i$ objects to].

(98) a.   *I respect any writer [[whose depiction of everyone$_i$] he$_i$ will object to].

   b. $^?$I respect any writer [whose depiction of everyone$_i$ they$_i$ themselves$_i$ will object to]

(99) a.   *Pictures of anyone$_i$ [which he$_i$ displays prominently] are likely to be attractive ones.

   b.   Pictures of anyone$_i$ [which they$_i$ themselves$_i$ display prominently] are likely to be attractive ones.

We conclude from these data that the grammar is perfectly capable of interpreting the RC head and modifiers of the RC head in different positions. In practice, this may not be the preferred option, but our theory should ideally be able to capture what is possible, not just what is probable. We tentatively suggest that in processing or parsing it may be preferred to interpret the RC head and its modifiers in the same position. Interpreting them in different positions is possible in principle, but only permitted in practice in marked contexts such as those with emphasis or stress to highlight an intended co-reference relation.

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[36] Note that vehicle change would not help here as replacing *Bill* with a pronoun is still ungrammatical.

(i)   *He$_i$ (himself$_i$) took a picture of him$_i$.

Another type of context where the RC head and its modifiers may be interpreted in different position involves those with conflicting requirements. Salzmann (2006: 42) provides the following example:

(100)   I always try to take pictures of his$_i$ wife [that every man$_i$ likes].

(100) is perfectly grammatical. The RC head *pictures* is licensed as part of the idiom *take pictures* in the matrix clause, so the RC head itself does not reconstruct into the RC. However, *his* (embedded in the PP modifier of the RC head) is variable bound by *every man* so it must be interpreted RC-internally. As pointed out in Section 5.3, however, such examples might achieve variable binding by QR of the quantified RC subject. To avoid this complication, it is better to construct an example where the relevant RC-internal quantified argument is not the highest subject.

(101)   I took the pictures of his$_i$ wife [that you told every man$_i$ to destroy]

(101) permits the bound variable interpretation of *his* and the idiomatic interpretation simultaneously. This shows that the RC head can be interpreted in the matrix clause (and not in the RC) whilst the modifier of the RC head can at the same time be interpreted in the RC (and not in the matrix clause).

A similar example can be constructed involving an NPI in the modifier of the RC head and idiom interpretation.

(102)   Nobody liked the pictures of anyone [that you told every professional photographer to take].

In (102), the NPI *anyone* cannot be reconstructed into the RC. If it did reconstruct, the RC-internal quantifier would intervene between the NPI and the negative quantifier in the matrix clause in violation of the Immediate Scope Constraint (Citko, 2001; Linebarger, 1980, 1987) (see Section 5.3). However, in order to license the idiom *take pictures*, the RC head must reconstruct into the RC.

Where there are conflicting requirements on interpretation, Salzmann (2006: 127) proposes that elements may be interpreted in different positions provided that there is a positive licensing requirement. If a given element has a positive licensing requirement, it

means that this element is dependent on another. Anaphors, bound pronouns and idiomatic nominals all have positive licensing requirements (NPIs could also be added given the Immediate Scope Constraint on NPI-licensing). A positive licensing requirement allows exceptional deletion of the relevant element at LF (up to recoverability) in positions where it is not licensed. Salzmann contrasts elements with positive licensing requirements from those with negative licensing requirements (pronouns and R-expressions). These elements must be free in a given domain and, on Salzmann's assumption, cannot be exceptionally deleted. We have argued above that there are cases where they can be exceptionally deleted, but highlight that those contexts involved emphasis of a co-reference relation.

We believe that this approach, involving scattered deletion at LF, is preferable to one where the absence of reconstruction effects is due to the absence of an RC-internal representation of the relevant element.[37] In recent literature, the idea that all nominal modifiers are effectively adjuncts has been gaining ground (see, e.g., Adger, 2013; Cecchetto & Donati, 2015; Donati & Cecchetto, 2011; Kayne, 2008; Thoms & Heycock, 2014). Combining this with the idea that adjuncts can be late-merged, several proposals have been put forward suggesting that modifiers of the RC head can be late-merged such that there is no RC-internal representation of these modifiers (Cecchetto & Donati, 2015; Donati & Cecchetto, 2011; Thoms & Heycock, 2014).

Thoms & Heycock (2014) propose that late-merger of RC head modifiers is simply a possibility and the only convergent option in anti-reconstruction cases. The absence of Condition C effects in the general case results from the idea that RC head modifiers containing an R-expression can be late-merged after the RC has been constructed. If they merged earlier, a Condition C effect would arise. In contrast, RC head modifiers containing an anaphor or a bound variable can merge early so that they can be bound RC-internally. If they used the late-merge option, they would merge too late for binding to be established. This suggests that late or early merge is always an option for RC head modifiers. This account therefore predicts no correlation between Condition C and reconstruction that is forced for independent reasons, even in the general case, unless the late-merge option for

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[37] See also Sportiche (2016) on interpretive *Neglect*, i.e. "the possibility of interpretively ignoring up to all **occurrences** of an interpretable syntactic object but one" (emphasis in original). Sportiche, however, explicitly rejects the MA for RCs.

an RC head modifier can be made sensitive to whether the RC head or another modifier is interpreted RC-internally. This seems unduly stipulative. It seems more parsimonious to have the RC modifier merged with the RC head at the same point of the derivation in all cases and to let the interpretive system select which copies to interpret.

Furthermore, Thoms & Heycock's (2014) analysis is designed to capture anti-reconstruction effects involving RC head modifiers. Anti-reconstruction of the RC head itself cannot appeal to late-merger. In other words, this approach requires two distinct ways of capturing anti-reconstruction, whilst the scattered LF deletion approach only requires one.

Cecchetto & Donati (2015) propose a somewhat more principled system. They propose that RC head modifiers are *always* late-merged. In their system, the RC head needs to be a head, i.e. an element that is simultaneously a minimal and maximal projection in Bare Phrase Structure terms, so that when it raises, it can reproject its nominal category. If modifiers were merged before the RC head raised, the RC head would be a phrase (not a head) and so would be unable to reproject. All RC head modifiers must therefore be late-merged to the RC head after reprojection has taken place.

(103) a. $[_N \text{RC head}] [_{CP} \dots t_N \dots]$

      b. $[_{NP} [_N \text{RC head}] [_{CP} \dots t_N \dots]]$

Now, consider the following example:

(104)   the red car [that I was driving]

(104) can be interpreted as the intersection of the set of red cars with the set of things such that I was driving them. In order to derive this interpretation, the modifier *red* must be late-merged with the RC head to the exclusion of the RC CP.

(105) $[_{NP} [_{NP} [\text{red}] [_N \text{car}]] [_{CP} \text{that I was driving } t_N]]$

This is necessary for all modifiers that do not scope over the RC itself. In fact, all modifiers except the RC itself will have to be late-merged in this way. Presumably this would include other RCs.

(106)   the car [that I was driving] [that John bought]

In (106), we have two stacked RCs. One of them has to be late-merged according to the head reprojection analysis. However, RCs can only be derived by head reprojection. Suppose we reach the stage in the derivation where one RC has been derived.

(107) $[_{NP} [_{N} \text{car}] [_{CP} \text{that I was driving } t_{N}]]$

How do we derive the second RC? We cannot relativise (107) as a whole because the 'RC head + RC' complex is an NP phrase and so would be incapable of reprojection. Furthermore, we presumably could not relativise $[_{N} \text{car}]$ on its own since the NP label would trigger an intervention effect.[38] Stacked RCs thus seem to pose a real empirical problem to the head reprojection analysis.

We are thus unconvinced that late-merger of some or all RC head modifiers is the correct way to approach the problem of reconstruction and anti-reconstruction effects. The scattered LF deletion approach seems both empirically and conceptually more appealing.

5.8.2   Reconstruction and extraposition

Hulsey & Sauerland (2006) claim that reconstruction is not permitted into extraposed RCs. They present the following data in support of this claim (Hulsey & Sauerland, 2006: 114):

(108) a.   Mary praised the headway that John made.

       b.   I was shocked by the advantage that she took of her mother.

(109) a.   *Mary praised the headway last year that John made.

       b.   *I was shocked by the advantage yesterday that she took of her mother.

(110) a.   Mary praised the pot roast yesterday that John made.

       b.   I was shocked by the garish dress yesterday that she took from her mother.

The examples in (108) involve RCs where the RC head must reconstruct for idiom interpretation. The examples in (109), which involve the RCs in (108) being extraposed, are claimed to be ungrammatical. As (110) shows, extraposition of such RCs is permitted when no reconstruction of the RC head is required.

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[38] This would be true even under Cecchetto & Donati's (2015) notion of unprobed movement and Gross Minimality. See their work for details of this proposal.

However, we are not convinced that the contrast is strong enough for the claim they are making. Although some speakers we have consulted report a contrast between (109) on the one hand and (108) and (110) on the other, these speakers do not find (109) ungrammatical. Furthermore, other speakers report no appreciable contrast at all, finding the examples in (109) acceptable. Salzmann (2014: 33) also reports that this claim does not hold for German.

(111) Die   "Zeit" sollte häufiger   über die   Fortschritte berichten,
      the   Zeit   should more.often   about the   progresses   report
      [die   unsere   Jungs gemacht   haben].
      which our   boys   made   have
      'The "Zeit" (newspaper) should cover more often the progress our boys have made.'

(112) weil   er   sich   über den Streich   ärgerte,
      because   he   self   about the trick   was.annoyed
      [den   wir   ihm   gespielt   haben]
      which we   he.DAT   played   have.PL
      'because he was annoyed because of the trick we played on him'

Given that we have seen cases where the RC head can be interpreted both RC-internally and RC-externally for idiom interpretation simultaneously, it is not particularly clear why extraposition of the RC should prohibit reconstruction in the first place. We conclude that this correlation is either non-existent or at least not enforced by the grammar itself.

6   Summary

Reconstruction effects provide good evidence that there is an RC-internal representation of the RC head. Reconstruction evidence is thus useful for rejecting analyses which posit an empty operator inside the RC, i.e. the HEA. Examples where the RC head can be interpreted in the matrix clause and in the RC simultaneously also show that the HRA and MA cannot be two analyses in complementary distribution. We thus need an analysis where the RC head (and its modifiers) can be interpreted in the matrix clause, in the RC, or both simultaneously. The MA is able to handle this if one accepts that it can capture reconstruction effects. Conversely, the HRA is able to handle this if one accepts that obligatory reconstruction in A'-

chains is a preference that can be overridden (though the general availability of anti-reconstruction in RC contexts but not in interrogative contexts would require an explanation, to the extent that this holds).

Therefore, despite the prominence of reconstruction evidence in arguments for the HRA and against the MA, we have shown that (anti-)reconstruction really does not offer any straightforward (let alone conclusive) way to decide between them.

Furthermore, we have seen evidence for a scattered LF deletion approach to reconstruction. Such a conclusion potentially threatens claims that reconstruction for one purpose may force Condition C violations. However, we have suggested that cases where Condition C violations are alleviated involve a marked strategy for highlighting an intended co-reference relation. The claimed correlations may thus accurately describe the general case, but the grammar must be capable of exceptions to these correlations in specific marked contexts as well.

The weight of evidence from this chapter favours the MA. The MA (plus a scattered LF deletion approach to reconstruction) successfully captures reconstruction effects, anti-reconstruction effects, simultaneous reconstruction and anti-reconstruction effects, and distributed reconstruction and anti-reconstruction effects. Furthermore, the MA does this without running into the Case and locality problems inherent in the HRA. We thus adopt the MA as the only analysis of English RCs.

Chapter 3

Clausal relatives

1   Introduction

The aim of this chapter is to determine the structural size of full clausal RCs in English. This includes not only finite RCs (finite *wh-*, *that-* and Ø-RCs), but also infinitival RCs (infinitival *wh-*, *for-* and Ø-RCs). The different types that we distinguish during the discussion are illustrated below:

(1)   Finite *wh*-RCs

      a.   The man [who saw me] is John.

      b.   The house [which I lived in] fell down.

      c.   The house [in which I lived] fell down.

(2)   (Finite) *that*-RCs

      a.   The man [that saw me] is John.

      b.   The man [that I saw] is John.

      c.   The house [that I lived in] fell down.

(3)   Finite Ø-RCs

      a.   The man [I saw] is John.

      b.   The house [I lived in] fell down.

(4)   Infinitival *wh*-RCs

      a.   The man [to whom to speak] is John.

      b.   The house [in which to live] is that one.

      c.   For a beginner, the course will likely provide a good atmosphere [in which for you to fire your first shots].[1]

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[1] http://hunting.about.com/od/hunting-for-beginners/a/Hunting-For-Beginners.htm

(5)   Infinitival *for*-RCs

     a.   The man [for you to see] is John.

     b.   The man [for her to speak to] is John.

(6)   Infinitival Ø-RCs

     a.   The man [to see] is John.

     b.   The man [to speak to] is John.

The names for the different types of RC should be reasonably transparent. We do not refer to *wh*-RCs with and without preposition pied-piping as different types. Furthermore, we classify examples like (4c) as infinitival *wh*-RCs rather than infinitival *for*-RCs since the *wh*-phrase is further to the left. Ø-RCs are those without an overt *wh*-relative pronoun, *that* or *for*.

In English, full clausal RCs are capable of relativising non-subjects, as at least one example of each type shows. This is in contrast to reduced RCs (RRCs), which can only relativise subjects (or, more accurately, those arguments that would be subjects in full clauses). RRCs are discussed in Part III (Chapter 6).

Our more specific aim in this chapter is to determine the structure and size of the left periphery of full clausal RCs. To investigate this question, we test whether full clausal RCs of the various types illustrated above are compatible with adverbial and argument fronting (including negative preposing), as done in Haegeman (2012), following the cartographic tradition (Rizzi, 1997, *et seq.* among many others). Whilst Haegeman (2012) applies these diagnostics to a range of different clause-types, we focus on RCs. We will see that there is a lot more to say about RCs and fronting possibilities in their left peripheries. This is largely a result of empirical differences. Haegeman (2012: 54) writes:

> "In the following discussion judgments are based on the literature and on a number of informants, all speakers of British English. There is, however, interspeaker variation, and some speakers are much more liberal when it comes to the distribution of fronted arguments in English. These speakers may well find that their judgments deviate systematically from those discussed here. Given that the

divergence is systematic, I tentatively conclude that their grammar must differ from that of the speakers on whom this work is based."

We, and some that we have informally consulted, seem to belong to the 'much more liberal' speakers of British English (others that we have consulted seem to belong to Haegeman's 'not-so-liberal' group).[2] The biggest difference between Haegeman's (2012) reported judgements and those to be reported below is that Haegeman essentially rejects argument fronting in all RCs, whilst we accept it in some (but not all) RC-types. Nonetheless, even when it is permitted, argument fronting is constrained in ways that will become apparent below.

This chapter is structured as follows: Section 2 lays out the data and judgements in a systematic fashion. The emerging generalisations are summarised in Section 3, and an analysis is proposed in Section 4. Section 5 provides a summary.

2 Data

In this section, we systematically consider argument and adverbial fronting (including negative preposing) across the range of different full clausal RCs illustrated above. We start with adverbial fronting, then move onto argument fronting.

2.1 Adverbial fronting

Adverbial fronting and adverbial negative preposing seem to behave in more or less the same way, except that adverbial negative preposing triggers so-called subject-auxiliary inversion. In infinitival *wh*-RCs, adverbial negative preposing seems to be slightly degraded relative to adverbial fronting, as will be seen below.

2.1.1 Finite *wh*-RCs

Adverbial fronting is permitted in *wh*-RCs, both in non-subject RCs, as in (7), and in subject RCs, as in (8). The same applies to adverbial negative preposing, as in (9) (non-subject RCs) and (10) (subject RCs).

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[2] Haegeman (2012) notes where some authors seem to be more liberal, e.g. Radford (2009).

(7) a. I met a man who next year Mary might (actually) date.

   b. I bought a dress which next year Mary might (actually) wear.

(8) a. I met a man who next year might (actually) date Mary.

   b. I bought a dress which next year might (actually) make Mary popular.

(9) a. I met a man who under no circumstances would Mary ever date.

   b. I bought a dress which under no circumstances would Mary ever wear.

(10) a. I met a man who under no circumstances would ever go out with Mary.

   b. I bought a dress which under no circumstances would ever make Mary popular.

The *wh*-relative pronoun may or may not pied-pipe a preposition. Adverbial fronting is compatible with either option, as in (11). The same applies to adverbial negative preposing, as in (12).

(11) a. I met a man who next year Mary might (actually) grant a second date to.

   b. I met a man to whom next year Mary might (actually) grant a second date.

(12) a. I met a man who under no circumstances would Mary ever grant a first date to.

   b. I met a man to whom under no circumstances would Mary ever grant a first date.

2.1.2 Finite *that*-RCs

Adverbial fronting is permitted in *that*-RCs, both in non-subject RCs, as in (13), and in subject RCs, as in (14). The same applies to adverbial negative preposing, as in (15) (non-subject RCs) and (16) (subject RCs).

(13) a. I met a man that next year Mary might (actually) date.

   b. I bought a dress that next year Mary might (actually) wear.

(14) a. I met a man that next year might (actually) date Mary.

   b. I bought a dress that next year might (actually) make Mary popular.

(15)   a.   I met a man that under no circumstances would Mary ever date.

       b.   I bought a dress that under no circumstances would Mary ever wear.

(16)   a.   I met a man that under no circumstances would ever go out with Mary.

       b.   I bought a dress that under no circumstances would ever make Mary popular.

That-RCs do not permit pied-piping of prepositions in general, hence (17b) and (18b) are ungrammatical with or without adverbial fronting and adverbial negative preposing respectively.

(17)   a.   I met a man that next year Mary might (actually) grant a second date to.

       b.   *I met a man to that (next year) Mary might (actually) grant a second date.

(18)   a.   I met a man that under no circumstances would Mary ever grant a first date to.

       b.   *I met a man to that (under no circumstances) would Mary ever grant a first date.

2.1.3   Finite Ø-RCs

Unlike in finite *wh*-RCs and finite *that*-RCs, adverbial fronting is not permitted in finite Ø-RCs. This applies to both non-subject RCs, as in (19), and subject RCs, as in (20). In general, finite subject Ø-RCs are impossible in (standard) English (Bresnan, 1972).[3] In other words, the examples in (20) are ungrammatical with or without adverbial fronting (see Chapter 4). The same holds of adverbial negative preposing, as in (21) (non-subject RCs) and (22) (subject RCs, which are ungrammatical with or without adverbial negative preposing).

---

[3] There are apparent counterexamples, such as (i):

(i)   There's a man sells vegetables at the market.

There is good reason to believe that these are not instances of Ø-RCs (see Den Dikken, 2005; Harris & Vincent, 1980; Henry, 1995; Lambrecht, 1988; McCawley, 1998), so we set these aside (*pace* Doherty, 1993, 2000). What they are remains unclear.

(19) a.   *I met a man next year Mary might (actually) date.

      b.   *I bought a dress next year Mary might (actually) wear.

(20) a.   *I met a man (next year) might (actually) date Mary.

      b.   *I bought a dress (next year) might (actually) make Mary popular.

(21) a.   *I met a man under no circumstances would Mary ever date.

      b.   *I bought a dress under no circumstances would Mary ever wear.

(22) a.   *I met a man (under no circumstances) would (ever) go out with Mary.

      b.   *I bought a dress (under no circumstances) would (ever) make Mary popular.

∅-RCs do not permit pied-piping of prepositions in general. Hence (23b) and (24b) are ungrammatical with or without adverbial fronting or adverbial negative preposing respectively.

(23) a.   *I met a man next year Mary might (actually) grant a second date to.

      b.   *I met a man to (next year) Mary might (actually) grant a second date.

(24) a.   *I met a man under no circumstances would Mary ever grant a first date.

      b.   *I met a man to (under no circumstances) would Mary ever grant a first date.

2.1.4 Infinitival *wh*-RCs

In English, infinitival *wh*-RCs obligatorily involve a pied-piped preposition.

Adverbial fronting is permitted in infinitival *wh*-RCs (subject infinitival *wh*-RCs do not exist since subjects do not have any prepositions to pied-pipe and pied-piping is obligatory in infinitival *wh*-RCs).[4] The same seems to apply to adverbial negative preposing, except the result is degraded relative to adverbial fronting.

(25) I found a thrift-shop in which next year to do the Christmas shopping.

(26) $^{?(?)}$I found a thrift-shop in which under no circumstances to ever do the Christmas shopping.

---

[4] The fronted adverbial typically requires quite strong focus/emphasis/stress.

Some, but not all, speakers allow the complementiser *for* and an overt subject in infinitival *wh*-RCs, though even then it is typically judged as somewhat degraded. Others find it ungrammatical (Chomsky & Lasnik, 1977; Huddleston, Pullum, & Peterson, 2002: 1067). For those that do accept such structures, adverbial fronting seems to be permitted in such cases. The fronted adverbial obligatorily precedes *for*.

(27)   a.   ?I found a thrift-shop in which next year for you to do the Christmas shopping.

        b.   *I found a thrift-shop in which for you next year to do the Christmas shopping.

The same might be said of adverbial negative preposing. However, given the degradation of adverbial negative preposing relative to adverbial fronting seen in (25) and (26), and given the degradedness of *for* in infinitival *wh*-RCs to start with, the acceptability of such sentences is already independently low, making any firm conclusions difficult.

(28)   a.   ??/*I found a thrift-shop in which under no circumstances for you to ever do the Christmas shopping.

        b.   *I found a thrift-shop in which for you under no circumstances to ever do the Christmas shopping.

2.1.5 Infinitival *for*-RCs

Unlike in infinitival *wh*-RCs (with and without *for*), adverbial fronting is not permitted in infinitival *for*-RCs, i.e. infinitival RCs with overt *for* but no *wh*-relative pronoun. The same applies to adverbial negative preposing.

(29)   a.   ?*I found a thrift-shop next year for you to do the Christmas shopping in.

        b.   *I found a thrift-shop for you next year to do the Christmas shopping in.[5]

---

[5] This string is grammatical, but not on the relevant parse. It is grammatical if *for you next year* is interpreted as modifying *find a thrift-shop* independently of the RC modifier, i.e. I found a thrift-shop for you next year [to do your Christmas shopping]. The RC can have a *wh*-relative pronoun, i.e. I found a thrift-shop for you next year in which to do your Christmas shopping.

(30)   a.   *I found a thrift-shop under no circumstances for you to ever do the

            Christmas shopping in.

        b.   *I found a thrift-shop for you under no circumstances to ever do the

            Christmas shopping in.

Infinitival *for*-RCs do not permit pied-piping of prepositions in general. Hence (31) and (32) are ungrammatical with or without adverbial fronting and adverbial negative preposing.

(31)   *I found a thrift-shop in (next year) for you to do the Christmas shopping.

(32)   *I found a thrift-shop in (under no circumstances) for you to ever do the Christmas shopping.

2.1.6   Infinitival Ø-RCs

Like in infinitival *for*-RCs, adverbial fronting is not permitted in infinitival Ø-RCs, i.e. infinitival RCs with neither *for* nor a *wh*-relative pronoun. The same applies to adverbial negative preposing.

(33)   *I found a thrift-shop next year to do the Christmas shopping in.

(34)   *I found a thrift-shop under no circumstances to ever do the Christmas shopping in.

       Infinitival Ø-RCs do not permit pied-piping of prepositions in general.

(35)   *I found a thrift-shop in (next year) to do the Christmas shopping.

(36)   *I found a thrift-shop in (under no circumstances) to ever do the Christmas shopping.

2.1.7   Summary

Adverbial fronting is permitted in finite *wh*-RCs, finite *that*-RCs, and infinitival *wh*-RCs (with and without *for*). It is not permitted in finite Ø-RCs, infinitival *for*-RCs, and infinitival Ø-RCs. Furthermore, it does not seem to interact with preposition pied-piping in any way.

Adverbial negative preposing is also permitted in finite *wh*-RCs and finite *that*-RCs. It is not permitted in finite Ø-RCs, infinitival *for*-RCs, and infinitival Ø-RCs, and does not seem

to interact with preposition pied-piping in any way. The case of infinitival *wh*-RCs (with and without *for*) was difficult. Whilst adverbial fronting is permitted in such contexts, adverbial negative preposing seems to be degraded. Examples were particularly difficult to judge owing to the cumulative effect of degradation from independent factors.

2.2   Argument fronting

We turn now to argument fronting. As we will see, argument fronting is more constrained than adverbial fronting. Indeed, as pointed out in Section 1, Haegeman (2012) reports that argument fronting in English RCs is generally impossible. This seems to be true for some of the speakers we have informally consulted as well. However, others that we have consulted are somewhat 'more liberal'. Nevertheless, it is not the case that fronted arguments are freely permitted in all types of full clausal RC. As will be seen, even in RC-types where fronted arguments are permitted by more liberal speakers, argument fronting is subject to interesting constraints.[6]

2.2.1   Finite *wh*-RCs

Let us first consider non-subject RCs. The following examples are acceptable to 'more liberal' informants.[7]

(37)   a.   I met a man to whom, a second date, Mary might actually grant.

       b.   I bought a car in which, muddy shoes, I would never allow.

       c.   I met a man with whom, about linguistics, I could talk all day.[8]

There is a question about whether (37c) involves a fronted PP argument or not (see Rizzi, 1997: 294, 322ff). We return to this issue below (Section 4.4.4) and ignore examples like (37c) for now. Note that the fronted argument obligatorily follows the relative pronoun.[9]

---

[6] Again, the fronted argument typically requires quite strong focus/emphasis/stress.

[7] Similarly, Radford (2009a: 282) judges the following example as acceptable:

(i)   A university is the kind of place in which, that kind of behaviour, we cannot tolerate.

[8] Example is based on one from Totsuka (2014).

(38)　a.　　　*I met a man, a second date, to whom Mary might actually grant.

　　　b.　　　*I bought a car, muddy shoes, in which I would never allow.

It is important to note that the *wh*-relative pronouns in (37a) and (37b) both involve a pied-piped preposition. Interestingly, if the preposition is not pied-piped, the examples become degraded or unacceptable. To our knowledge, this is a novel observation.

(39)　a.　　　?*I met a man who(m), a second date, Mary might actually grant to.

　　　b.　　　?*I bought a car which, muddy shoes, I would never allow in.

The issue of preposition pied-piping is particularly important when it comes to subject RCs. It has been claimed that topicalisation, or a fronted argument (FA), is impossible in subject RCs (Haegeman 2012: 58; Rizzi 1997: 307). The following examples, taken from Rizzi (1997: 307) are intended to show that FAs are possible in non-subject RCs, but not in subject RCs (judgements as in the original).[10]

(40)　a.　　　??the man to whom, that book, I gave

　　　b.　　　*the man who, that book, gave to me

(41)　a.　　　?a man to whom, liberty, we should never grant[11]

　　　b.　　　*a man who, liberty, should never grant to us

---

[9] In some languages, a fronted argument (or topic) can precede the relative pronoun, e.g. in Bulgarian (Krapova, 2010) (see Chapter 2, Section 3.4), and Hungarian (see Salzmann, 2014: 17).

[10] Haegeman (2012, chapter 2, note 6) notes via personal communication with Andrew Radford that he accepts the following:

(i)　　　He's the kind of person who, a noble gesture like that, would simply not appreciate.

We find this example odd. We feel that it needs a subject resumptive pronoun to be even marginally acceptable. Interestingly, an object resumptive does not seem even marginally possible. See Section 4.3.1 for discussion.

(ii)　　　?He's the kind of person who, a noble gesture like that, he would simply not appreciate.

(iii)　　　*He's the kind of person who, a noble gesture like that, would simply not appreciate it.

[11] (41a) is adapted from Baltin (1982: 17). Baltin judges it as acceptable, but notes that not all speakers find it totally acceptable.

However, given the contrast between (37) and (39), there is a confound in (40) and (41). The more acceptable (a) examples (the non-subject RCs) involve *wh*-relative pronouns with a pied-piped preposition, whilst the unacceptable (b) examples (the subject RCs) involve *wh*-relative pronouns without a pied-piped preposition (generally impossible in English since subjects cannot be PPs). It is therefore possible that the unacceptability of (40b) and (41b) is akin to that in (39). If so, we predict that by manipulating the category of the FA and the *wh*-relative pronoun, we can influence the acceptability of the examples. We have already seen from (39) that, if the *wh*-relative pronoun does not pied-pipe a preposition, the result is degraded or unacceptable. The same seems to apply to (40a) and (41a).

(42)   a. $^{?}$*the man who(m), that book, I gave to   (cf. (33a))

       b. $^{??}$a man who(m), liberty, we should never grant to   (cf. (34a))

Note that *whom* with stranded prepositions is stylistically odd.

As mentioned already, there is no option of the *wh*-relative pronoun pied-piping a preposition in subject RCs, but this option is available to the FA. Crucially, we see that, if the FA pied-pipes a preposition, FAs in subject RCs become acceptable.

(43)   a.   the man who, to every student, gave a brand new book

       b.   a man who, to us, will never grant liberty

Some more examples showing this contrast are given in (44) and (45).

(44)   a. $^{?}$I met a man who, to Mary, might actually grant a second date.

       b.   *I met a man who, Mary, might actually grant a second date to.

       c. $^{?}$*I met a man who, a second date, might actually grant to Mary.

(45)   a.   I bought a car which, to children, can give hours of entertainment.

       b.   *I bought a car which, children, can give hours of entertainment to.

       c.   *I bought a car which, hours of entertainment, can give to children.

This falsifies the claim that argument fronting in subject RCs is completely ungrammatical. Instead, we have seen that the category of the relative pronoun relative to the category of

the FA is crucial. The emerging generalisation is that, if the FA is a DP, the *wh*-relative pronoun must pied-pipe a preposition; and if the *wh*-relative pronoun does not pied-pipe a preposition, the FA must be a PP.[12] This 'distinctness effect' is schematised in (46).[13]

(46)

	Relative	FA	
a.	DP	DP	*
b.	DP	PP	✓
c.	PP	DP	✓

---

[12] Note that this formulation says nothing about what happens when both the *wh*-relative pronoun and topic pied-pipe a preposition. This was the configuration seen in (37c).

[13] Rizzi (1997: 306) claims that, in French, intervening CLLD phrases induce subject-object asymmetries.

(i) a. $^?$Je ne sais pas à qui, ton livre, je pourrais le donner.
         'I don't know to whom, your book, I could give it.'
     b. *$^?$Je ne sais pas qui, ton livre, pourrait l'acheter.
         'I don't know who, your book, could buy it.'

(ii) a. $^?$un homme à qui, ton livre, je pourrais le donner
          'a man to whom, your book, I could give it'
      b. *$^?$un homme qui, ton livre, pourrait l'acheter
          'a man who, your book, could buy it'

He contrasts the French data with data from Italian, which does not exhibit a subject-object asymmetry in such cases (Rizzi 1997: 306):

(iii) a. un uomo a cui, il tuo libro, lo potremmo dare
           'a man to whom, your book, we could give it'
       b. un uomo che, il tuo libro, lo potrebbe comprare
           'a man who, your book, could buy it'

Since Italian does not exhibit *that*-trace effects, he concludes that the French data are showing a subject-object asymmetry. However, given what we have found in English, we need to test whether this is correct, or whether a PP CLLD structure would improve the judgement for the French examples (ib) and (iib). (iiib) shows that Italian does not exhibit the distinctness effect seen in English.

In Section 4.4, we consider this observation in relation to Distinctness (Richards, 2010; Totsuka, 2014). Descriptively speaking, it is important to bear in mind as not all types of RC in English permit pied-piping of prepositions.

Exactly the same facts can be seen with argument negative preposing. It is allowed in finite *wh*-RCs provided the example conforms to the configuration in (46b) or (46c). It is degraded or unacceptable if the configuration is that of (46a). Non-subject and subject RCs are given in (47) and (48) respectively.

(47) a. I met a man who(m), to no woman, would I ever recommend (as a date).

 a'. *I met a man who(m), no woman, would I ever recommend to (as a date).

 b. I bought a dress which, to no woman, would I ever give (as a present).

 b'. *I bought a dress which, no woman, would I ever give to (as a present).

(48) a. I met a man who, to no woman, would ever give roses.

 a'. *I met a man who, no woman, would ever give roses to.

 b. I bought a dress which, to no woman, would ever be given (as a present).

 b'. *I bought a dress which, no woman, would ever be given to (as a present).

If the *wh*-relative pronoun pied-pipes a preposition, DP argument negative preposing is permitted.

(49) a. I met a man to whom, no advice would I ever give.

 a'. *I met a man who(m), no advice would I ever give to.

 b. I met a woman to whom, no roses would a man ever give.

 b'. ??I met a woman who(m), no roses would a man ever give to.

2.2.2 Finite *that*-RCs

Argument fronting in finite *that*-RCs is permitted in non-subject RCs, as in (50), and in subject RCs, as in (51).

(50) I bought a dress that, to Mary, I might consider giving (as a present).

(51) a. I bought a dress that, to Mary, could be given (as a present).

 b. I bought a car that, to children, would give hours of entertainment.

The same applies to argument negative preposing, as in (52) (a non-subject RC) and (53) (a subject RC).

(52)   I bought a dress that, to no woman, would I ever give (as a present).

(53)   I bought a dress that, to no woman, would ever be given (as a present).

As pointed out above, *that*-RCs do not permit pied-piping of prepositions. Given the Distinctness condition seen in finite *wh*-RCs (see Section 2.2.1), we predict that (50) to (53) will be degraded or unacceptable if the FA does not pied-pipe a preposition. This prediction is borne out.

(54)   *I bought a dress that, Mary, I might consider giving to (as a present).

(55)   a.   *I bought a dress that, Mary, could be given to (as a present).
         b.   *I bought a car that, children, would give hours of entertainment to.

(56)   *I bought a dress that, no woman, would I ever give to (as a present).

(57)   *I bought a dress that, no woman, would ever be given to (as a present).

If there is no preposition to pied-pipe, the FA is not licit. This applies to non-subject and subject RCs.

(58)   a.   *I bought a car that, muddy shoes, I would never allow in.
         b.   *I bought a car that, hours of entertainment, would give to children.
         c.   *I bought a car that, the children, can keep entertained.

The same holds for argument negative preposing.

(59)   a.   ??I bought a car that, not a single muddy shoe, would I ever allow in.
         b.   *I bought a car that, not a single hour of entertainment, would ever give to any child.
         c.   *I bought a car that, no child, can keep entertained.

2.2.3   Finite Ø-RCs

Unlike finite *wh*-RCs and finite *that*-RCs, argument fronting is not permitted in finite Ø-RCs at all, even if the FA is a PP.

(60) a. *I met a man, to Mary, I might recommend (as a date).

b. *I bought a dress, to Mary, I could give (as a present).

Since Ø-RCs do not permit pied-piping of prepositions, the ban on FA PPs must be due to a general ban on FAs in finite Ø-RCs, otherwise we would expect Ø-RCs to pattern with *that*-RCs in allowing FA PPs and disallowing FA DPs (see Section 2.2.2).

This applies to subject RCs, though subject Ø-RCs are ungrammatical with or without argument fronting anyway (see Chapter 4).

(61) a. *I met a man, to Mary, might exceptionally give roses.

b. *I bought a car, to the children, can give hours of entertainment.

c. *I bought a dress, to Mary, could be given (as a present).

Argument negative preposing behaves in exactly the same way (again, (63) would be ungrammatical with or without argument negative preposing).

(62) a. *I met a man, to no woman, would I ever recommend (as a date).

b. *I bought a dress, to no woman, would I ever give (as a present).

(63) a. *I met a man, to no woman, would ever give roses.

b. *I bought a dress, to no woman, would ever be given (as a present).

For completeness, the following examples show that FA DPs are not permitted in Ø-RCs.

(64) a. *I met a man, a second date, Mary might actually grant to.

b. *I bought a car, muddy shoes, I would never allow in.

(65) a. *I met a man, a second date, might actually grant to Mary.

b. *I bought a car, the children, can keep entertained.

(66) a. *I met a man, no second date, would Mary ever grant to.

b. *I bought a car, not a single muddy shoe, would I ever allow in.

(67) a. *I met a man, no second date, would ever grant to Mary.

b. *I bought a car, no child, can keep entertained.

2.2.4   Infinitival *wh*-RCs

Argument fronting is not permitted in infinitival *wh*-RCs (regardless of whether *for* is present or not), even if the FA is a DP. Since infinitival *wh*-RCs obligatorily involve pied-piping of a preposition, the ban on FA DPs must be due to a general ban on FAs in infinitival *wh*-RCs.

(68)   a.   *I found a thrift-shop in which, the Christmas shopping, to do next year.

   b.   *I found a thrift-shop in which, the Christmas shopping, for you to do next year.

   c.   *I found a thrift-shop in which for you, the Christmas shopping, to do next year.

(69)   a.   *I found an ideal venue in which, to Mary, to propose.

   b.   *I found an ideal venue in which, to Mary, for you to propose.

   c.   *I found an ideal venue in which for you, to Mary, to propose.

Similarly, argument negative preposing is not permitted (regardless of whether *for* is present or not, and regardless of whether the FA is a PP or a DP).

(70)   a.   *This is a place in which, no man, to ever give one's real name to.

   b.   *This is a place in which, no man, for you to ever give your real name to.

   c.   *This is a place in which for you, no man, to ever give your real name to.

(71)   a.   *This is a place in which, to no man, to ever give one's real name.

   b.   *This is a place in which, to no man, for you to ever give your real name.

   c.   *This is a place in which for you, to no man, to ever give your real name.

2.2.5   Infinitival *for*-RCs

Argument fronting is not permitted in infinitival *for*-RCs at all, regardless of whether the FA is a DP or a PP.

(72)   a.   *I found a thrift-shop, the Christmas shopping, for you to do next year in.

   b.   *I found a thrift-shop for you, the Christmas shopping, to do next year in.

(73)   a.   *I found an ideal venue, to Mary, for you to propose in.

        a'.   *I found an ideal venue, Mary, for you to propose to in.

        b.   *I found an ideal venue for you, to Mary, to propose in.

        b'.   *I found an ideal venue for you, Mary, to propose to in.

The same applies to argument negative preposing.

(74)   a.   *I saw a venue, to no woman, for one to propose in.

        a'.   *I saw a venue, no woman, for one to propose to in.

        b.   *I saw a venue for one, to no woman, to propose in.

        b'.   *I saw a venue for one, no woman, to propose to in.

2.2.6   Infinitival Ø-RCs

Like infinitival *for*-RCs, argument fronting is not permitted in infinitival Ø-RCs, regardless of whether the FA is a DP or a PP.

(75)   *I found a thrift-shop, the Christmas shopping, to do next year in.

(76)   a.   *I found an ideal venue, to Mary, to propose in.

        a'.   *I found an ideal venue, Mary, to propose to in.

The same applies to argument negative preposing.

(77)   a.   *I saw a venue, to no woman, for one to propose in.

        a'.   *I saw a venue, no woman, for one to propose to in.

3   Generalisations

Let us summarise what we have found in Section 2. Since adverbial negative preposing behaved like adverb fronting (modulo what was said about infinitival *wh*-RCs) and argument negative preposing like argument fronting in general, we collapse these into adverbial and argument fronting respectively.

(78)   Distribution of adverbial and argument fronting in full clausal RCs in English

	Finite *wh*-RCs	Finite *that*-RCs	Finite Ø-RCs	Infinitival *wh*-RCs	Infinitival *for*-RCs	Infinitival Ø-RCs
Adverbial fronting	✓	✓	*	✓	*	*
Argument fronting	(✓)	(✓)	*	*	*	*

Although the system described here is more liberal than that described in Haegeman (2012), there is still a clear adjunct/argument asymmetry. The distribution of argument fronting is more constrained than that of adverbial fronting.

Adverbial fronting is permitted in finite *wh*-RCs, finite *that*-RCs and infinitival *wh*-RCs. It is not permitted in finite Ø-RCs, infinitival *for*-RCs and infinitival Ø-RCs. In contrast, argument fronting is not permitted in finite Ø-RCs and all infinitival RCs. It is permitted in finite *wh*-RCs and finite *that*-RCs. However, there is a distinctness effect, which is summarised in (46), repeated below as (79).

(79)   Relative   FA
    a.   DP   DP   *
    b.   DP   PP   ✓
    c.   PP   DP   ✓

The possibility of pied-piping a preposition plays a crucial role in argument fronting. *That*-RCs do not permit pied-piping of prepositions, so FAs must be PPs. *Wh*-RCs do permit pied-piping of prepositions. FAs can be DPs only if the *wh*-relative pronoun pied-pipes a preposition. If the *wh*-pronoun does not pied-pipe a preposition, FA DPs are ruled out, but FA PPs are acceptable. These distributional facts are analysed in the next section.

4 Analysis

4.1 No fronting

We start with the observation that finite Ø-RCs, infinitival *for*-RCs and infinitival Ø-RCs pattern together in not permitting adverbial or argument fronting at all. This would follow straightforwardly on the assumption that these types of RC lack the requisite structure to host fronted material. In other words, we can assume that these RCs have a reduced/truncated C-domain, or perhaps no C-domain at all.

There is potentially some evidence for a subdivision between these RC types. The evidence comes from accessibility (in the sense of Keenan & Comrie, 1977), i.e. the grammatical functions of the elements that can be relativised. Finite Ø-RCs and infinitival *for*-RCs can relativise any argument (except the subject), including arguments embedded inside (finite) clauses ((80e,f), (81e,f) and (82e,f) are taken or adapted from Longenbaugh (2016)).

(80)   Finite Ø-RCs

      a.   *I found a man can fix the sink.

      b.   I found a sink you can fix.

      c.   I found a woman you can give a present to.

      d.   I found a boy you can force to run faster.

      e.   I found a play you can prove was written by Shakespeare.

      f.   I found a play you can prove (that) Shakespeare wrote.

(81)   Infinitival *for*-RCs

      a.   *I found a man for to fix the sink.

      b.   I found a sink for you to fix.

      c.   I found a woman for you to give a present to.

      d.   I found a boy for you to force to run faster.

      e.   I found a play for you to prove was written by Shakespeare.

      f.   I found a play for you to prove (that) Shakespeare wrote.

Infinitival Ø-RCs can also relativise any argument (including the subject), but cannot relativise out of an embedded finite clause (Longenbaugh, 2016), at least for some speakers (we have found judgements of (82e,f) to be somewhat variable).

(82) a.   I found a man to fix the sink.

b.   I found a sink to fix.

c.   I found a woman to give a present to.

d.   I found a boy to force to run faster.

e.   *I found a play to prove was written by Shakespeare.

f.   ?*I found a play to prove (that) Shakespeare wrote.

If this is correct, infinitival Ø-RCs thus seem to exhibit A'-properties in that arguments can be relativised without higher arguments intervening with such movement, as well as A-properties in that such movement is clause-bound (at least for some speakers). In contrast, finite Ø-RCs and infinitival *for*-RCs show A'-properties including unboundedness. Longenbaugh (2016) suggests that the hybrid A'/A-properties are the result of a composite probe, i.e. one seeking both A- (φ) and A'- (WH/REL) related features. If a C-domain is present, the probe is no longer composite, with the A'-probe being in the C-domain.

These considerations suggest that, although all of these RCs lack the requisite structure to host fronted material, finite Ø-RCs and infinitival *for*-RCs do have at least some portion of the C-domain, whilst infinitival Ø-RCs may lack a C-domain altogether.

We can then say that *for* lexicalises a low C-domain head (Fin), in line with many other authors (Haegeman, 2012; Radford, 2009b; Rizzi, 1997). It should also be evident by now that Ø means different things: in finite Ø-RCs, Ø is a null low C-domain head (a null and finite analogue of *for*), whilst in infinitival Ø-RCs, Ø indicates the absence of a C-domain altogether.

If speakers find (82e,f) acceptable, it could be the case that their infinitival Ø-RCs do have a C-domain with a null C-head (see Chapter 4 for discussion of null C-heads in finite contexts).[14]

4.2   Adverbial fronting

Adverbial fronting is found in finite *wh-* and *that*-RCs, and in infinitival *wh*-RCs. Given that we said that finite Ø-RCs and infinitival *for*-RCs are probably maximally FinPs, this suggests that those RCs permitting adverbial fronting are all larger than FinP.

It is especially informative to consider infinitival *wh*-RCs, since these permit adverbial fronting but prohibit argument fronting. We propose that fronted adverbials target a position (ModP) intermediate between FocP and FinP, following Rizzi (2004).

(83) $[_{FocP}$ [*wh*-relative pronoun] Foc $[_{ModP}$ [ADV] Mod $[_{FinP}$ Fin $[_{TP}$ …

Independent evidence for this position comes from questions. Haegeman (2012) claims that *wh*-root questions and negative preposing are incompatible (they are claimed to compete for SpecFocP). In embedded questions, however, *wh*-phrases are claimed to be higher (in SpecForceP) and so can co-occur with negative preposed elements. Our judgements are different for the root clause contexts, namely we permit negatively preposed adverbials but still not negatively preposed arguments (see also Chapter 4) (note the argument/adjunct asymmetry that seems to hold).

(84)   a.   Who under no circumstances would ever date Mary?
        b.   What under no circumstances would you ever give to Mary?
        c.   ?When under no circumstances would you ever give advice to Mary?
        d.   ?Where under no circumstances would you ever give advice to Mary?

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[14] As Theresa Biberauer (p.c.) points out, this could be interpreted as an instance of the generalisation of a null element, comparable to the increase in the number of contexts in which null *dat* 'that' is available in the history of Afrikaans.

(85)   a.   *Who, to nobody, would ever grant a second date?

        b.   *What, to nobody, would Mary ever grant?

        c.   *When, to nobody, would Mary ever grant a second date?

        d.   *Where, to nobody, would Mary ever grant a second date?

(84) shows that negative preposed adverbials are permitted in *wh*-questions, whilst (85) shows that negative preposed arguments are not, even when distinctness effects are controlled for.[15]

4.3   Argument fronting

We now turn to argument fronting. Given what we argued in Section 4.1, that finite Ø-RCs, infinitival *for*-RCs and infinitival Ø-RCs lack the requisite structure to host fronted material, we can ask why the remaining types of clausal RC (finite *wh*-RCs, finite *that*-RCs and infinitival *wh*-RCs) permit adverbial fronting but exhibit restrictions on argument fronting. Our two major questions can thus be stated as:

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[15] Our judgements are somewhat different when the preposed elements are non-negative. Fronted adverbials are still permitted, but fronted arguments are permitted too (and distinctness effects reappear).

(i)   a.   Who next year would date Mary?

       b.   What next year would you give to Mary?

       c.   [?]When in England would you take Mary on holiday?

       d.   [?]Where next year would you take Mary on holiday?

(ii)   a.   Who, to Mary, would never give advice?

      a'.   *Who, Mary, would never give advice to?

       b.   What, to Mary, would you give?

      b'.   *What, Mary, would you give to?

       c.   When, to Mary, would you never give advice?

      c'.   *When, Mary, would you never give advice to?

       d.   Where, to Mary, would you never give advice?

      d'.   *Where, Mary, would you never give advice to?

This suggests that *wh*-phrases and fronted arguments actually target distinct positions.

(i)   Why is argument fronting blocked in infinitival *wh*-RCs (whilst adverbial fronting is not)?

(ii)   Why is argument fronting subject to a distinctness effect in finite *wh*- and finite *that*-RCs (whilst adverbial fronting is not)?

A further interesting question is whether (i) and (ii) are related, especially given the fact that infinitival *wh*-RCs obligatorily involve pied-piping of a preposition, something which has also been linked to Distinctness (Richards, 2010).

Before attempting to answer these questions, however, it would be useful to have a better idea of what argument fronting means in these contexts, i.e. is the fronted argument a topic or focus?

4.3.1   Argument fronting: Topic or Focus?

So far, the term *argument fronting* has been used rather than topicalisation or focalisation. There are several reasons for this. Firstly, *argument fronting* is more neutral. Secondly, and related to the first point, it is not always particularly clear whether the fronted argument is a topic or a focus. It has previously been claimed in the literature that topicalisation is banned in English RCs as well as in the RCs of other languages (see, e.g., Bak, 1984; Chomsky, 1977). For example, Chomsky (1977: 92) judges the following as ungrammatical:

(86)   a.   *the boy to whom the books John gave away

        b.   *the boy whom the books John gave away to

(86b) violates the distinctness effect identified above, so we would expect this to be ruled out independently. However, (86a) is still ungrammatical without violating the distinctness effect, thereby showing that topicalisation in RCs is ruled out. However, it is not always clear in earlier literature whether topic and focus are being distinguished. Therefore, the use of the term topicalisation in earlier literature must be treated with caution when viewed against the background of current cartographic theory. Indeed, Chomsky (1977) rules out topicalisation co-occurring with relativisation by saying that both are types of *wh*-movement and hence are in competition with one another. This would presumably apply to focus as

well, so Chomsky's claim would seem to be that all types of *wh*-movement are impossible in RCs, counter to the facts at issue here.

We apply the topic/focus diagnostics found in Rizzi (1997) where possible. These diagnostics suggest that the fronted argument is better characterised as a focus rather than a topic, at least in the most readily acceptable cases.

Before turning to Rizzi's diagnostics, however, note that multiple fronted arguments inside an RC are extremely difficult in English, as in (87). This is not due to some general ban on multiple fronted arguments in English, since in non-RC contexts, a topic and focus may co-occur, as in (88).

(87) $^?$*Do you remember the year in which that book to JOHN Mary gave?

(88)   That book to JOHN Mary gave in 1979.

Furthermore, when topic and focus co-occur, it is always in that order in English (Culicover, 1991; Haegeman, 2012), though this order is not universal cross-linguistically (Haegeman, 2012; Rizzi, 1997). If we build up the C-domain incrementally bottom-up, we might expect that, if any argument can be fronted, it will be a focus.

Turning now to Rizzi's (1997) diagnostics, he shows that foci exhibit WCO whilst topics do not. For the structures at hand, the fronted argument seems to be sensitive to WCO suggesting that it is a focus rather than a topic, though the judgements are not always as sharp as one might expect.

(89)   a. $^?$*a school to which JOHN SMITH$_i$ his$_i$ mother is planning to send
         b.   a school to which JOHN SMITH Mary is planning to send

(90)   a. $^?$a person to whom THIS BOOK$_i$ its$_i$ author is happy to give for free
         b.   a person to whom THIS BOOK Mary is happy to give for free

As a second diagnostic, Rizzi (1997) notes that topics can be resumed by resumptive pronouns, but foci cannot (at least in Italian). Although English does not typically make use of resumptive pronouns (unless with hanging topics or to repair certain island violations), it seems that the fronted argument is not very readily resumed by a resumptive pronoun. In

fact, it seems more acceptable to resume the RC head (or relative pronoun) than the fronted argument (recall footnote 10). This suggests that the fronted argument is a focus rather than a topic. Consider the following contrasts:

(91)   a. $^{?}$*a man to whom UNFETTERED LIBERTY we would never grant it

       b. $^{?}$a man to whom UNFETTERED LIBERTY we would never grant to him

(92)   a. $^{?}$*a man to whom THIS BOOK Mary would happily give it

       b. $^{?}$a man to whom THIS BOOK Mary would happily give to him

Although none of these considerations are conclusive in isolation, they nevertheless all seem to point towards the same conclusion, namely that argument fronting in RCs in English is focalisation rather than topicalisation. Adopting this conclusion, we refer to the position targeted by argument fronting as SpecFocP.

In fact, if fronting both a topic and a focus inside an RC is ruled out, we may even hypothesise that the RC-internal copy of the RC head is located in SpecTopP rather than SpecForceP. This potentially accounts for it is more acceptable to resume the RC head in (91b) and (92b). Similarities specifically between relativisation and topicalisation have been noted in the literature before (see, e.g., Abels, 2012b; Kuno, 1973, 1976; Williams, 2011), lending plausibility to the idea that relativisation and topicalisation target the same structural position(s) (see Chapter 4 for an elaboration of this idea).

4.3.2   Finite *wh*- and *that*-RCs vs. infinitival *wh*-RCs

We now consider finite *wh*-RCs and finite *that*-RCs. That they permit argument (ARG) fronting at all shows that they must have at least the following amount of structure (to be refined below). This amount of structure is also enough to host fronted adverbial material (see Section 4.2).

(93)   [$_{ForceP}$ [RC head] Force [$_{FocP}$ [ARG] Foc [$_{ModP}$ Mod [$_{FinP}$ Fin [$_{TP}$ …

Infinitival *wh*-RCs also permit adverbial fronting. This suggests that they are larger than just FinP (recall that finite Ø-RCs and infinitival *for*-RCs have a low C-domain head but nonetheless do not permit fronting of any kind). The issue then is whether infinitival *wh*-RCs are as large as ForcePs or not.

If infinitival *wh*-RCs were ForcePs and directly analogous to finite *wh*-RCs in terms of their structure, i.e. if they had the structure in (93), it would be unclear why fronted arguments are not permitted at all. We could posit that English infinitival clauses just cannot have fronted arguments (Bianchi, 1999: 206ff). This seems to be true of raising and control infinitivals (Haegeman, 2012: 67-68; see also Hooper & Thompson, 1973: 484-485):

(94)   a.   *My friends tend, the more liberal candidates, to support.[16]

         b.   *I have decided, your book, to read.

It is also true of ECM complements (Haegeman, 2012, Chapter 2, note 20):

(95)   a.   *Police believe, the London area, the suspect to have left.

         b.   *I really want, that solution, Robin to explore thoroughly.[17]

However, it is not clear that these infinitival clauses are as large as those in (93). In other words, fronted arguments might be ruled out in (94) and (95) because these clauses are too small rather than because they are infinitival *per se*. We can tease these two options apart by considering embedded infinitival questions. It is typically said that *wh*-phrases in embedded finite contexts target a higher position in the left periphery (SpecForceP) than in matrix contexts (SpecFocP) (see Haegeman, 2012; Pesetsky, 1995), thereby capturing the observation that matrix *wh*-phrases follow topics but embedded *wh*-phrases precede them. The high position of *wh*-phrases in embedded clauses is potentially related to clause-typing (Cheng, 1991). Returning to embedded infinitival questions, these seem to permit fronted arguments. The examples may not be perfect, but they certainly seem better than those in (94) and (95).

(96)   a.   ?John didn't know what, to Mary especially, to say at a time like that.

         b.   ?I asked to whom, this particular form, to give so that it would be processed
                 promptly.

We thus conclude that there is nothing about English infinitival contexts *per se* that rules out fronted arguments (*pace* Bianchi, 1999). What is important is the size of the infinitival

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[16] Originally from Hooper & Thompson (1973: 485).

[17] Originally from Culicover & Levine (2001: 297, fn 14).

clause. Embedded infinitival questions are large enough to host fronted arguments, whilst raising, control and ECM infinitival complements are not. Returning to infinitival *wh*-RCs, we can conclude that argument fronting is ruled out not because they are infinitival *per se*, but because the clause is too small to host a fronted argument. Therefore, we conclude that (93) is not correct for infinitival *wh*-RCs.

This suggests that infinitival *wh*-RCs are of an intermediate structural size: larger than FinP but smaller than ForceP.[18] We tentatively propose that they are in fact FocPs and that fronted arguments are impossible in infinitival *wh*-RCs precisely because the *wh*-relative pronoun and a fronted argument would be in competition for the same SpecFocP position (assuming multiple SpecFocPs are not permitted).[19]

(97)   [$_{FocP}$ [*wh*-relative pronoun] Foc [$_{ModP}$ Mod [$_{FinP}$ Fin [$_{TP}$ …

To summarise, finite *wh*- and *that*-RCs are structurally larger than infinitival *wh*-RCs. We have suggested that infinitival *wh*-RCs are FocPs, whilst finite *wh*- and *that*-RCs are ForcePs or TopPs (see end of Section 4.3.1). Supporting evidence for this difference in structural size comes from distinctness effects to which we now turn.

4.4   Distinctness

4.4.1   Distinctness effects in the English C-domain

We consider three *categorial* distinctness effects in English (in the sense of Richards, 2010), two of which are novel, as far as we know. The first, observed in Section 2 and summarised in Section 3, is a distinctness effect between the relative pronoun/operator and fronted

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[18] Italian infinitival complements with *di* (in Fin) may be of this 'intermediate' size as well if the absence of the complementiser *che* (typically in Force) in examples like (i) is taken to indicate the absence of the Force projection (example from Rizzi, 1997: 288):

(i)   Credo, il tuo libro, di apprezzarlo molto.
       'I believe, your book, 'of' to appreciate it a lot.'

[19] A potential problem with this suggestion is that infinitival *wh*-RCs do not obviously have a focus interpretation (Luigi Rizzi, p.c.). It may therefore be the case that relativisation targets a position lower than SpecFocP but above the position for fronted adverbials.

(focussed) argument in finite *wh*-RCs and *that*-RCs. Some relevant examples are repeated below:

(98)   a.   a man [to whom LIBERTY we would never grant]

          b.   *a man [who(m) LIBERTY we would never grant to]

(99)   a.   a prize [which TO JOHN we would never grant]

          b.   *a prize [which JOHN we would never grant to]

(100)   a.   a prize [that TO JOHN we would never grant]

          b.   *a prize [that JOHN we would never grant to]

If the relative pronoun pied-pipes a preposition, the fronted focussed argument can be a DP, as in (98a). If the relative pronoun does not or cannot pied-pipe a preposition, then a fronted focussed DP is impossible, as in the (b) examples, but a fronted focussed PP is fine, as in (99a) and (100a).

The second novel categorial distinctness effect is between a topic and focus in non-RC contexts.

(101)   a.   This present, TO MARY I would give.

          b.   *This present, MARY I would give to.

(102)   a.   To Mary, THIS PRESENT I would give.

          b.   *Mary, THIS PRESENT I would give to.

If we have a DP topic, then the focus cannot be a DP and must be a PP, as in (101) and (102b). If we have a PP topic, then a DP focus is fine, as in (102a). This observation is particularly interesting given the close link between relativisation and topicalisation suggested at the end of Section 4.3.1. Specifically, if the relative pronoun/operator is located in a topic position with the fronted focussed argument in a focus position, then the distintness effects in (98-100) and (101-102) plausibly instantiate the same distinctness effect.

Finally, Richards (2010) argues that the obligatory pied-piping of a preposition seen in infinitival *wh*-RCs is a categorial distinctness effect.

(103) a.   the man [to whom to talk]

       b.   *the man [who(m) to talk to]

We argued above that infinitival *wh*-RCs do not permit argument fronting because relativisation and argument fronting target the same position, i.e. SpecFocP. If this is correct, this would be a third instance where the category of an element in SpecFocP is influenced by the category of a higher (potentially topic-like) element.

We will pursue the hypothesis that these three examples of distinctness in English essentially instantiate a single effect, namely the categorial distinctness effect between a topic and a focus. For concreteness, we adopt Richards' (2010) account of distinctness effects and explore its consequences for the structure of the English C-domain.

4.4.2   Richards' (2010) proposal

Richards (2010) proposes *Distinctness* as a condition on the syntax-phonology interface. The condition is stated as follows (Richards, 2010: 5):

(104) *Distinctness*

       If a linearization statement <α,α> is generated, the derivation crashes.

In other words, if the two elements in a linearisation statement are non-distinct, they cannot be linearised and the derivation consequently crashes.

According to Richards, two phenomena in which distinctness effects are found in English are multiple sluicing, as in (105) and (106) (Richards, 2010: 8), and the transitivity constraint (see Collins & Branigan, 1997; Collins, 1997) in quotative and locative inversion, as in (107) and (108) (Richards, 2010: 13).[20]

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[20] Richards (2010) assumes that the postverbal subject is low in locative and quotative inversion structures (see Collins & Branigan, 1997; Collins, 1997). However, the empirical situation seems to be more complex than suggested by Richards. Specifically, there is evidence that the postverbal subject is low in locative inversion structures but in SpecTP in quotative inversion structures (Bruening, 2016; see also Roberts, 2010).

(105)   a.   Every man danced with every woman, except [John] [with Mary].

        b.   Every man danced with every woman, even [John] [with Mary].

        c.   I know everyone danced with someone, but I don't know [who] [with whom].

(106)   a.   *Every man admired every woman, except [John] [Mary].

        b.   *Every man admired every woman, even [John] [Mary].

        c.   *I know everyone insulted someone, but I don't know [who] [whom].

(107)   a.   "It's cold," said [John].

        b.   "It's cold," said [John] [to Mary].

        c.   *"It's cold," told [John] [Mary].[21]

(108)   a.   Into the room walked [a man].

        b.   Into the room walked [a man] [in the afternoon].

        c.   *Into the room kicked [a man] [a ball].

In the ungrammatical examples ((106), (107c) and (108c)), distinctness is violated because there are two elements of the same *categorial* type in a given domain. This leads to a linearisation statement of the form <α,α> (where α is a syntactic categorial feature), which is ruled out by (104). In the grammatical examples, either there is only a single element of the relevant type ((107a) and (108a)), or there are two elements which are categorially distinct ((105), (107b) and (108b)). Consequently, the distinctness condition in (104) is met.

According to Richards, distinctness effects are found in a range of phenomena in a number of languages. As far as English is concerned, Richards' examples generally involve *categorial distinctness*, i.e. the linearisation statement in (104) is sensitive to the syntactic

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[21] *Tell* is not the best verb to use as we cannot be sure that it allows quotative inversion independently of distinctness effects. However, Richards' basic point could be made using *ask* instead (see Collins, 1997: 50).

(i)   a.   "Is it cold?" John asked.

        b.   "Is it cold?" John asked Mary.

        c.   "Is it cold?" John asked of Mary.

(ii)   a.   "Is it cold?" asked John.

        b.   *"Is it cold?" asked John Mary.

        c.   "Is it cold?" asked John of Mary.

category of the linearised elements. Indeed, in the cases we identified above, *categorial* distinctness seems to be relevant, i.e. finer grained distinctions between different types of A'-feature (e.g. [topic] and [focus]) do not seem to play a role. In other languages, however, distinctness effects are arguably sensitive to other types of feature. Richards (2010: 42ff) points out that, whilst multiple sluicing in English cannot involve multiple DPs, in other languages, including German, Japanese, Dutch and Greek, it can. However, it is still not entirely free. For example, Richards shows that Japanese allows multiple DP remnants in multiple sluicing provided that the remnants have different cases, as in (109a). If the remnants have the same case, the result is ruled out, as in (109b). Interestingly, for some speakers, two remnants can have the same case provided the remnants differ in animacy, as in (110). These examples are from Richards (2010: 44).

(109)   a.   [Sensei-o   hihansita]   gakusei-ga   koko-ni   oozei iru
             teacher-ACC   criticized   student-NOM here-DAT   many be

             kedo, **dare-ga   dare-o**   ka   oboeteinai
             but   who-NOM   who-ACC   Q   remember-NEG

             'There are lots of students here who criticized teachers, but I don't remember who who.'

        b.   *[Sensei-ga   suki na]   gakusei-ga   koko-ni   oozei iru
             teacher-NOM like   student-NOM here-DAT   many be

             kedo, **dare-ga   dare-ga**   ka   oboeteinai
             but   who-NOM   who-NOM   Q   remember-NEG

             'There are lots of students here who like teachers, but I don't remember who who.'

(110)   [Doobutsu-ga suki na]   hito-ga   koko-ni   oozei iru   kedo,
        animal-NOM   like   person-NOM   here-DAT   many be   but

        dare-ga   nani-ga   ka   oboeteinai
        who-NOM   what-NOM   Q   remember-NEG

        'There are lots of people here who like animals, but I don't remember who what.'

The point here is that distinctness effects are found in various languages but the type of distinctness may vary cross-linguistically. English seems to exhibit *categorial* distinctness,

whilst Japanese exhibits *case* (and for some speakers, *animacy*) distinctness. In other words, "Japanese DPs are more distinct from each other than English DPs are" (Richards, 2010: 45).

This may account for why the transitivity effect seen in quotative and locative inversion in English is not found in related Germanic languages, for example, Afrikaans (data provided by Theresa Biberauer, p.c.).

(111) a. "Dis   koud," vertel Jan/hy.[22]

it's   cold   tells   Jan/he

'(lit.) "It's cold," tells Jan/he.'

b. "Dis   koud," vertel Jan   (vir)   Marie.[23]

it's   cold   tells   Jan   VIR   Marie

'(lit.) "It's cold," tells Jan Marie.'

c. 'Dis   koud,' vertel hy   haar.

it's   cold   tells   he   her

'(lit.) "It's cold," tells he her.'

(112) a. By   die   kamer in   loop   die   man.

by   the   room   in   walks   the   man

'Into the room walks the man.'

b. By   die   kamer in   loop   die   man   in   die

by   the   room   in   walks   the   man   in   the

agtermiddag.

afternoon

'Into the room walks the man in the afternoon.'

c. By   die   kamer in   skop   die   man   (vir)   die   bal.

by   the   room   in   kicks   the   man   VIR   the   ball

'(lit.) Into the room kicks the man the ball.'

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[22] *Vertel* 'tell (a story), narrate'

[23] *Vir* is a differential object marker. Crucially, it is optional.

Alternatively, it could be that quotative and locative inversion in other Germanic languages are genuine V2 structures (unlike in English perhaps). If so, the two noun phrases will arguably be in distinct phasal domains.

It is important that distinctness only holds in a given domain, namely the domain for which a particular set of linearisation statements holds. Richards couches this in phase-theoretic terms, i.e. a phase head triggers spellout of its complement (following Chomsky, 2000, 2001, 2008) meaning that a set of linearisation statements is generated for the elements in the phase head's complement. If two non-distinct elements are separated by a phase head, they will be linearised in different domains and will not violate the distinctness condition.

4.4.3   Distinctness in infinitival *wh*-RCs

We turn now to the question of why infinitival *wh*-RCs obligatorily involve a pied-piped preposition. Richards (2010) argues that the obligatory pied-piping of a preposition in infinitival *wh*-RCs results from distinctness.[24]

Richards (2010: 35) provides the following schematic structure for what we are calling an infinitival *wh*-RC (in these examples, C is a phase head triggering spellout of its TP complement):

(113)   a.   *[$_{DP}$ D [$_{NP}$ N=RC head [$_{CP}$ **[$_{DP}$ *wh*-relative pronoun]** [$_{C'}$ C [$_{TP}$ …

      b.   [$_{DP}$ D [$_{NP}$ N=RC head [$_{CP}$ **[$_{PP}$ P [$_{DP}$ *wh*-relative pronoun]]** [$_{C'}$ C [$_{TP}$ …

In (113a), the DP operator (the *wh*-relative pronoun) moves to SpecCP and thus avoids being spelled out as part of C's complement. The DP operator is thus spelled out as part of the next higher spellout domain. Richards assumes that D is not a phase head and so does not trigger spellout of its NP complement. Consequently, the external determiner D and the DP *wh*-relative pronoun are linearised in the same spellout domain. This results in the linearisation statement <D,D>. Because these two D heads are categorially non-distinct, the result is uninterpretable at the interface(s) and thus ruled out.

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[24] For an alternative analysis of obligatory preposition pied-piping in infinitival *wh*-RCs, see Law (2000).

In (113b), on the other hand, there is preposition pied-piping, i.e. the *wh*-relative pronoun DP is the complement of a preposition P. According to Richards, P is a phase head meaning that the *wh*-relative pronoun DP is in its own spellout domain. Consequently, the *wh*-relative pronoun and the external determiner are in different spellout domains in (113b) and so the distinctness condition is satisfied.[25]

Finite *wh*-RCs do not exhibit distinctness effects between the RC head and the *wh*-relative pronoun. In other words, the *wh*-relative can, but need not, pied-pipe a preposition. It seems plausible to assume that the external D and the structure of the RC head and *wh*-relative pronoun does not vary between finite and infinitival *wh*-RCs. This suggests that the presence/absence of distinctness effects is due to some other aspect of their structure. Richards (2010) notes this and points out that, if finite RCs have extra structure and if this extra structure involves a phase head, we can capture the difference between finite and infinitival RCs with respect to distinctness. As an illustration of this idea, Richards adopts Bianchi's (1999) proposal, which posits an extra layer of structure in finite RCs relative to infinitival RCs.

(114)   [$_{DP}$ D [$_{ForceP}$ [$_{NP}$ RC head] Force [$_{TopicP}$ [$_{DP}$ *wh*-relative pronoun] Topic [$_{IP}$ …

Assuming that Force is the phasal C head, the external determiner D and the *wh*-relative pronoun in SpecTopicP are in different Spellout domains and no distinctness effects are predicted.

Richards remarks that the details of Bianchi's proposal are not particularly crucial, only the configuration is. We have already departed from Bianchi's (1999) proposal in various ways. In the following, we attempt to incorporate Richards' insights into the theory being developed here.

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[25] Richards (2010: 35) suggests that deleting the relative operator in (113a) would avoid the linearisation problem but also points out that, on his proposal, this deletion would have to be the consequence of a deletion rule in the syntax (Richards, 2010: 208, note 19). Recall that we have argued that infinitival RCs with and without *wh*-relative operators are not structurally identical, the former but not the latter permitting adverbial fronting.

Recall that we are assuming the MA for RCs (see Chapter 2) where the predication relation between the RC and the RC head is mediated by a Relator R in the sense of Den Dikken (2006), i.e. R stands for any functional head mediating the predication relation. The structures for finite and infinitival *wh*-RCs would thus look as follows:

(115) Infinitival *wh*-RC

    a.   [$_{DP}$ D [$_{RP}$ [RC head] R [$_{FocP}$ [$_{PP}$ P [$_{DP}$ *wh*-relative pronoun]] Foc [$_{FinP}$ Fin [$_{TP}$ …

    b.   *[$_{DP}$ D [$_{RP}$ [RC head] R [$_{FocP}$ [$_{DP}$ *wh*-relative pronoun] Foc [$_{FinP}$ Fin [$_{TP}$ …

(116) Finite *wh*-RC

    a.   [$_{DP}$ D [$_{RP}$ [RC head] R [$_{ForceP}$ [$_{PP}$ P [$_{DP}$ *wh*-relative pronoun]] Force [$_{FocP}$ Foc [$_{FinP}$ Fin [$_{TP}$ …

    b.   [$_{DP}$ D [$_{RP}$ [RC head] R [$_{ForceP}$ [$_{DP}$ *wh*-relative pronoun] Force [$_{FocP}$ Foc [$_{FinP}$ Fin [$_{TP}$ …

To maintain Richards' insights, we must say that R is not a phase head in infinitival *wh*-RCs, i.e. there is no phase boundary between the external determiner D and the complement of R, i.e. FocP. If R were a phase head in infinitival contexts, the external determiner and the *wh*-relative pronoun would be in different domains, and we would not expect any distinctness effect (in other words, we would expect (115b) to be grammatical). In contrast, the R head in finite *wh*-RCs must be a phase head. This means that the external determiner D and *wh*-relative pronoun will always be in different domains in such contexts, hence (116b) is grammatical. For some speculative suggestions on what R stands for, see Section 4.4.5.2.

4.4.4   Distinctness and argument fronting

We now turn to the distinctness effect between topic and focus in non-RC contexts and that between the relative pronoun/operator and focus in finite *wh*- and *that*-RCs. Applying Richards' (2010) approach allows us to investigate (in part) which C-heads constitute domain boundaries (or phase heads) within a more articulated C-domain, an issue of current tension between phase theory and cartography (Shlonsky, 2010).

Such an investigation has been carried out by Totsuka (2014). In brief, Totsuka argues that Force, Rel and Top are phase heads and that Foc and Fin are not (though Force

is non-phasal in infinitival RC contexts). We will review Totsuka's approach, point out some problems, and finally present our own analysis and conclusions.

Totsuka's arguments for Rel (the head hosting *wh*-relative pronouns in its specifier) being a phase head come from the observation that a *wh*-relative pronoun can pied-pipe a preposition and appear alongside a topicalised PP, as in (37c) above, repeated as (117).

(117)   I met a man with whom, about linguistics, I could talk all day.

Totsuka takes the absence of a distinctness effect as evidence for Rel being a phase head. If Rel is a phase head, the relative PP and topicalised PP are linearised in different domains and so do not violate the distinctness condition. However, this is not the only analysis of the absence of a distinctness effect in (117). We saw above that Richards (2010) notes that two DPs in the same domain may be distinguished by case and/or animacy features in Japanese. If so, the two PPs in (117) may be in the same domain but nonetheless be distinct from one another (though why two PPs but not two DPs should be distinct remains unclear).

Alternatively, Totsuka may be correct that there is a phase head between the two PPs but the phase head might not be Rel. Theresa Biberauer (p.c.) notes that the comma intonation of the 'topicalised PP' clearly suggests that the two PPs are in different prosodic domains, suggesting that they are in different spellout domains as well, thereby supporting Totsuka's claim. However, it is not clear that 'topicalised' PPs and 'topicalised' DPs occupy the same structural position. We have already seen evidence that *topicalised* arguments/DPs are not permitted in RCs in English. Perhaps, then, the 'topicalised' PP in (117) is better treated as being more like an adverbial. If this is correct, it would occupy a position in the C-domain (SpecModP) lower than that occupied by fronted (focussed) arguments (SpecFocP) (see Sections 4.2 and 4.3). Consequently, the phase head responsible for the absence of distinctness effects need not be Rel (or Topic), but may be lower in the C-domain.

This would be a welcome result because, as we saw in Section 2, a distinctness effect *does* arise with DPs (the relevant examples are repeated below).

(118)   a.   a man [to whom LIBERTY we would never grant]

        b.   *a man [who(m) LIBERTY we would never grant to]

(119) a. a prize [which TO JOHN we would never grant]

b. *a prize [which JOHN we would never grant to]

(120) a. I met a man to whom, a second date, Mary might actually grant.

b. I bought a car in which, muddy shoes, I would never allow.

(121) a. [?]*I met a man who(m), a second date, Mary might actually grant to.

b. [?]*I bought a car which, muddy shoes, I would never allow in.

If there were a phase boundary between the *wh*-relative pronoun and the fronted argument as Totsuka proposes, the categorial distinctness effects seen in (118) to (121) would be unexpected.

Totsuka's arguments for Top being a phase head comes from topic island effects. In essence, Top triggers spellout of its complement and elements in the complement become inaccessible. Totsuka does not explain why SpecTopP cannot serve as an escape hatch though (see Chapter 4, Section 3.3.3). A challenge for this view is that, as we saw above, topics and foci exhibit distinctness effects, which suggests that Top cannot be a phase head.

(122) a. This present, TO MARY I would give. DP-PP

b. *This present, MARY I would give to. *DP-DP

(123) a. To Mary, THIS PRESENT I would give. PP-DP

b. *Mary, THIS PRESENT I would give to. *DP-DP

(124) a. This book, to ROBIN I gave. DP-PP

b. *This book, ROBIN I gave to. *DP-DP

(125) a. [?]Bill, to THAT HOUSE she took for the weekend. DP-PP

b. *Bill, THAT HOUSE she took to for the weekend. *DP-DP

c. *That house, BILL she took to for the weekend. *DP-DP

d. [?]To that house, BILL she took for the weekend. PP-DP

(126) a. [?]Bill knew that the necklace, to JEANNETTE Fred had given. DP-PP

b. *Bill knew that the necklace, JEANNETTE Fred had given to. *DP-DP

If Top were a phase head, we would not expect any distinctness effects between topics and foci since the topicalised and focussed phrases would always be in separate spellout domains. Therefore, if we adopt Richards' (2010) approach to distinctness, we conclude that Top is not a phase head.

The phasal status of Foc and Fin is more difficult to tease apart based on distinctness. There is no distinctness effect between either foci or topics and the clausal subject (see Chapter 4 where we argue that topics in examples such as (128), where there is no material intervening between the topic and the subject, are located in the specifier of the C head immediately dominating TP).

(127)   THIS HOUSE Mary loves.   DP-DP

(128)   This house, Mary loves.   DP-DP

This either indicates that there is a phase boundary or that the two DPs are actually distinct already.[26] Given that topics and foci presumably have some sort of A'-feature, this feature may be sufficient to distinguish these DPs from the subject DP within the same domain.[27] We leave this matter open (though see Chapter 5, which may shed some light on this issue).

We have argued that Totsuka's Rel and Top heads cannot be phasal if distinctness effects are to be understood in phase theoretic terms. Furthermore, we argued above that Totsuka's Rel and Top heads (which we might have called Force and Top) could potentially and plausibly be collapsed into a single head since relativisation and topicalisation seem to target the same structural position in the C-domain. We may thus wish to relabel our structures for finite *wh-* and *that*-RCs as TopPs rather than ForcePs (recall that R is a Relator

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[26] Adverbial phrases in SpecModP do not seem to participate in distinctness effects. This might suggest that Foc is a phase head or that there is more structure to adverbial phrases than meets the eye. For example, although *next year* looks like a DP, additional (null) structure, such as a silent P, might be responsible for its adverbial status (see Bresnan & Grimshaw, 1978; Emonds, 1976; though see also Larson, 1985).

[27] Note that, if this is correct, Richards' linearisation procedure must be able to distinguish between a DP without an A'-feature and a DP with an A'-feature (e.g. subject vs. topic, or subject vs. focus), but unable to distinguish between two DPs with A'-features (e.g. topic vs. focus). If a distinction could be made between two DPs with A'-features, we would not expect categorial distinctness effects between topics and foci.

head mediating the predication relation between the RC and the RC-external copy of the RC head).

(129)   Finite *wh*-RC

a.   [$_{DP}$ D [$_{RP}$ [RC head] R [$_{TopP}$ [$_{PP}$ P [$_{DP}$ *wh*-relative pronoun]] Top [$_{FocP}$ Foc [$_{FinP}$ Fin [$_{TP}$ …

b.   [$_{DP}$ D [$_{RP}$ [RC head] R [$_{TopP}$ [$_{DP}$ *wh*-relative pronoun] Top [$_{FocP}$ Foc [$_{FinP}$ Fin [$_{TP}$ …

This allows us to collapse the distinctness effect between topic and focus in non-RC contexts and the distinctness effect between the relative pronoun/operator and the fronted focussed argument. It also straightforwardly accounts for why fronted topics are not permitted in finite RCs.

4.4.5   Some outstanding issues

We have proposed a unification of the categorial distinctness effect seen in *wh*-RCs with that seen between topic and focus in non-RC contexts. However, a few issues remain.

4.4.5.1 Distinctness effects in *that*-RCs

The first issue relates to *that*-RCs. Recall that the distinctness effect between the relative pronoun/operator and focus argument in finite *wh*-RCs is also found in *that*-RCs.

(130)   a.   a prize [which TO JOHN we would never grant]

b.   *a prize [which JOHN we would never grant to]

(131)   a.   a prize [that TO JOHN we would never grant]

b.   *a prize [that JOHN we would never grant to]

Now, Richards (2010: 35, 208 n19) suggests that the categorial distinctness violation seen in infinitival *wh*-RCs can be avoided either by pied-piping a preposition or by deleting the relative operator.

(132)   a.   *a man [who(m) to talk to]

b.   a man [to whom to talk]   (preposition pied-piping)

c.   a man [~~who(m)~~ to talk to]   (deletion of the relative operator)

Richards argues that phonologically null elements must be linearised (and so should enter into distinctness effects), but also suggests that, if a syntactic object is rendered null by some operation in the syntactic derivation itself, then it need not be linearised (e.g. copies in a movement chain that are not pronounced). Richards thus suggests that the null relative operator would have to be the result of a deletion rule in the derivation, rather than simply being a phonologically null lexical item.[28]

However, if this is correct, then we might expect *that*-RCs not to show the same distinctness effects as finite *wh*-RCs since there is no overt relative pronoun. Of course, this assumes that *that* is a complementiser. If *that* is analysed as a relative pronoun (see, e.g., Kayne, 2014), the problem disappears. We are not convinced that this is the correct approach to take, as there are dialects of English where both a relative pronoun and *that* can co-occur (see Trotta, 2004: 6), suggesting that *that* is a complementiser.

Another possibility might be to say that the distinctness effect seen in *that*-RCs is actually an effect between the fronted focussed argument and the external determiner (analogous to Richards' analysis of infinitival *wh*-RCs). However, there is good evidence against this. First, we have seen that *that*-RCs pattern with finite *wh*-RCs in terms of structural size, and second, we observe that the same distinctness effects obtain under RC-extraposition.

(133)   a.   I bought a dress yesterday that to MARY could be given as a present.

        b.   *I bought a dress yesterday that MARY could be given to as a present.

This strongly suggests that the distinctness effect in *that*-RCs is computed RC-internally.

Yet another possibility is that there is something about the featural make-up of *that* itself that triggers the distinctness effect. If *that* had a D-feature, this might trigger a categorial distinctness effect with a fronted focussed DP. This option essentially adopts an idea from earlier literature that the *that* in RCs is somehow able to bear an index (see, e.g.,

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[28] Recall that we are adopting the MA for RCs, i.e. the highest copy of the RC head in the RC itself is not related to the RC-external copy via movement. For us, then, the deletion rule cannot be the same as the one relating to movement chains.

Browning, 1996). Potential support for this comes from the fact that *that* in non-RC contexts does not trigger a distinctness effect with topics or foci.[29]

(134)   a.   John thinks that Mary, this dress could be given to.

        b.   John thinks that MARY this dress could be given to.

However, these facts would still be compatible with the idea that the distinctness effect involves the (null) relative operator in *that*-RCs (complement clauses lacking such an operator).

        We leave this issue open for future research since the issue of how null elements (whether inherently/lexically null or rendered null) interact with linearisation would take us too far afield.

4.4.5.2 Distinctness effects in infinitival *wh*-RCs and some analytic implications

A second outstanding issue relates to how to link the distinctness effect in infinitival *wh*-RCs with that between topics and foci in finite contexts. Consider the schematic configurations (again, R is a Relator head):

(135)

H_4	H_3	H_2	H_1	
R	Topic	Focus	Fin	Finite *wh*-RCs; *that*-RCs
■	R	Focus	Fin	Infinitival *wh*-RCs

Finite *wh*-RCs and *that*-RCs permit a fronted focussed argument, located in SpecH$_2$P (SpecFocP). The relative pronoun/operator targets SpecH$_3$P (SpecTopP). The Relator head R (equivalent to H$_4$) hosts the RC-external copy of the RC head in its specifier, i.e. in SpecH$_4$P. As for infinitival *wh*-RCs, these are only as large as H$_2$P, i.e. the relative pronoun targets SpecH$_2$P. The Relator head R is equivalent to H$_3$ and the RC-external copy of the RC head is in SpecH$_3$P. Now, we have seen that there is a categorial distinctness effect between topic

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[29] This difference, as well as the fact that extraction out of complement *that*-clauses is possible whilst extraction out of *that*-RCs is decidedly worse, argues against conflating complement and relative clauses (*pace* Arsenijević, 2009; among others), at least in featural terms if not configurational ones.

and focus in non-RC contexts, between the relative pronoun/operator and fronted focussed argument in finite *wh*-RCs and *that*-RCs, and between the RC head and the relative pronoun in infinitival *wh*-RCs. In other words, looking at the configurations, there is a categorial distinctness effect between elements in $SpecH_3P$ and $SpecH_2P$ in English. Recall as well that there was no categorial distinctness effect between the relative pronoun/operator and the RC head in finite *wh*- and *that*-RCs. In other words, there is no categorial distinctness effect between elements in $SpecH_4P$ and those in $SpecH_3P$. This suggests that H_3 is non-phasal whilst H_4 is phasal.[30]

These configurations are suggestive but it is unclear what the heads H_4, H_3, etc. actually refer to. It is very tempting to view them all as C-heads (approximately, H_4 = Force, H_3 = Topic, H_2 = Focus, H_1 = Fin). This would mean that the RC-external copy of the RC head in the MA is base-generated at the very edge of the C-domain of the RC. This would bring our proposed structures very close to structures proposed by Bianchi (1999, 2000, 2004), with the only real difference being that, for Bianchi, the RC head moves into the very edge of the C-domain, whilst for us it would be base-generated there. This is compatible with the MA (independently argued to be necessary in Chapter 2) and provides a neat way of capturing the parallels relating to distinctness effects.

Chierchia (2016) has recently proposed that the crucial property of A-positions is that they are positions that introduce discourse markers. This applies to theta-positions and the EPP-subject position, but also to certain discourse-based positions such as topic positions. It may be that it is possible to base-generate the RC-external copy of the RC head in a high A-position in the left periphery of the RC. That $SpecH_3P$ (i.e. SpecTopP) is a topic-like discourse-based position is uncontroversial. Whether $SpecH_4P$ is also an A-position or topic-like discourse-based position requires further research. It need not specifically refer to

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[30] If distinctness is tied to phases, the dynamic view of phases (Bošković, 2014) cannot be correct (at least for the C-domain, which Bošković in fact leaves out of his proposal). If it were correct for the C-domain, we would expect the highest C head of infinitival *wh*-RCs to be phasal and hence we would not expect them to exhibit distinctness effects.

SpecForceP (though we have suggested that it is the specifier of a phase head).[31] If base-generated at the very edge of the RC, the RC head can receive a theta-role and case etc. from the matrix clause without having to resort to case deletion or overwriting as in the HRA.

5   Summary

We have reached the conclusion that the different types of clausal RCs in English systematically differ in structural size. This accounts for the various fronting possibilities. Finite *wh-* and *that-*RCs are the largest: they can host fronted adverbials and fronted focussed arguments. Infinitival *wh-*RCs are the next largest: they can host fronted adverbials but not fronted arguments. Finite *Ø-*, infinitival *for-* and infinitival *Ø-*RCs are the smallest: they do not permit fronting of any kind. We also saw evidence that infinitival *Ø-*RCs may be even smaller than the other two.

(136)

	Finite *wh*-RCs	Finite *that*-RCs	Infinitival *wh*-RCs	Finite *Ø*-RCs	Infinitival *for*-RCs	Infinitival *Ø*-RCs
Adverbial fronting	✓	✓	✓	*	*	*
Argument fronting	(✓)	(✓)	*	*	*	*
Structural size (max.)	TopP		FocP		CP (simplex C-domain)	CP/TP

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[31] It is possible to have structures which seem very similar to RCs but have only an 'aboutness' relation between the 'head' and the modifying clause. The following examples are from Comrie (2002: 34):

(i)   a.   I haven't been to a party yet that I haven't got home the same night.

        b.   You come to a group that you have [to] eat certain foods.

        c.   a cake where you don't gain weight

        d.   Dickens is one of the few authors where I prefer to watch the video.

Perhaps in these so-called 'noun-modifying constructions', the 'head' noun is generated as a topic-like element at the edge of the modifying clause but is theta- and Case-licensed in the matrix clause.

We argued that argument fronting in finite *wh-* and *that-*RCs is focalisation, not topicalisation. We suggested that topicalisation in these RCs is ruled out because relativisation and topicalisation compete for the same structural position (see also Chapter 4). Similarly, we suggested that focalisation in infinitival *wh-*RCs is ruled out because focalisation and relativisation compete for the same structural position. We thus concluded that finite *wh-* and *that-*RCs are analogous to TopPs, whilst infinitival *wh-*RCs are analogous to FocPs. We also proposed that the other types of RC either have a simplex C-domain, i.e. a C-domain with a single C head, or, in the case of infinitival ∅-RCs, perhaps no C-domain at all.

We also observed that English exhibits a categorial distinctness effect in the C-domain in (at least) three environments: (i) between the relative pronoun/operator and fronted focussed argument in finite *wh-* and *that-*RCs; (ii) between topic and focus in non-RC contexts; and (iii) between the external determiner and relative pronoun/operator in infinitival *wh-*RCs (following Richards, 2010). We proposed that these are three instances of a single effect, namely the categorial distinctness effect between topic and focus in English. Adopting Richards' (2010) approach to distinctness effects, we explored its ramifications for the presence/absence of domain or phase boundaries in a more articulated C-domain. Finally, we speculated on some of the implications of this analysis on the issue of where the RC-external copy of the RC head might be base-generated.

Chapter 4

Subject-object asymmetries

1 Introduction

In this chapter, we focus on subject-object asymmetries in English. One of the most famous asymmetries is the *that*-trace effect (Perlmutter, 1968, 1971), illustrated in (1) and (2).

(1)   a.   You said (that) Mary liked John.

        b.   Who(m) did you say (that) Mary liked?

        c.   Who did you say (*that) liked John?

(2)   a.   You said (that) Mary left.

        b.   Who did you say (*that) left?

As (1a) and (2a) show, *that* is generally optional when introducing a declarative embedded clause. This optionality is also seen in cases of *wh*-extraction, as in (1b), where the direct object of the embedded clause has been extracted. However, when the subject of the embedded clause is extracted, as in (1c) and (2b), the optionality vanishes: *that* must be absent. This is the *that*-trace effect.

Over the decades since Perlmutter's original observation, there have been many attempts to account for the *that*-trace effect in English. Any account of the *that*-trace effect must also contend with the fact that English exhibits a seemingly diametrically opposed effect in short subject RCs, the so-called anti-*that*-trace effect (Bresnan, 1972), illustrated in (3).

(3)   a.   The man (that/who(m)) Mary likes is John.

        b.   The woman *(that/who) likes John is Mary.

(4)   The woman *(that/who) left is Mary.

As (3a) shows, *that* (or a relative pronoun) is optional when the direct object is relativised. When the subject is relativised, this optionality vanishes. However, unlike with the *that*-

trace effect, *that* (or a relative pronoun) must be present, as in (3b) and (4). Therefore, it is not just that the *that*-trace effect does not hold in these contexts, rather its opposite holds. This is the anti-*that*-trace effect.

Each of these effects is thus doubly unexpected from the perspective of the other (Pesetsky, 2015). Yet they co-exist in English and are similar in that both involve a subject-object asymmetry arising in A'-extraction contexts and both involve a suspension of the otherwise general optionality of *that*. This suggests that a unified analysis is desirable albeit challenging.

It seems fair to say that the *that*-trace effect has received far more attention in the literature than the anti-*that*-trace effect. Nevertheless, a widely accepted analysis of the *that*-trace effect remains elusive, especially since the advent of Minimalism and the abandonment of the Empty Category Principle (ECP). We believe that the systematic size differences in full clausal RCs seen in Chapter 3 shed new and interesting light on the anti-*that*-trace effect, and that this in turn may offer a new perspective on the analysis of the *that*-trace effect.

The structure of this chapter is as follows: in Section 2, we illustrate the *that*-trace and anti-*that*-trace in more detail. In Section 3, we propose an account of the anti-*that*-trace effect in terms of anti-locality, capitalising on the idea that RCs in English vary in structural size (see Chapter 3). This analysis has a number of analytic and theoretical consequences for the *that*-trace effect as well as phase theory and successive cyclicity more generally. In Section 4, we investigate the extent to which anti-locality plays a role in other subject-object A'-asymmetries in English, namely matrix *wh*-questions and topicalisation. The ramifications of this for the structure of the English C-domain are considered in Section 5, and the idea that topicalisation and relativisation are intimately related (see also Chapter 3) is considered in Section 6. Finally, in Section 7 we explore some of the insights that our analyses from Chapters 3 and 4 may offer from a cross-linguistic perspective by comparing English with Italian, Welsh and Malagasy.

2   The *that*-trace and anti-*that*-trace effects

As pointed out above, *that* in English is generally optional (at least in bridge verb contexts) when introducing a declarative embedded clause. This optionality is also found in cases of extraction from the embedded clause, as in (5b) involving extraction of the embedded direct object, and (5c) and (5d) involving extraction of the embedded indirect object.

(5)   a.   You said (that) Mary gave a present to John.

        b.   What did you say (that) Mary gave to John?

        c.   Who did you say (that) Mary gave a present to?

        d.   To whom did you say (that) Mary gave a present?

However, when the embedded subject is extracted, the optionality vanishes: *that* must be absent. This is the *that*-trace effect.

(6)   Who did you say (*that) gave a present to John?

Note that it is only the *that* which is local to the base-position of the extracted subject that is affected. Other instances of *that* between the base-position and final landing site remain optional. This can be seen by extracting a more deeply embedded subject, as in (7).

(7)   Who did you say (that) Bill believed (*that) gave a present to John?

The *that*-trace effect is thus a very local effect.

Turning to the anti-*that*-trace effect, we see that *that* (or a relative pronoun) is also typically optional in English, as in (8a) and (8b) where the direct object and indirect object have been relativised respectively.

(8)   a.   The present (that/which) Mary gave to John was enormous.
        b.   The man (that/who(m)) Mary gave a present to is John.

However, when the subject is relativised, the optionality vanishes: *that* (or a relative pronoun) is obligatory. This is the anti-*that*-trace effect.

(9)   The woman *(that/who) gave a present to John is Mary.

Just as with the *that*-trace effect, note that it is only the *that* which is local to the base-position of the extracted subject that is affected. If we relativise an embedded subject, the *that* (or relative pronoun) introducing the RC is optional. Furthermore, we get a *that*-trace effect local to the base-position of the embedded subject.

(10)   The woman (that/who) you said (*that) gave a present to John is Mary.

In other words, that anti-*that*-trace effect is also a very local effect.

To summarise, we have two subject-object asymmetries, both of which: (i) arise in cases of A'-extraction of subjects; (ii) involve the suspension of optionality of *that*; and (iii) arise local to the base-position of the extracted subject. However, in the *that*-trace effect, *that* must be absent, whilst in the anti-*that*-trace effect, *that* (or a relative pronoun) must be present. How can we capture this difference whilst at the same time capturing the three similarities?

We believe that the key to unlocking this problem lies in the following observation: the anti-*that*-trace effect arises when the extracted subject moves from its base-position *to* the edge of the clause, whilst the *that*-trace effect arises when the extracted subject moves from its base-position *through* the edge of the clause.[1]

3   Analysis

3.1   Anti-locality and the anti-*that*-trace effect

The anti-*that*-trace effect is repeated in the paradigm in (11).

(11)   a.   The woman [that gave a present to John] is Mary.

        b.   The woman [who gave a present to John] is Mary.

        c.   *The woman [Ø gave a present to John] is Mary.

In other words, we can restate the anti-*that*-trace effect as a ban on short subject Ø-RCs.[2]

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[1] For our purposes, the subject's 'base-position' is SpecTP, i.e. the position from which the first step of A'-movement takes place.

[2] There are apparent exceptions to this generalisation (McCawley, 1998: 463):

We saw in Chapter 3 that Ø-RCs do not permit adverbial or argument fronting, unlike *that-* and *wh-*RCs (see also Bianchi, 1999; Doherty, 1993, 2000). Some relevant examples are given below, repeated from Chapter 3.

(12) a. I met a man *(who/that) next year Mary might (actually) date.

  b. I bought a dress *(which/that) next year Mary might (actually) wear.

(13) I bought a dress *(which/that), to Mary, I might consider giving (as a present).

In (12) and (13), with fronted adverbials and arguments respectively, *that* or a relative pronoun is obligatory. We argued that Ø-RCs were structurally smaller than *that-* and *wh-*RCs. More specifically, we proposed that Ø-RCs had only a single C head in the C-domain, call it C, whilst *that-* and *wh-*RCs had more articulated C-domains.

We propose that *that-* and *wh-*RCs in fact *always* contain at least two C heads in the C-domain, call them Force and Fin where Force is higher than Fin (Rizzi, 1997), with *that* lexicalising Force and relative pronouns occupying SpecForceP (though see Chapter 3).[3] Fronted adverbials and fronted arguments occupy a position between the two C heads, thereby accounting for the fact that *that* and relative pronouns obligatorily precede fronted elements (see Chapter 3).

We are now in a position to see more clearly what the anti-*that*-trace effect consists in. Consider the following simplified structures (recall that we adopt the MA for RCs, see Chapter 2):

(14) The woman that gave a present to John is Mary.

  the woman [$_{ForceP}$ [$_{DP}$ woman]$_i$ Force=that [$_{FinP}$ Fin=Ø [$_{TP}$ t$_i$ gave a present to John]]]

(i) a. I have a friend Ø called me yesterday.

  b. We got a lot of fancy Cadillacs Ø don't tip.

However, with a only a few exceptions (e.g. Doherty, 1993, 2000), these constructions have been argued to be distinct in various ways from restrictive RCs (see Den Dikken, 2005; Harris & Vincent, 1980; Henry, 1995; Lambrecht, 1988; McCawley, 1998). We thus set such examples aside here.

[3] In Chapter 3, we suggested that finite *wh-* and *that-*RCs may be TopPs rather than ForcePs. We return to this issue below. For now, we stick to the labels Force and Fin.

(15)   *The woman gave a present to John is Mary.

the woman [$_{CP}$ [$_{DP}$ woman]$_i$ C=Ø [$_{TP}$ t$_i$ gave a present to John]]

The subject moves from its A-position in SpecTP to the left periphery to form an RC. In *that*-RCs, the subject moves from SpecTP to SpecForceP, as in (14). Recall that the element in SpecForceP is not pronounced in *that*-RCs. In *wh*-RCs, the subject also moves from SpecTP to SpecForceP. We assume that, if the relative pronoun is spelled out, Force is obligatorily null, i.e. Ø, a doubly-filled COMP effect (see Koopman, 2000). In Ø-RCs, the subject moves from SpecTP to SpecCP, but the result is ungrammatical. This is the anti-*that*-trace effect.

When non-subjects[4] are relativised, both *that-/wh*-RCs and Ø-RCs are grammatical.

(16)   The present that Mary gave to John was enormous.

the present [$_{ForceP}$ [$_{DP}$ present]$_i$ Force=that [$_{FinP}$ Fin=Ø [$_{TP}$ Mary gave t$_i$ to John]]]

(17)   The present Mary gave to John was enormous.

the present [$_{CP}$ [$_{DP}$ present]$_i$ C=Ø [$_{TP}$ Mary gave t$_i$ to John]]

Looking at the configurations of these structures, we propose that the anti-*that*-trace effect arises because A'-movement from SpecTP to SpecCP, as in (15), is too short, i.e. it is anti-local. Movement to SpecCP from a position lower than SpecTP is fine, as in (17); it is not anti-local.[5] Similarly, movement from SpecTP to a higher Spec position in the C-domain, e.g. SpecForceP, is fine, as in (14).

This type of anti-locality falls under the kind proposed by Erlewine (2016: 431), namely Spec-to-Spec Anti-Locality.[6]

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[4] Or more accurately, any element that is not the highest subject.

[5] In expletive-associate constructions, we also have movement to SpecCP from a position lower than SpecTP, hence (ia) is grammatical:

(i)   a.   The man [there was in the garden yesterday] has vanished.

b.   *The man [was in the garden yesterday] has vanished.

[6] This is distinct from another type of Spec-to-Spec anti-locality, namely movement from one specifier to another within the same maximal projection (see, e.g., Bošković, 1994; Lasnik & Saito, 1992; Pancheva, 2010).

(18)   Spec-to-Spec Anti-Locality

Ā-movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.

According to this definition, (15) violates Spec-to-Spec Anti-Locality because A'-movement of the subject is from SpecTP to SpecCP, which only crosses the maximal projection TP. (14), however, does not violate Spec-to-Spec Anti-Locality because A'-movement of the subject crosses the maximal projections TP and FinP (at least). Similarly, the A'-movements in (16) and (17) cross more than one maximal projection and so do not violate (18).

Spec-to-Spec Anti-Locality combined with the differences in structural size between *that*-RCs (and *wh*-RCs) on the one hand, and Ø-RCs on the other, independently argued for at length in Chapter 3, provides a straightforward account of the anti-*that*-trace effect.

However, as it stands, Spec-to-Spec Anti-Locality is a stipulation and a seemingly unnatural one at that: (i) Why should it make reference to A'-movement specifically? (ii) Why should it refer to two positions in different, albeit very local, maximal projections? We return to these issues in Section 3.3.2. For now, and because of the straightforward account it gives us of the anti-*that*-trace effect, let us suppose that Spec-to-Spec Anti-Locality is correct and see what its analytic and theoretical consequences are with respect to the *that*-trace effect.

3.2   The *that*-trace effect

The *that*-trace effect is repeated in the paradigm in (19).

(19)   a.   *Who did you say that liked John?

b.   Who did you say liked John?

c.   Who did you say that Mary liked?

d.   Who did you say Mary liked?

We saw above that *that*-RCs and Ø-RCs differ in that Ø-RCs do not permit adverbial or argument fronting of any kind. Interestingly, this contrast also applies to *that*-clauses and Ø-clauses (Doherty, 1993, 2000; Pesetsky & Torrego, 2001: 376). The following examples and judgements are from Doherty (2000: 15):

(20)   a.   She prayed that next Wednesday the check would arrive.

          b.   We concluded that in the future he should be closely watched.

          c.   We maintain that in Dublin good coffee is hard to find.

          d.   John claims that during the party Ted squirted water at Eric.

(21)   a.   *She prayed next Wednesday the check would arrive.

          b.   *We concluded in the future he should be closely watched.

          c.   *We maintain in Dublin good coffee is hard to find.

          d.   *John claims during the party Ted squirted water at Eric.

According to Doherty, fronted adverbials are permitted in *that*-clauses but not in Ø-clauses, as in (20) and (21) respectively. The same contrast is also reported for argument fronting, i.e. argument fronting is permitted in *that*-clauses but not in Ø-clauses (Doherty, 2000: 13).

(22)   a.   I hope that this book you will read.

          b.   She claims that Guinness he likes but that whiskey he hates.

          c.   This proves that Cinque he'd read but that Rizzi he hadn't.

(23)   a.   *I hope this book you will read.

          b.   *She claims Guinness he likes but whiskey he hates.

          c.   *This proves Cinque he'd read but Rizzi he hadn't.

If these observations are correct, then *that*-clauses pattern in the same way as *that*-RCs (and *wh*-RCs) and Ø-clauses pattern in the same way as Ø-RCs.[7] Consequently, we propose that Ø-clauses have a CP with a single C head, whilst *that*-clauses have a CP with at least two

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[7] The contrast may not be as strong as Doherty claims. According to our judgements and those of several others, the examples in (21) and (23) are acceptable with the appropriate intonation. RCs potentially exhibit a much sharper contrast because it is necessary for the RC-internal copy of the RC head to be at the very edge of the clause in order to form a licit predication relation with the RC-external copy of the RC head. If so, Ø-RCs do not permit any fronted elements as these would interfere in this predication relation (though see Krapova (2010: 1256ff) and Cinque (2013: 290, note 12) on cases in Bulgarian where topics can appear higher than (to the left of) the invariant relative complementiser *deto*). *That*-RCs and *wh*-RCs do permit fronted elements because these elements are lower than the position targeted by the RC-internal copy of the RC head, hence they do not interfere in the predication relation. In complement clauses, there is no predication relation to be established and so fronted elements are permitted in both *that*- and Ø-clauses.

C heads, Force and Fin, directly analogous to the different structural sizes of finite clausal RCs.[8]

Given the structural differences between *that-* and Ø-clauses, let us turn to the consequences of Spec-to-Spec Anti-Locality for the analysis of the *that*-trace effect. First, consider successful subject extraction, i.e. cases involving a Ø-clause. There are two possibilities (we only show intermediate landing sites in the C-domain of the embedded clause, i.e. we ignore any intermediate landing sites at the edge of the v-domain).

(24)   Who did you say liked John?

    a.   **Who$_i$** did you say [$_{CP}$ C=Ø [$_{TP}$ **t$_i$** liked John]]?

    b.   **Who$_i$** did you say [$_{CP}$ **t$_i$** C=Ø [$_{TP}$ **t$_i$** liked John]]?

The difference between the two options in (24) lies in whether the extracted subject transits through the edge of the embedded C-domain or not. Assuming Spec-to-Spec Anti-Locality, option (24b) would be illicit as movement from SpecTP to SpecCP is anti-local (this results in the anti-*that*-trace effect in RC contexts). Spec-to-Spec Anti-Locality thus forces us to choose option (24a), i.e. the option where the extracted subject does not transit through the edge of the C-domain. According to (24a), the subject moves straight from the embedded SpecTP into the matrix clause (by assumption, first to an intermediate landing site at the edge of the matrix v-domain (not shown), then onto its final landing site in the matrix C-domain) (see also Erlewine, 2014; Ishii, 1999).

Second, consider unsuccessful subject extraction, i.e. cases involving a *that*-clause. There are three basic options to consider, all of which must be ruled out. These are illustrated in (25).

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[8] Doherty (1993, 2000), Bošković (1994, 1996, 1997) and Ishii (1999, 2004) also conclude that *that-* and Ø-clauses (and RCs) differ in structural size. However, since these proposals do not assume a split C-domain, the only way for Ø-clauses (and Ø-RCs) to be smaller than their *that*-counterparts is for them to lack a C-domain entirely.

(25)   *Who did you say that liked John?

  a.   **Who_i** did you say [_{ForceP} Force=that [_{FinP} Fin=Ø [_{TP} **t_i** liked John]]]?

  b.   **Who_i** did you say [_{ForceP} **t_i** Force=that [_{FinP} Fin=Ø [_{TP} **t_i** liked John]]]?

  c.   **Who_i** did you say [_{ForceP} Force=that [_{FinP} **t_i** Fin=Ø [_{TP} **t_i** liked John]]]?

In option (25a), the subject moves from SpecTP straight into the matrix clause. In option (25b), the subject moves from SpecTP into the matrix clause via SpecForceP. In option (25c), the subject moves from SpecTP into the matrix clause via SpecFinP. (25a) seems to be ruled out by locality: movement from SpecTP into the matrix clause across both FinP and ForceP is ruled out. (25b) is ruled out for some other reason. Our analysis of *that-* and *wh*-RCs requires movement from SpecTP to SpecForceP, so this movement step is licit in principle. (25b) would thus seem to be ruled out by the second step of movement, namely movement from SpecForceP. In other words, it seems that SpecForceP can be a final landing site (as in *that-* and *wh*-RCs), but not an intermediate landing site. Finally, (25c) is ruled out by Spec-to-Spec Anti-Locality as it involves movement from SpecTP to SpecFinP, which crosses only the maximal projection TP (it is configurationally identical to the illicit movement from SpecTP to SpecCP in Ø-RCs).

This suggests that extraction of non-subjects out of *that*-clauses takes place via SpecFinP.

(26)   Who did you say that Mary liked?

    Who_i did you say [_{ForceP} Force=that [_{FinP} **t_i** Fin=Ø [_{TP} Mary liked **t_i**]]]?

Movement from a position lower than SpecTP to SpecFinP is not ruled out by Spec-to-Spec Anti-Locality. This derives the subject-object asymmetry of the *that*-trace effect. If movement of non-subjects were to cross FinP and ForceP in one step, this would violate locality, and if movement of non-subjects were to transit through SpecForceP, it would be unclear why subject extraction could not do the same.

Therefore, by adopting Spec-to-Spec Anti-Locality and independently motivated assumptions about the structural sizes of *that-* and Ø-clauses, we are led to the conclusion that successive cyclic movement does not proceed through the very edge of an embedded *that*-clause. Instead, it targets a slightly lower position, namely SpecFinP. This result is

particularly interesting from a phase theoretic perspective (Chomsky, 2000, 2001, 2008), since phase theory stipulates that successive cyclic movement proceeds through the phase edge, i.e. through the specifier of the phase head itself. We discuss the consequences for phase theory and successive cyclicity in greater detail in Section 3.3.

Before moving on, let us summarise our analysis of the anti-*that*-trace effect and its consequences for an analysis of the *that*-trace effect. First, *that*-clauses and *that*-RCs always contain at least two heads in the C-domain, Force and Fin, whilst Ø-clauses and Ø-RCs only have a single head, C, in the C-domain. Second, the anti-*that*-trace effect arises from Spec-to-Spec Anti-Locality. Short subject Ø-RCs are banned because movement from SpecTP to SpecCP is anti-local. Short subject *that*- and *wh*-RCs are fine because movement from SpecTP to SpecForceP is not anti-local. Non-subject Ø-RCs are also fine because movement to SpecCP is from a position lower than SpecTP. Third, the *that*-trace effect also arises from Spec-to-Spec Anti-Locality. In *that*-clauses, successive cyclic movement proceeds via SpecFinP. Subjects cannot be extracted out of *that*-clauses because movement from SpecTP to SpecFinP is anti-local. Non-subjects, however, can be extracted out of *that*-clauses because movement to SpecFinP is from a position lower than SpecTP. Extraction out of Ø-clauses does not proceed through the C-domain at all so subjects can be extracted without violating anti-locality (or locality).

3.3 Implications for phase theory and successive cyclicity

3.3.1 The phase escape hatch

We concluded in Section 3.2 that extraction out of *that*-clauses proceeds via SpecFinP (hence non-subjects can be extracted but (highest) subjects cannot due to anti-locality). We also concluded that subject extraction out of Ø-clauses does not transit through the C-domain at all. But what about extraction of non-subjects from Ø-clauses? Can they be extracted from an embedded Ø-clause without transiting through the clause edge? Evidence from reconstruction suggests that the answer is no: non-subjects pass through a position at the edge (though not necessarily the very edge) of a Ø-clause. Consider the following examples:

(27) a.   *You told the girls$_i$ that Peter likes these pictures of each other$_i$.

      b.   *You told the girls$_i$ Ø Peter likes these pictures of each other$_i$.

(28) a.   Which pictures of each other$_i$ did you tell the girls$_i$ that Peter likes?

      b.   Which pictures of each other$_i$ did you tell the girls$_i$ Ø Peter likes?

In (27), the reciprocal anaphor *each other* cannot be bound by *girls* in the matrix clause because the embedded subject *Peter* intervenes. However, in (28), where the embedded direct object has undergone A'-movement, binding of the anaphor by *girls* is acceptable. The standard analysis of such effects (see Barss, 1986) is that the direct object passes through a position where the anaphor is c-commanded by *girls* but not by *Peter*. This position is at the edge of the embedded clause. Crucially, it makes no difference whether the embedded clause is a *that*-clause or a Ø-clause. If non-subjects extracted out of Ø-clauses did not pass through the edge of the embedded clause, we would not expect (28b) to be grammatical. Consequently, we conclude that successive cyclic movement proceeds via the edge of an embedded Ø-clause.

However, we also concluded that subjects do not move out of Ø-clauses via SpecCP due to anti-locality, so it is apparently possible to escape a Ø-clause without transiting through its edge. How can we solve this problem?

This is only a problem if we assume that successive cyclic movement proceeds through the very edge of the embedded clause. However, we concluded that extraction out of *that*-clauses proceeds via SpecFinP, not SpecForceP. We thus propose that successive cyclic movement out of Ø-clauses proceeds via SpecTP. Non-subjects proceed through a SpecTP position higher than that occupied by the subject, thereby accounting for (28b). Subjects, by virtue of occupying SpecTP, are effectively already in an escape hatch position in Ø-clauses, so they can be extracted.

This suggests that, in general, the escape hatch of a clause is the specifier of the complement of the highest head in the clause. In terms of phase theory, where the presence of an escape hatch is directly linked to the presence of a phase head, this suggests that Force and C are phase heads and that the phase escape hatch is the specifier of the phase head's complement. In other words, in *that*-clauses, which are ForcePs, Force is the

phase head and SpecFinP (the specifier of the complement of the phase head) is the phase escape hatch. In Ø-clauses, which are CPs, C is the phase head and SpecTP (the specifier of the complement of the phase head) is the phase escape hatch.

This is quite a radical departure from standard phase theory where the phase escape hatch is considered to be the specifier of the phase head itself. However, the reasons for thinking this are largely conceptual. When one adopts more skeletal clausal structures, the issue of whether the phase escape hatch is actually part of the phase edge will not typically arise. Typically, C is considered a phase head and SpecCP the phase escape hatch. However, as soon as one adopts a split C-domain, even one with only two C heads, there is a real empirical question about exactly what counts as the phase head and phase escape hatch. Exactly how to marry phase theory and more fine-grained, cartographic clause structures is an outstanding problem (Shlonsky, 2010). To this end, our proposal can be viewed as an attempt to explore this question (see also Biberauer & Roberts, 2015).

That is not to say that empirical arguments do not exist. There is a vast amount of evidence for an intermediate landing site at the clause edge, e.g. from reconstruction effects (see Barss, 1986; Chomsky, 1995; Fox, 1999, 2000; Munn, 1994, among many others). However, such evidence does not typically allow us to pinpoint exactly where these intermediate landing sites might be within a split C-domain. One piece of evidence that might (and which challenges our conclusion that the escape hatch of a *that*-clause is SpecFinP rather than SpecForceP) comes from floating quantifiers in West Ulster English (McCloskey, 2000: 61).

(29)   a.   What did he say all (that) he wanted *t*?
        b.   Where do you think all they'll want to visit *t*?
        c.   Who did Frank tell you all that they were after *t*?
        d.   What do they claim all (that) we did *t*?

McCloskey (2000) observes that, in this variety of English, floated quantifiers may be stranded under A'-movement and they may be stranded at the edge of an embedded clause (note that floated quantifiers can be at the edge of embedded *that*- and Ø-clauses). Crucially, the floated quantifier appears to the left of *that*. From our point of view, this suggests that it is in SpecForceP rather than SpecFinP.

However, such a conclusion is only warranted if we assume that floated quantifiers are *stranded* at an intermediate landing site. Although this is perhaps the standard analysis of floated quantifiers in A-movement contexts (see Sportiche, 1988), the stranding analysis of floating quantifiers has been challenged in a number of ways (see Bobaljik, 2003; Koopman, 2009). It remains to be seen whether such challenges extend to floating quantifiers in A'-contexts. However, it highlights that evidence such as (29) is not conclusive.

Other evidence that might allow us to pinpoint the locus of successive cyclic movement more precisely (and which suggests that the intermediate landing site might not be at the very edge of the clause) comes from Dinka (Van Urk & Richards, 2015: 126).

(30) Yeŋà   yẹ́   Yậạr   tâak, **ké**   __   cíi

   who   HAB.NS   Yaar.GEN   think **C**   PRF.NS

   Bôl   luéel, **yè**   __   cṹkkṳ̀   tî̤ŋ?

   Bol.GEN   say   **C**   PRF.1PL   see

   'Who does Yaar think that Bol said that we saw?'

Van Urk & Richards provide several arguments for the idea that successive cyclic movement proceeds via the position marked by the underscore (__). Interestingly, this position can be preceded by an overt complementiser element (in bold). This would be quite unexpected if the phase escape hatch were at the very edge of the clause. Instead, it suggests that the phase escape hatch may actually be slightly lower (though still in the C-domain).

Assuming that successive cyclic movement targets the specifier of the phase head's complement, rather than the specifier of the phase head itself, why might this be so? One option might be a combination of Fox & Pesetsky's (2005) cyclic linearisation proposal, which equates spellout and linearisation, with Chomsky's (2000) original idea that completion of a phase triggers spellout of a phase head's complement.[9] According to Fox & Pesetsky (2005), phase edge effects arise as a consequence of linearisation. In essence, an element that is to undergo successive cyclic movement from within a phase must be at the

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[9] For alternative accounts of the *that*-trace effect which make use of Fox & Pesetsky's (2005) proposal in various ways, see Erlewine (2014) and Abe (2015).

edge of the spelled out (or linearised) structure.[10] In this way, it will be linearised as preceding all other elements within the spelled out domain. A consequence of this is that potential linear ordering contradictions later in the derivation will be avoided. Consider the schematic structures in (31) and (32).

(31)   a.   [$_{FinP}$ A X B]

        b.   [$_{ForceP}$ [$_{FinP}$ A X B]]   A > X > B

        c.   X … [$_{ForceP}$ [$_{FinP}$ A t$_X$ B]]   X > A > B   (contradiction!)

(32)   a.   [$_{FinP}$ A X B]

        b.   [$_{ForceP}$ [$_{FinP}$ X A t$_X$ B]]   X > A > B

        c.   X … [$_{ForceP}$ [$_{FinP}$ t$_X$ A t$_X$ B]]   X > A > B

In both structures, we start off with a FinP containing the elements A, X and B, where X is the element to undergo successive cyclic movement. Assuming that completion of the phase triggers spellout of the phase head's complement (contra Fox & Pesetsky, 2005), in (31b), completion of ForceP triggers spellout of FinP. If X has not moved to the edge of FinP, the elements of FinP will be linearised as A > X > B (A precedes X precedes B). Fox & Pesetsky (2005) do not assume that spellout of structure renders that structure opaque to further syntactic operations, i.e. they permit extraction of an element from a spelled out domain (contra Chomsky, 2000). In (31c), the element X is extracted out of FinP. However, when X is linearised as part of the higher structure, the linearisation statements will state that X precedes FinP including all the elements contained within FinP. Consequently, we will end up with two contradictory ordering statements. This causes the derivation to crash.

In contrast, in (32b), X moves to the edge of FinP. Completion of ForceP triggers spellout of FinP and we get the ordering statement X > A > B (traces do not count in the ordering statement). Now, if we extract X from FinP, as in (32c), X will be ordered as preceding FinP. But since X is already ordered as preceding all elements within FinP, there is no ordering contradiction and the derivation converges.

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[10] According to Fox & Pesetsky's (2005) original proposal, it is the entire phase that is spelled out or linearised, not just the phase head's complement.

This account captures the patterns but it also raises many questions. First, Fox & Pesetsky's (2005) proposal was designed to capture phase edge effects without having to posit a dedicated phase edge, and Chomsky (2000) only really needs a dedicated phase edge because of the assumption that elements in the spelled out domain become inaccessible to further syntactic operations. The suggestion above combines these two proposals but the motivations for both are lost, i.e. we have a dedicated phase edge but spellout domains are not opaque, and we have both a dedicated phase edge and derive phase edge effects in the phase head's complement.

Second, there is a question about the motivation for the movement of X. Although Fox & Pesetsky's (2005) proposal is often phrased as if the need to avoid ordering contradictions were the motivation for movement in the syntax, they point out that this is an effect rather than a cause. However, their exact proposals for how such movement is caused remain vague. One possibility is that movement (Internal Merge) is entirely free but only derivations where X moves to the specifier of the phase head's complement converge. This sort of approach (permitting free Merge and then filtering out derivations at the interfaces) appears to be very Minimalist on the one hand; the interfaces play a crucial role in determining what a convergent derivation looks like. But on the other hand, free generation in the syntax is computationally inefficient in the extreme when it comes to evaluating all derivational possibilities at the interfaces. In other words, free generation in the syntax does not seem like 'an optimal solution to legibility conditions'. We would favour a system where formal features are essentially signposts for the derivation. They keep the derivation on track so that it can meet legibility requirements in the most economical way possible for a given language. We could therefore say that Fin bears a movement trigger just in case Force is present (perhaps Fin inherits this trigger from the phase head, or phase heads (in English at least) donate such a movement trigger to (head of) their complements).

A system involving indirect feature-driven movement (Bošković, 2007), where elements move because they have some featural requirement which cannot be satisfied in their current position, is potentially harder to accommodate with our generalisation. It is not immediately obvious how movement triggered by some unfulfilled requirement of the moving element itself could target the specifier of the phase head's complement without some sort of 'signpost'.

An alternative approach to the question of why the phase escape hatch might be the specifier of the phase head's complement comes from clause-typing. Following Watanabe (1992), Browning (1996), in her analysis of adverb alleviation of *that*-trace effects, proposes that CP recursion is derivationally motivated by clause-typing (Cheng, 1991). In essence, *wh*-clauses must have a *wh*-phrase in their highest specifier, whilst non-*wh*-clauses must have no specifier in their highest phrasal projection. Crucially, Browning proposes that this is a derivational property so that if, at some point in the derivation, a non-*wh*-clause has a filled specifier, CP recursion will be triggered. This creates another (higher) CP projection without a specifier. The clause can thus be typed as a non-*wh*-clause and can be selected by higher predicates. Although Browning does not seem to note this, her approach suggests that *wh*-movement out of embedded declarative clauses cannot proceed through the very edge of the embedded clause. If it did, the highest specifier of the clause would contain a *wh*-phrase and would be typed as a *wh*-clause, presumably triggering problems for interpretation and/or selection. In the case of *that*-clauses, we could perhaps say that Fin is the original phase head. Completion of FinP triggers movement of the relevant element to its specifier. If the derivation stops here, FinP will be interpreted as a *wh*-clause. However, another option would be to merge another C head, i.e. Force. The resulting ForceP, by virtue of not projecting a specifier, will be typed as a non-*wh*-clause and so can be selected as a declarative clause by a higher predicate. This would suggest that Fin, rather than Force, is the phase head and that the phase head is not the highest head in a given domain or extended projection (contra Bošković, 2014). Alternatively, if there is some form of head movement between the C heads in 'CP recursion' contexts (see Browning, 1996), Force may inherit the phasehood of Fin, an instance of phase extension (Den Dikken, 2007) or phase sliding (Gallego, 2010).

Given our characterisation of the phase escape hatch as the specifier of the phase head's complement, we are also left with the idea that the specifier of the phase head itself cannot be an intermediate landing site. This too could be related to Browning's (1996) clause-typing proposal. As mentioned above, if a phase head triggers movement to its specifier and no further C head is merged, the result will be a *wh*-clause. We would have to avoid a situation where we have *wh*-movement to the edge of the embedded clause, then the embedded clause is selected as a *wh*-clause, followed by further movement of the *wh*-

element, i.e. we would need additional assumptions, perhaps criterial freezing, to rule out the following: *What did I ask the time was? vs. I asked what the time was.

3.3.2 Anti-locality

The analysis of the anti-*that*-trace effect in Section 3.1 crucially relied on Spec-to-Spec Anti-Locality (Erlewine, 2016), repeated from above.

(33)   Spec-to-Spec Anti-Locality

Ā-movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.

We argued that it provided a straightforward account of the anti-*that*-trace effect and an interesting new perspective on the analysis of the *that*-trace effect. However, we also pointed out that, as it stands, it is more a descriptive generalisation than an explanation.[11] The two main questions were: (i) Why should it make reference to A'-movement specifically? (ii) Why should it refer to two positions in different, albeit very local, maximal projections?

Bošković (2016) proposes that Spec-to-Spec Anti-Locality be subsumed under a more general theory of labelling. In brief, movement must cross a labelled projection. Following suggestions of Chomsky (2013, 2015), Bošković proposes that there are essentially two types of labelling. The first type is when a minimal and non-minimal projection merge (effectively, a head and its complement). This type of labelling is argued to occur in the syntax as soon as the relevant configuration is formed.

The second type of labelling is when two non-minimal projections merge (effectively, two phrases). There are two options here: either some shared feature of the two phrases projects, or one of the phrases must move (traces/copies not being relevant to labelling). In the latter case, Bošković argues that there will be a point in the derivation (before movement of one of the phrases) when there is indeterminacy, i.e. the structure will be syntactically unlabelled. Movement counts as anti-local when an element crosses such a

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[11] Erlewine himself offers no attempt to derive Spec-to-Spec Anti-Locality.

projection. Consider Bošković's (2016: 39) analysis of the anti-*that*-trace effect, which is configurationally identical to the one presented in Section 3.1.

(34) John picked up the stone that broke the window.

John picked up the stone [$_{CP}$ Op$_i$ that [$_{RelP}$ [$_?$ t$_i$ [$_{IP}$ broke the window]]]].

(35) *John picked up the stone broke the window.

John picked up the stone [$_{RelP}$ Op$_i$ [$_?$ t$_i$ [$_{IP}$ broked the window]]].

According to Bošković, the subject merges with IP (i.e. two phrases are merged) but no label is projected (indicated by ?). In (34), Rel then merges. Since Rel is a head, it projects (this is the first type of labelling) and labels the structure RelP. C is then merged. The subject then moves to 'SpecCP'. This movement crosses the unlabelled projection ? but also the labelled projection RelP, so the result is grammatical. In contrast, in (35), Rel is merged and the subject attempts to move to SpecRelP. This movement only crosses the unlabelled projection ?, and so the result is ungrammatical.[12]

However, it is not immediately obvious why, when the subject merges with IP, the result is an unlabelled projection, especially given that the subject is typically thought to share φ-features with I. Indeed, according to Chomsky's (2013, 2015) proposal, these shared φ-features provide the relevant label. Chomsky also proposes that such labelling results in a freezing effect, thereby deriving the Subject Criterion (Rizzi, 2006, 2016; Rizzi & Shlonsky, 2007). However, as Bošković (2016) points out, the Subject Criterion is too strong. If it were impossible to move subject from SpecTP at all, we would not expect the well-known adverb effects, where *that*-trace violations are alleviated (Browning, 1996; Culicover, 1992).

Let us therefore suppose that the subject and TP (or IP) project a φ-label without this resulting in freezing effects. According to this view, Fin (or Bošković's Rel) would take φ as its complement, as in (36). If the subject then attempts to move to 'SpecFinP', i.e. if it attempts to internally merge with Fin, we get the configuration in (37) (the same would apply if Fin is replaced by C, as in our structures for Ø-RCs).

(36) [$_{Fin}$ Fin [$_φ$ DP$_{[φ]}$ TP$_{[φ]}$]]

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[12] Note that although Rel would immediately project upon merging with ?, internal merge of the subject with 'RelP' would not count as *crossing* a labelled projection.

(37)   [DP$_{[\phi]}$ [$_{Fin}$ Fin [$_\phi$ DP$_{[\phi]}$ TP$_{[\phi]}$]]]

Recall that the ɸ-label came (in shared fashion) from the DP subject. Therefore, as far as the system is concerned, it looks as if Fin has merged with the same ɸ twice: once as its complement and again as its specifier. In other words, the configuration in (37) looks like a (derived) case of Comp-to-Spec Anti-Locality (Abels, 2003, 2012a). Note that non-subject DPs can merge with Fin without triggering such an effect because the ɸ-features on non-subject DPs and the ɸ-label for the complement of Fin (which comes from the subject DP) are two distinct instances of ɸ.

Thus according to this approach, Spec-to-Spec Anti-Locality is the result of labelling which yields a configuration that looks like Comp-to-Spec Anti-Locality. This can only happen very locally thereby accounting for the local nature of the two projections in Erlewine's definition. Furthermore, given that ɸ-labels will typically only occur in canonical A-positions, this type of anti-locality will only affect movement from such positions, i.e. the first step of A'-movement. This derives the reference to A'-movement in Erlewine's definition.

Direct objects will not typically show anti-locality effects of this sort because their A-positions are either the complement of a head, which can be labelled straightforwardly, or are generally not local enough to the target of the first step of A'-movement. One instance where they might be local enough, however, is in double object constructions. Assuming that the v-domain is split into Voice and v (where Voice is a phase head) and that the indirect object is introduced by an Appl head immediately below v (see Harley, 2013; Kratzer, 1996; Legate, 2014; Pylkkänen, 2008), Spec-to-Spec Anti-Locality may be responsible for the oft-reported degradedness of *wh*-extraction of the indirect object (Holmberg, Sheehan, & van der Wal, 2015; Hornstein & Weinberg, 1981).[13]

(38)   a.   You handed Mary the document.

        b. $^?$Who did you hand the document?

        c.   What did you hand Mary?

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[13] This judgement is subject to some variability.

The reason for this would be that the indirect object would have to escape the v-domain by moving from SpecApplP to SpecvP (SpecvP being the specifier of the complement of the phase head Voice), resulting in an anti-locality violation, as schematised in (39).

(39)   *$\mathbf{Who_i}$ … [$_{VoiceP}$ Voice [$_{vP}$ $\mathbf{t_i}$ v [$_{ApplP}$ $\mathbf{t_i}$ Appl …]]]

This approach relies on the DP subject and the ɸ-label of Fin's complement being non-distinct. However, this is potentially problematic given elements undergoing A'-movement are typically thought to have some sort of A'-feature, call it [wh], in addition to their ɸ-features. If so, the system would presumably be able to distinguish the DP in 'SpecFinP' from Fin's complement.[14]

(40)   [DP$_{[ɸ,wh]}$ [$_{Fin}$ Fin [$_{ɸ}$ DP$_{[ɸ,wh]}$ TP$_{[ɸ]}$]]]

However, though technically distinguishable, suppose that ɸ and ɸ,wh (where the ɸ-features are strictly and not just accidentally identical) are not distinct enough to be easily distinguished, ɸ being a proper subset of ɸ,wh. In this case, the configurations in (37) and (40) may be possible but not fully grammatical.

This may go some way to accounting for the oft-reported judgement variability in *that*-trace effects (see Chomsky & Lasnik, 1977; Cowart, 2003; Pesetsky, 1982; Sobin, 1983, 1987), though judgements do not seem to be as variable with the anti-*that*-trace effect. Some speakers may be more tolerant of the configurations in (37) and/or (40) leading to a greater tolerance of *that*-trace violations in absolute terms, though not necessarily in relative terms (see Chacón, Fetters, Kandel, Pelzl, & Phillips, 2015; Cowart, 1997).[15]

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[14] Alternatively, if the T probe interacts with the [wh] feature of its goal, i.e. the subject DP (Baier, 2016; Deal, 2015), Fin's complement might well be labelled ɸ,wh.

[15] According to some studies, *that*-trace effects seem to be absent from the grammars of child learners (Gathercole & Montes, 1997; McDaniel, Chiu, & Maxfield, 1995; Thornton, 1990) (cited in Sobin, 2002: 536-537). One might imagine that *that*-trace effects will only arise once the more complex C-domains have been acquired. If children start by hypothesising that *that* spells out the single C head of a simplex C-domain, they will not exhibit *that*-trace effects at this stage according to the present analysis.

3.3.3 Adverb effects

That-trace violations can be alleviated by fronted adverbs (Browning, 1996; Culicover, 1992). As pointed out in Section 3.3.2, this is a problem for any account of *that*-trace effects based on the idea that subjects are in some way frozen in SpecTP. However, it is reasonably straightforward to accommodate such facts in an anti-locality account (Bošković, 2016; Erlewine, 2016). The basic idea is that extra structure to host the fronted adverbials is inserted between two relevant positions which are otherwise anti-local.

The adverb alleviation effect is illustrated in (41) (adapted from Browning, 1996: 238; Culicover, 1992, 1993).

(41)   a.   *Lee forgot which dishes Leslie had said that should be put on the table under normal circumstances.

         b.   Lee forgot which dishes Leslie had said that under normal circumstances should be put on the table.

In (41a), we have the standard *that*-trace effect. However, if the adverbial phrase *under normal circumstances* is fronted, as in (41b), the *that*-trace effect is alleviated.

According to our analysis, the *that*-trace effect arises because subjects are forced to move from SpecTP to SpecFinP, which is anti-local. Recall that the subject only attempts to move to SpecFinP because SpecFinP is the specifier of the complement of the phase head Force. Therefore, in a *that*-clause with the subject moving from SpecTP, there are potentially two ways to avoid an anti-local movement: either we insert material between TP and FinP, or we insert material above FinP but below ForceP. In the latter case, the phase escape hatch, i.e. the specifier of the complement of the phase head Force, would now be higher than SpecFinP, so subjects would be able to move from SpecTP to this higher escape hatch without violating anti-locality.

There is reason to believe that this latter option is correct for the adverb effect. We saw in Chapter 3 and Section 3.1 that Ø-RCs (and to a greater or lesser extent Ø-clauses) do not permit fronting of any kind. We also concluded that these structures have a C-domain, albeit consisting of just a single C head. This leads us to conclude that fronted elements do not occupy a position above TP and below the C-domain, i.e. English simply does not have

the option of inserting material between FinP and TP (or CP and TP). We thus conclude that fronted adverbs alleviate *that*-trace effects in virtue of being between FinP and ForceP (in ModP, according to Chapter 3) and by causing the phase escape hatch to be higher than SpecFinP.

This approach also correctly predicts that adverbs lower than TP but string adjacent to *that* will have no alleviation effect since such adverbs would be structurally too low to affect the distance moved from SpecTP to the phase escape hatch (Brillman & Hirsch, 2015; Rizzi, 1997: 311).[16]

(42)   *Who$_i$ did she say that t$_i$ hardly speaks to her?

Returning to the issue at hand, we concluded that fronted adverbials occupy a position between FinP and ForceP, i.e. SpecModP (see Chapter 3).

(43)   [$_{ForceP}$ Force [$_{ModP}$ ADV Mod [$_{FinP}$ Fin [$_{TP}$ SUBJ T …

If we characterise the phase escape hatch as the specifier of the phase head's complement, as we have done above, the escape hatch in (43) is SpecModP (one that is higher than the specifier hosting the adverbial). Movement of the subject from SpecTP to SpecModP does not violate anti-locality and so subject extraction is licit.

As it stands, this would predict that inserting *any* material between FinP and ForceP will alleviate a *that*-trace violation. However, it is well-known that fronted arguments (topics) have no such effect (Browning, 1996; Rizzi, 1997).[17]

(44)   a.   *Who did you say that to Sue introduced Bill?

                 (adapted from Boeckx & Jeong, 2004: 84)

         b.   *Who did you say that to Aaron will give these books?

                 (adapted from Koizumi, 1995: 140)

But it is also known that fronted arguments (topics) prevent extraction more generally (Haegeman, 2012: 116 and references therein).

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[16] Though see Levine & Hukari (2006, Chapter 2) for differing judgements.

[17] Though see Culicover (1992: 98, fn 1) for examples where there *does* seem to be an alleviation effect.

(45) a. *Who did you say that to Sue Bill introduced?

  (Boeckx & Jeong, 2004: 84)

  b. *Which books did Becky say that to Aaron she will give?

  (Koizumi, 1995: 140)

This suggests that, although SpecTopP is the phase escape hatch in virtue of being the specifier of the phase head's complement, it cannot fulfil this function because it can only ever be a final landing site for independent reasons.[18] We hypothesise that SpecTopP is a *bona fide* criterial position. Any element in SpecTopP is frozen there and interpreted as a topic. By assumption, SpecModP is not a criterial position and hence can serve as an intermediate landing site.

  Finally, Haegeman (2003: 644) notes that long-distance fronted adverbials do not alleviate *that*-trace violations, unlike short-distance fronted adverbials.

(46) a. *This is the linguist who I think that **next year** *t* expects that all his students will have a job.

  b. This is the linguist who I think that **next year** *t* will get appointed in Geneva.

Haegeman argues that long-distance fronted adverbials are scene-setters and more akin to topics. If so, they can be assimilated to the topic cases rather than to those involving short-distance fronted adverbials.

3.4 Summary

We have proposed an anti-locality account of the anti-*that*-trace effect, i.e. the ban on short subject *Ø*-RCs, and investigated the analytic and theoretical consequences of this approach for the analysis of the *that*-trace effect. We were led to a novel perspective on phases and successive cyclicity against the background of a more articulated clausal structure.

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[18] Alternatively, it may be that interrogative phrases cannot cross topics due to intervention (along the lines of Abels, 2012b). This would account for the fact that, in matrix clauses, a topic precedes a *wh*-phrase. However, it would run into problems in embedded interrogative contexts where the order is reversed.

4 Anti-locality and other A'-constructions

In this section, we consider the extent to which anti-locality plays a role in other subject-object A'-asymmetries, specifically in *wh*-questions and topicalisation. At the same time, we compare relativisation to these other A'-constructions with a view to understanding why certain A'-constructions pattern together and why they target certain positions in the C-domain but not others.

4.1 *Wh*-questions

The subject-object asymmetry in English matrix *wh*-questions is illustrated in (47).[19]

(47)　a.　　Who saw Mary?

　　　b.　　Who(m) did John see?

Descriptively speaking, in object *wh*-questions, as in (47b), the *wh*-phrase is fronted and there is subject-auxiliary inversion. In subject *wh*-questions, as in (47a), there is no subject-auxiliary inversion and it is not immediately clear whether the *wh*-phrase has been fronted (see Cheng, 1991; Clements, McCloskey, Maling, & Zaenen, 1983; Pesetsky & Torrego, 2001, 2007; Rizzi, 1996, 1997; Trotta, 2004) or remains in the subject position (see Agbayani, 2000; Chomsky, 1986a; Chung & McCloskey, 1983; George, 1980).

We believe there are strong conceptual and empirical reasons for thinking that *wh*-subjects *do* undergo *wh*-movement to the left periphery. The major conceptual argument comes from theoretical parsimony (Haegeman & Guéron, 1999; Trotta, 2004). Since there is ample and salient evidence for *wh*-movement of all non-subject *wh*-phrases, the simplest hypothesis is that *wh*-subjects behave in the same way (*pace* Chomsky, 1986a). The rationale for such movement may vary between accounts, e.g. such movement could be for clause-typing (Cheng, 1991) or to meet a *wh*-criterion (Rizzi, 1996, 1997), but the point is that all *wh*-phrases behave alike. This is supported by a range of empirical arguments, including (i) echo interpretations; (ii) scope interpretations; (iii) licensing of *wh- the hell* questions; (iv) adverb and parenthetical distribution; (v) dialect data; and (vi) polarity emphasis.

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[19] In fact the asymmetry is between the highest subject and non-'highest subjects', just as in the *that*-trace and anti-*that*-trace effects.

4.1.1 Echo interpretations

Leaving aside instances of multiple *wh*-questions, when a *wh*-phrase is in-situ in English, we get an echo interpretation, not a matrix *wh*-question.

(48)   a.   **What** did John see?

          b.   John saw **what**?   (echo interpretation only)

If *wh*-subjects were in-situ, we would only expect them to have echo interpretations. This is incorrect: *wh*-subjects can have matrix *wh*-question or echo interpretations.

        An in-situ *wh*-phrase in an embedded question also yields an echo interpretation.

(49)   a.   I didn't say **what** John saw.   (non-echo)

          b.   I didn't say that/whether/if John saw **what**?   (echo)

Note that it is possible for an overt complementiser to appear in (49b) under the echo interpretation. Under a non-echo interpretation, however, overt complementisers are impossible. This can also be seen with *wh*-subjects (Trotta, 2004: 4).

(50)   a.   Bill didn't say that/whether/if John would arrive first.

          b.   Bill didn't say that/whether/if who would arrive first?   (echo)

          c.   Bill didn't say *that/*whether/*if who would arrive first.   (non-echo)

The *wh*-subject in (50b) is in-situ, hence it can appear with an overt complementiser and receives an echo interpretation. In (50c), however, if we have the non-echo interpretation, overt complementisers are impossible. This suggests the *wh*-subject has moved.

4.1.2 Scope interpretations

In English, quantified direct objects can scope over quantified subjects, i.e. an inverse scope interpretation is permitted.

(51)   Someone loves everyone.   ∃ > ∀; ∀ > ∃

However, when we have a quantified direct object and a *wh*-subject, the inverse scope interpretation is unavailable (May, 1985; Mizuguchi, 2014).

(52)   Who loves everyone?   wh > ∀; *∀ > wh

If the *wh*-subject in (52) were in-situ, it would presumably be in the same position as *someone* in (51). But then it would be unclear why the direct object can scope over the subject in (51) but not in (52).

4.1.3 *Wh- the hell* licensing

Wh- the hell questions only seem to be licensed if the *wh*-phrase has undergone *wh*-movement, i.e. such questions are not licensed when the *wh*-phrase is in-situ (Ginzburg & Sag, 2001; Pesetsky & Torrego, 2001).

(53)   a.   *John saw **what the hell**?

          b.   **What the hell** did John see?

(54)   a.   *I wondered whether/if John saw **what the hell**?

          b.   I wondered **what the hell** John saw.

As can be seen in (55), *wh- the hell* questions can also be formed with *wh*-subjects. This would be unexpected if *wh*-subjects were always in-situ. When a *wh*-subject is in-situ, e.g. in embedded contexts with an overt complementiser, as in (55c), we can see that *wh- the hell* questions are not licensed.

(55)   a.   **Who the hell** would have seen Bill?

          b.   I wondered **who the hell** would have seen Bill.

          c.   *I wondered whether/if **who the hell** would have seen Bill.

4.1.4 Adverbs and parentheticals

Trotta (2004), following Quirk et al. (1985), notes that, whilst modality and degree adverbs easily occur between the subject and the main verb, heavy adjunct clauses or prepositional phrases can only really occur in such a position with 'comma' or parenthetical intonation. In the domain of RCs, Trotta observes that heavy adjunct clauses and prepositional phrases following *wh*-subject relative pronouns do *not* have to receive this intonation. This suggests that a subject relative pronoun does not occupy canonical subject position (see also Chapter 3 and Section 3 above). We believe the same point can be made for *wh*-subjects in *wh*-question contexts. Consider the following data:

(56)   a.   John, according to Mary, saw Bill yesterday.

        b.   #John according to Mary saw Bill yesterday.

(57)   a.   Who, according to Mary, saw Bill yesterday?

        b.   Who according to Mary saw Bill yesterday?

In (56a), *according to Mary* is pronounced with 'comma' or parenthetical intonation and the result is fully acceptable. Without such intonation, the result is somewhat deviant, as in (56b). In contrast, both options are fully acceptable when the subject is a *wh*-phrase, as in (57). This suggests that a *wh*-subject is not in the same position as a non-*wh*-subject.

This argument is perhaps not as strong as the previous arguments as it is not clear that the non-*wh*-subject in (56a) is in-situ in SpecTP. The subject here could be a topic (see Section 4.2 where we discuss topicalisation in more detail). Nevertheless, it highlights a contrast between *wh*-subjects and non-*wh*-subjects that would perhaps be unexpected if both were to occupy the same structural position.

4.1.5   Dialect data

Trotta (2004) observes that, whilst standard English does not permit the co-occurrence of a (fronted) *wh*-phrase with an overt complementiser, there are dialects of English where this is possible. In such cases, the complementiser follows the fronted *wh*-phrase suggesting that the *wh*-phrase has moved. Crucially, this ordering is also seen with *wh*-subjects (Trotta, 2004: 5).

(58)   a.   It'll probably be evident from the field **which of the players that** are feeling
                the heat most.   (Radford, 1988: 500)

        b.   I wonder if he could describe to us **what influence that** has been brought to
                bear on the the [*sic*] overall calculation?   (bnc JAC 367 364)

        c.   … just though I'd ask the party see **how many things that** cropped up as a
                result …   (bnc KDW 7074 246)

The same ordering can also be seen with exclamatives and free relatives.

4.1.6 Polarity emphasis

Although matrix subject *wh*-questions generally do not exhibit subject-auxiliary inversion, this can be seen when auxiliary *do* is emphasised (we refer to this as polarity emphasis).

(59) a. Who saw Bill?

  b. *Who did see Bill?

  c. Who DID see Bill?

(59c) is appropriate in contexts where the polarity of the question is being emphasised, i.e. the speaker is not interested in who did not see Bill, only in who did. Therefore, we take the only difference between (59a) and (59c) to be polarity emphasis (present in (59c), absent in (59a)). In other words, there is no reason to think that the *wh*-subject occupies a different position in (59a) and (59c). If this is correct, this strongly suggests that the *wh*-subject undergoes *wh*-movement. If the *wh*-subject were in-situ, we might expect polarity emphasis to result in (60), which is ungrammatical.

(60) *DID who see Bill?

Note that emphatic *do* is situated above SpecTP, as seen from polarity emphasis in non-subject contexts.

(61) a. Who(m) DID John see?

  b. *Who(m) John DID see?

4.1.7 Arguments against *wh*-movement

Several arguments have also been put forward against the idea that *wh*-subjects undergo *wh*-movement.

One argument comes from parasitic gaps. *Wh*-movement of *wh*-phrases licenses parasitic gaps. *Wh*-subjects do not license parasitic gaps suggesting that they have not undergone *wh*-movement (Brillman & Hirsch, 2015; Engdahl, 1983). However, this is not the entire story: *wh*-subjects *can* license parasitic gaps but there is an anti-c-command requirement, i.e. the 'trace' of the *wh*-subject cannot c-command the parasitic gap (Chomsky, 1986a).

(62)   a.   *Which man looks old [whenever I meet __]?

       b.   Which man [whenever I meet __] looks old?

Therefore, the problem with (62a) is not necessarily that the *wh*-subject has not undergone *wh*-movement since the anti-c-command requirement is not met. When it is, as in (62b), the result is acceptable.

A second argument comes from island effects. Islands seem to exhibit a subject-object asymmetry (Chung & McCloskey, 1983: 708-709).

(63)   a.   What kinds of gifts are there rules about who can give to whom?

       b.   These are the dialects that we want to find out who speaks to whom.

(64)   a.   *What kinds of gifts are there rules about who you can condemn for giving to whom?

       b.   *These are the dialects that we want to find out when people use for what purposes.

In (63) and (64), the embedded clause is a *wh*-island. In (63), the *wh*-island is formed by the *wh*-subject, whilst in (64), it is formed by a *wh*-non-subject (argument or adjunct). Chung & McCloskey observe that examples such as (63) are much better than examples such as (64), i.e. islands formed by *wh*-subjects seem to be weaker than those formed by *wh*-non-subjects.

Chomsky (1986a) suggests that this asymmetry can be captured if we assume that *wh*-subjects do not undergo string vacuous *wh*-movement. Consequently, they do not occupy the escape hatch in SpecCP and other elements may escape through this position thereby avoiding a (severe) subjacency violation. In contrast, *wh*-non-subjects must undergo *wh*-movement to SpecCP. This position is then unavailable as an escape hatch and elements cannot be extracted out of the island at all. Chomsky (1986a) also suggests that, if an acquirer has no positive evidence that movement has taken place, they will not posit such movement. String vacuous subject movement is a case in point. However, it is unclear on this account why the acquirer would not simply generalise the *wh*-movement so clearly required for non-subject questions to subject question contexts.

Given the strength of the evidence for *wh*-movement of *wh*-subjects and the relatively unclear analytic status of islandhood in current syntactic theory, the argument from island effects does not really warrant the conclusion that there is no *wh*-movement of the *wh*-subject. Furthermore, if we adopt a more articulated C-domain and the conclusions from Section 3, it is not immediately obvious that a moved *wh*-phrase would necessarily occupy the escape hatch.

A third argument (really a hypothesis/assumption) comes from a comparison between *wh*- and topicalised subjects. Following Lasnik & Saito's (1992) observation that subjects cannot topicalise, Agbayani (2000) claims that, because subjects cannot topicalise, it is plausible to assume that *wh*-subjects do not undergo *wh*-movement in *wh*-questions. However, if this were true, why are subject *wh*-questions possible but subject topicalisations not? Again, if we adopt a more articulated C-domain, it is not clear that topics and *wh*-phrases target the same position, so the absence of movement in one type of A'-construction need not say anything about the absence of movement in another type. In Section 4.2, we discuss (subject) topicalisation in greater detail and compare ways in which it does and does not behave like (subject) *wh*-questions.

A fourth argument comes from contraction phenomena. It is well-known that *wanna*-contraction is blocked in case there is an intervening A'-trace (Jaeggli, 1980).

(65) a. I want to succeed John.

  b. I wanna succeed John.

  c. John is the man I want to succeed.

  d. John is the man I wanna succeed.

(66) a. I want John to succeed.

  b. *I wanna John succeed.

  c. John is the man I want to succeed.

  d. *John is the man I wanna succeed.

Tsujimura (1983) proposes that this constraint on *wanna*-contraction should be generalised to auxiliary contraction, i.e. auxiliary contraction is assumed to be impossible if there is an

intervening A'-trace. Tsujimura observes that auxiliary contraction is possible in subject *wh*-questions.

(67)   a.   Who is knocking at the door?

         b.   Who's knocking at the door?

Tsujimura argues that *wh*-subjects do not undergo *wh*-movement because, if they did, there would be an intervening A'-trace between *who* and the auxiliary and so contraction should be blocked.

Tsujimura (1983) highlights that this argument only goes through if one is willing to generalise restrictions on *wanna*-contraction to auxiliary contraction. An empirical problem for this view (in addition to the evidence that *wh*-subjects undergo *wh*-movement in questions) comes from RCs. Subject *that*-RCs are standardly assumed to involve A'-movement to the left of the complementiser, yet the auxiliary can easily contract onto *that*.

(68)   the man that's knocking on the door

This suggests that auxiliary contraction and *wanna*-contraction are not subject to the same restrictions, i.e. auxiliary contraction (but not *wanna*-contraction) across an A'-trace is permitted. Consequently, auxiliary contraction in subject *wh*-questions cannot be taken as evidence that the *wh*-subject is in-situ.

4.1.8   Summary

We believe that the weight of conceptual considerations and empirical evidence strongly suggests that *wh*-subjects in *wh*-questions undergo *wh*-movement. The subject-object asymmetry in English *wh*-questions therefore lies in the fact that movement of (highest) *wh*-subjects does not trigger auxiliary inversion (i.e. T-to-C movement) whilst movement of other *wh*-elements does.

Why T-to-C movement should be absent in matrix subject questions is a matter that goes beyond the present discussion. However, it has been noted in several previous works that T-to-C movement is generally impossible if subject extraction has also taken place (Browning, 1996; Culicover, 1992; Pesetsky & Torrego, 2001, 2007; Rizzi, 1997). This applies not only to *wh*-movement of a *wh*-subject but also to negative preposing of subjects.

Negative preposing generally triggers subject-auxiliary inversion in English, but not when the negative preposed element corresponds to the matrix subject (Trotta, 2004: 12).

(69)   a.   Not until yesterday did I understand the meaning of the poem.

          b.   Not only Rachel did Ross like, but he liked Mona too.

          c.   Not only Ross liked Rachel, but Mona liked her too.

          d.   *Not only Ross did like Rachel, but Mona liked her too.

In (69a) and (69b), an adverbial and a direct object have been negative preposed respectively. These exhibit subject-auxiliary inversion. In (69c) and (69d), a subject has been negative preposed. As the contrast shows, subject-auxiliary inversion is impossible.

The same effect can be seen by comparing the examples in (70) to (72) with the examples in (73) to (75) (Browning, 1996: 244-245). The examples in (70) to (72) show that fronted negative phrases or *only*-phrases obligatorily trigger subject-auxiliary inversion.

(70)   a.   Robin was convinced that at no time would Leslie run for public office.

          b.   *Robin was convinced that at no time Leslie would run for public office.

(71)   a.   Lee thought that only then did Leslie see anything moving.

          b.   *Lee thought that only then Leslie saw anything moving.

(72)   a.   Robin knew that not even for one moment had Leslie given a damn about the budget.

          b.   *Robin knew that not even for one moment Leslie had given a damn about the budget.

However, as the examples in (73) to (75) show, when there is subject extraction, inversion becomes impossible and the non-inversion structures become grammatical.

(73)   a.   Leslie is the person who I said that at no time considered running for public office.

          b.   *Leslie is the person who I said that at no time did consider running for public office.

(74)　　a.　　Robin met the man who Leslie said that only then saw anything moving.

　　　　b.　　*Robin met the man who Leslie said that only then did see anything moving.

(75)　　a.　　It is Leslie who I believe that not even for one moment gave a damn about the budget.

　　　　b.　　*It is Leslie who I believe that not even for one moment did give a damn about the budget.

Interestingly, Rizzi (1997) claims that the ungrammatical examples in (73) to (75) become more acceptable if the auxiliary *do* is stressed or emphasised, which would be akin to polarity emphasis making subject-auxiliary inversion acceptable in matrix subject *wh*-questions.

It therefore seems that there is something about (local) subject extraction that generally renders subject-auxiliary inversion impossible (modulo polarity emphasis), and that this is responsible for the subject-object asymmetry seen in English *wh*-questions.

This means that Spec-to-Spec Anti-Locality does not play a role in these contexts. Bošković (2016) reaches the same conclusion but proposes an alternative analysis. Bošković concludes that *wh*-subjects undergo *wh*-movement. However, he proposes that *wh*-phrases target the same position (configurationally speaking) as relativised elements in Ø-RCs. Since Bošković claims that short subject Ø-RCs are impossible due to anti-locality, he is forced to conclude that *wh*-subjects do not violate anti-locality because they move from a position lower than SpecTP.

(76)　　a.　　*[$_{RelP}$ **DP$_i$** Rel [$_{TP}$ **t$_i$** T […　　　　(short subject Ø-RC)

　　　　b.　　[$_{CP}$ **DP$_i$** C [$_{TP}$ T [… **t$_i$** …　　　　(short subject *wh*-question)

However, this means that A'-movement of subjects is launched from different positions in RC and question contexts. This seems undesirable given that English subjects generally occupy SpecTP in both RC and question contexts. In other words, it is unclear why A'-movement would be launched from different positions.

Instead, we propose that *wh*-subjects in question contexts do not violate anti-locality because they target a higher C position (SpecFocP (Rizzi, 1997)) than that targeted by relativisation in Ø-RCs.

(77) a. *[$_{CP}$ **DP$_i$** C [$_{TP}$ **t$_i$** T [... (short subject Ø-RC)

  b. [$_{FocP}$ **DP$_i$** Foc [$_{FinP}$ Fin [$_{TP}$ **t$_i$** T [... (short subject *wh*-question)

Evidence for this comes from the fact that fronted *wh*-phrases (including *wh*-subjects) can co-occur with and precede fronted adverbials. Recall that fronted adverbials are in SpecModP, which is higher than FinP, and cannot be positioned lower than the C-domain in English. Furthermore, *wh*-phrases can precede fronted adverbials suggesting that *wh*-phrases target a position higher than FinP and ModP (see Chapter 3, Section 4.2).

(78) a. Who under no circumstances would ever date Mary?

  b. What under no circumstances would you ever give to Mary?

4.2 Topicalisation

The basic subject-object asymmetry in topicalisation is illustrated in (79).

(79) a. *I think that John, likes Mary.

  b. I think that Mary, John likes.

As (79a) shows, subject topicalisation seems to be impossible, unlike object topicalisation, as in (79b).

Lasnik & Saito (1992) provide further empirical arguments for the impossibility of short subject topicalisation.[20] First, they observe the following contrast (cited in Bošković, 1997: 26):

(80) a. $^?$*Who do you think that [friends of *t*] kissed Mary?

  b. $^?$Who do you think that [friends of *t*] Mary kissed?

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[20] Lasnik & Saito (1992: 80) distinguish between two types of topic. One is base-generated in the C-domain, the other is adjoined to IP. They claim that matrix clauses permit either type, whilst embedded clauses only allow the latter. Note that they reserve the term *topicalisation* for the IP-adjunction type. We show that there is a distinction within embedded clauses.

The claim is that, if subject topicalisation were allowed, (80a) and (80b) should have the same status. This assumes that subextraction of *who* takes place after topicalisation. Although topics are thought to be frozen, constituents *within* the topic may still be extracted (see Rizzi, 2006). However, this contrast is not particularly strong since both examples are quite degraded.

A second argument comes from binding (Lasnik & Saito, 1992: 110-111). Consider the following examples.

(81)   a.   *John$_i$ thinks that himself$_i$ likes Mary.

         b.   *John$_i$ thinks that himself$_i$, likes Mary.

(82)   a.   *John$_i$ thinks that Mary likes himself$_i$.

         b.   John$_i$ thinks that himself$_i$, Mary likes.

In (82a), the matrix subject cannot bind the anaphor in direct object position inside the embedded clause. However, if the anaphor is topicalised, binding becomes possible, as in (82b). The claim is that the subject anaphor in (81a) cannot be bound by the matrix subject, resulting in ungrammaticality. If short subject topicalisation were available, we would expect (81b) to be permitted since topicalisation seems to bring the embedded topic close enough to the matrix subject for binding purposes, as it did in (82b). The ungrammaticality of (81b) is thus taken to show that short subject topicalisation is impossible.

However, the binding argument is problematic. First, it is possible to have topicalisation co-occur with a fronted adverbial.

(83)   John thinks that Bill, under no circumstances would Mary ever love.

In (83), we have direct object topicalisation co-occurring with a fronted negative adverbial, which triggers subject-auxiliary inversion. Now, observe that the presence of a fronted adverbial makes short subject topicalisation much more acceptable.

(84)   a.   *John thinks that Mary, could never love Bill under any circumstances.

         b.   John thinks that Mary, under no circumstances could ever love Bill.

This is potentially a problem for any account with a blanket ban on short subject topicalisation. However, we cannot be sure that the subject topic has moved in (84b) because A'-movement of subjects is incompatible with auxiliary inversion generally, as we saw above. In fact, further evidence from binding (this time from Condition B) suggests that the subject topic in (84b) must be lower than the object topic in (83). To see this, consider what happens when the topic is a pronominal.

(85)   a.   *John$_i$ thinks that him$_i$, under no circumstances would Mary ever love.

          b.   John$_i$ thinks that he$_i$, under no circumstances could ever love Mary.

Object topics seem to trigger a Condition B violation with the matrix subject, as in (85a), unlike subject topics, which can be co-indexed with the matrix subject, as in (85b).

However, this contrast remains even when topicalisation co-occurs with a focus fronted argument. Assuming that foci are in the C-domain, this ensures that subject topics have moved.

(86)   a.   *John$_i$ thinks that him$_i$, to BOARDING SCHOOL, Mary might actually send next year.

          b.   Mary$_i$ thinks that she$_i$, to BOARDING SCHOOL, might actually send John next year.

We thus conclude that short subject topicalisation is possible, provided that there is intervening material between the subject's A-position and the position targeted by topicalisation. Furthermore, we conclude that the subject-object asymmetries with respect to binding do not provide evidence for subject and object topics targeting different positions.

Returning to Condition A, note that placing intervening material between a topicalised subject anaphor and the subject's A-position does *not* improve the judgement.

(87)   a.   *John$_i$ thinks that himself$_i$, would never like Mary under any circumstances.

          b.   *John$_i$ thinks that himself$_i$, under no circumstances would ever like Mary.

(88)   a.   *Mary$_i$ thinks that herself$_i$, might actually send John to boarding school next
              year.

        b.   *Mary$_i$ thinks that herself$_i$, to BOARDING SCHOOL, might actually send John
              next year.

The ungrammaticality of (87b) and (88b) is therefore not because the subject cannot move,
but for some independent reason, such as the anaphor agreement effect (Rizzi, 1990).

    To summarise, Lasnik & Saito's (1992) arguments for the impossibility of short
subject topicalisation are not particularly strong, though they are widely cited in the
literature (see, e.g., Agbayani, 2000; Bošković, 1997). However, we would still maintain that
they are partially correct. We have seen that short subject topicalisation is impossible unless
there is intervening material between the subject's A-position and the position targeted by
topicalisation.

(89)   a.   *John thinks that Mary, could never love Bill under any circumstances.

        b.   John thinks that Mary, under no circumstances could ever love Bill.

(90)   a.   *Mary$_i$ thinks that she$_i$, might actually send John to boarding school next
              year.

        b.   Mary$_i$ thinks that she$_i$, to BOARDING SCHOOL, might actually send John next
              year.

We propose that these contrasts result from anti-locality. In (89a) and (90a), topicalisation
targets the specifier of the lowest C head. Subjects cannot topicalise due to Spec-to-Spec
Anti-Locality, but non-subjects can. In (89b) and (90b), however, topicalisation targets the
specifier position of a higher C head. In such cases, there is a fronted adverbial or focussed
argument. Spec-to-Spec Anti-Locality is thus avoided and both subjects and non-subjects
can topicalise. This is schematised in (91) and (92).[21]

(91)   Topicalisation without fronted material
        [$_{CP2}$ C$_2$=that [$_{CP1}$ [Topic] C$_1$ [$_{TP}$ …

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[21] Interestingly, the distinction between (91) and (92) is similar to Lasnik & Saito's (1992) original distinction
between IP-adjunction topics and C-domain topics respectively, at least in terms of relative structural heights
(see footnote 20). However, we have claimed that this distinction also holds in embedded clauses.

(92) Topicalisation co-occurring with fronted material

$[_{CP3}$ C_3=that $[_{CP2}$ [Topic] C_2 $[_{CP1}$ XP C_1 $[_{TP}$ …

This is analogous to the situation with RCs. Relativisation in the context of *that*- and *wh*-RCs targets a high C position (possibly SpecTopP, see Chapter 3), whilst relativisation in the context of Ø-RCs targets the lowest (and only) C position. In the latter case, movement of the subject violates Spec-to-Spec Anti-Locality. Therefore, the ban on short subject Ø-RCs and the ban on short subject topicalisation in the absence of fronted material are directly analogous. This supports the close link between relativisation and topicalisation suggested in Chapter 3 (see also Sections 6 and 7.3 below).[22]

We have been deliberately vague about the names of the different C heads in (91) and (92). The reason for this is that our conclusions would look very strange from the traditional cartographic perspective. For example, if C_1 in (91) were labelled Fin, we would have to conclude that topicalisation can target SpecFinP. In traditional cartography, however, topics are generally said to target dedicated topic positions/fields. In Section 5, we discuss the relation between these conclusions and syntactic cartography and attempt to characterise the various C heads in more detail.

4.3   Summary

In Section 3, we argued that the anti-*that*-trace effect, i.e. the ban on short subject Ø-RCs, is due to anti-locality. In Section 4, we considered the extent to which anti-locality may be responsible for subject-object asymmetries in other A'-constructions in English, specifically relating to *wh*-questions and topicalisation. We concluded that the subject-object asymmetry in *wh*-questions has nothing to do with anti-locality. Subject and object *wh*-phrases target a C position that is high enough to avoid anti-locality violations. Instead, the asymmetry in *wh*-questions is related to the presence/absence of T-to-C movement. For topicalisation without any fronted material, we concluded that anti-locality *does* play a role in the subject-object asymmetry, since such topicalisation is configurationally identical to Ø-relativisation. However, if topicalisation is forced to target a higher position due to the

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[22] Bošković (1997, 2016) reaches the same conclusion but for him short subject topicalisation is generally ruled out, i.e. he does not take into account the effect of fronted material.

insertion of fronted adverbials or foci, the subject-object asymmetry vanishes since anti-locality violations are avoided (similar to *wh*-questions, but arguably more similar to *that*- and *wh*-RCs).

5   The English C-domain

In both this chapter and Chapter 3, a central issue has been the structure of the English C-domain. In Chapter 3, we saw evidence that relativisation in *that*-RCs and *wh*-RCs targets the traditional Topic position. This captured the observation that these RCs could have fronted foci but not fronted topics, as well as the parallel distinctness effects between topics and foci and between relative pronouns/operators and foci. In this chapter, we saw that short subject topicalisation without any fronted material was configurationally identical to short subject Ø-relativisation in that both disallow fronted material and A'-movement of the subject by anti-locality.

The evidence thus suggests a close relation between the positions targeted by relativisation and topicalisation. In fact, if we just count finite *that*- and Ø-RCs, the positions are identical. Let us capture the close relation between topicalisation and non-*wh*-relativisation by positing a common feature, call it α. This feature may be found on the single C head of a simplex C-domain or on what has traditionally been identified as the Topic head in a complex C-domain.

As for *wh*-RCs, these never target the lowest C head in the C-domain. Interestingly, this was exactly our conclusion for *wh*-questions, where the *wh*-phrase never runs into anti-locality problems. Given this shared syntactic property plus their *wh*- morphological similarity, let us posit a common feature, call it β. This feature may be found on what has traditionally been identified as the Focus head in a complex C-domain, but cannot be on the single C head of a simplex C-domain.

However, *wh*-RCs behave like *that*-RCs in allowing argument fronting (i.e. the co-occurrence of a focus). This suggests that *wh*-RCs are able to target a position higher than *wh*-phrases in *wh*-questions. This, in turn, suggests that *wh*-RCs involve an additional feature. Since *wh*-RCs behave like *that*-RCs in targeting the traditional 'Topic' position, let us hypothesise that this additional feature is α.

Now, descriptively speaking, relativisation and topicalisation in English always target positions higher than those targeted by focus phrases (and fronted adverbials). Pursuing a featural relativised minimality approach to deriving the cartographic templates (Abels, 2012b; Haegeman, 2012), this would suggest that α (the feature common to relativisation and topicalisation) is able to cross β (the feature common to *wh*-phrases and foci) but not vice versa. In terms of featural relativised minimality, this suggests that β is a proper subset of α (see Abels, 2012b; Haegeman, 2012; Rizzi, 2013; Starke, 2001). We can thus hypothesise that $\alpha = \beta + \gamma$. We thus have the following abstract featural triggers for relativisation, *wh*-questions and topicalisation:

(93)

Trigger	Construction
$[\beta + \gamma]$	Topicalisation, *that*- and *Ø*-relativisation
$[\beta]$	*Wh*-questions, focus
$[\beta + \gamma, \beta]$	*Wh*-relativisation

We can now assign these triggers to the relevant C heads. The single C head in a simplex C-domain can have $[\beta + \gamma]$.

(94) $[_{CP}\ C_{[\beta + \gamma]}\ [_{TP}\ ...]]$

For whatever reason, this C head cannot have only $[\beta]$. We do not know what the reason may be at this stage, so it must remain a stipulation. If we want a C head with a $[\beta]$-only trigger, we have to split the C-domain.

(95) $[_{CP2}\ C_{2[\beta]}\ [_{CP1}\ C_1\ [_{TP}\ ...]]]$

If we want a $C_{[\beta]}$ and a $C_{[\beta + \gamma]}$ to co-occur, featural relativised minimality will prevent the latter from being the lower C head. If (96a) existed, C_2 would never be able to attract an element to its specifier across C_1.

(96)   a. $*[_{CP2}\ C_{2[\beta]}\ [_{CP1}\ C_{1[\beta + \gamma]}\ [_{TP}\ ...]]]$
        b. $[_{CP3}\ C_{3[\beta + \gamma]}\ [_{CP2}\ C_{2[\beta]}\ [_{CP1}\ C_1\ [_{TP}\ ...]]]]$

Wh-relativisation, which is triggered by [β + γ, β] by hypothesis can never target the single C head in a simplex C-domain because the trigger has a [β]-only feature. By featural relativised minimality, it will also target a position higher than any C head bearing a [β]-only trigger.

(97)   [$_{CP3}$ C$_{3[β + γ, β]}$ [$_{CP2}$ C$_{2[β]}$ [$_{CP1}$ C$_1$ [$_{TP}$ ...]]]

However, by featural relativised minimality alone, we would also predict the following configuration to be possible:

(98)   [$_{CP4}$ C$_{4[β + γ, β]}$ [$_{CP3}$ C$_{3[β + γ]}$ [$_{CP2}$ C$_{2[β]}$ [$_{CP1}$ C$_1$ [$_{TP}$ ...]]]]

This would be instantiated by a *wh*-RC with both a fronted topic and a fronted focus. However, we showed in Chapter 3 that such examples are very bad. Nevertheless, given the distinctness condition we uncovered, it could be that such structures are possible in principle, but are very difficult in practice. In order to have such a structure in English, we would need a predicate with at least three arguments (one for relativisation, one for topicalisation and one for focus) and we would need to ensure categorial distinctness between all three within the C-domain. These requirements (especially the distinctness requirement) may conspire to make such structures unavailable in practice.

There is still the question of what [β] and [β + γ] actually stand for. We are used to naming features after their functions, e.g. [Topic], [Focus], [WH] and [Rel]. However, as far as the formal computational system is concerned, this is inconsequential, strictly speaking. Although we might well imagine that features such as [β] and [β + γ] are posited by the learner during acquisition on the basis of their functional effects, we should not necessarily expect any simple one-to-one mapping between feature and function (see Biberauer, 2016; p.c.). Feature geometries go some way to solving this problem (see Biberauer & Roberts, 2015).

Nevertheless, there are some clear connections between the features posited here and the existing literature. For example, focus and *wh*-questions are typically thought to be quantificational, in contrast to topicalisation and relativisation (Cinque, 1990; Rizzi, 1997). We might therefore equate [β] with a quantificational feature, e.g. [Op] or [WH]. In Haegeman's (2012) system, we would equate [β] with [Op] and [γ] with [δ] (δ being the D-

linking property). Haegeman starts from different empirical generalisations (as pointed out in Chapter 3) so her conclusions are also different. She does not have the equivalent of [β + γ, β] (in her terms, [Op+δ, Op]).

Infinitival *wh*-RCs do not permit argument fronting of any kind, as we saw in Chapter 3. This would give them the schematic structure in (99).

(99) $[_{CP2} C_{2[β + γ, β]} [_{CP1} C_1 [_{TP} ...]]]$

Why infinitival *wh*-RCs are forced to target a lower position remains an outstanding problem. We could speculate that infinitival clauses are simply smaller than finite ones. However, if finiteness is determined by the lowest C head (the traditional Fin head), it is not clear why (99) could not simply be specified as being finite. One possible solution would be to say that finiteness comes from higher up (e.g. a relation between Force and Fin). If this is the case, the finiteness of finite Ø-RCs could be due to the single C-head in such cases being a syncretic Force+Fin head.

6 Topicalisation and relativisation

We have provided several arguments for the conclusion that topicalisation and relativisation are closely related. Though the arguments may be new (in whole or in part), the conclusion goes back at least to Kuno (1973, 1976). Kuno (1976: 420) hypothesises the Thematic Constraint on Relative Clauses:[23]

(100) The Thematic Constraint on Relative Clauses
A relative clause must be a statement about its head noun.

Kuno conjectures that, if an element can be construed as a topic, it is possible to relativise it, and conversely, if an element cannot be construed as a topic, it is not possible to relativise it.[24] In other words, when topicalisation is possible, relativisation is also possible.[25]

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[23] Kuno (1973, 1976) uses the term *theme* where the current literature would use *topic*.

[24] Kuno (1973) makes the same point for Japanese.

[25] Kuno (1973: 259-260) notes some potential counterexamples to his claim that, in Japanese, relativisation targets the topic immediately followed by the particle *wa*, namely examples of relative constructions without

Further support for this conclusion can be seen very clearly in inverse copular constructions. In this construction, the subject is always focal (see Heycock, 2012 and references therein). Consider the following examples (Heycock, 2012: 216):

(101) A: Who was the culprit? (John or Bill?)

        B: JOHN was the culprit.

(102) A: What was John? (Was John the culprit or the victim?)

                or

        A':   Tell me something about my cousin John and his role in the crime.

        B: John/he was the CULPRIT.

The (non-inverse) copular construction is felicitous in both (101) and (102). However, an inverse copular construction (a specificational sentence) is only felicitous in one of these contexts, namely the one where the postcopular constituent receives the pitch accent (Heycock, 2012: 217):

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corresponding topic *wa* constructions. Such examples all involve the particle *de* (which can be used in instrumental, degree, reason/manner and locative contexts) and dative *ni.* An example is given in (i) (Kuno, 1973: 259):

(i)   a.   Mary   ga   sono   naihu   de   John   o   sasita.

             Mary   GA   the   knife   with   John   O   stabbed

             'Mary stabbed John with that knife.'

       b.   Sono   naihu   de   wa   Mary   ga   John   o   sasita.

             the   knife   with   TOP   Mary   GA   John   O   stabbed

             'With the knife, Mary stabbed John'

       c.   *Sono naihu wa Mary ga John o sasita.

       d.   Mary   ga   John   o   sasita   naihu

             Mary   GA   John   O   stabbed   knife

             'the knife with which Mary stabbed John'

(103) A: Who was the culprit? (John or Bill?)

     B: The culprit was JOHN.

(104) A: What was John? (Was John the culprit or the victim?)

        or

     A': Tell me something about my cousin John and his role in the crime.

     B: *The CULPRIT was John/him.

These data, among others, suggest that the postcopular constituent in an inverse copular construction necessarily requires a focal interpretation.

Interestingly, in English it is possible to question the postcopular constituent in an inverse copular construction, but it is not possible to topicalise or relativise it (see Abels, 2012b; Williams, 2011).[26] The following examples are taken from Abels (2012b: 250-251):

(105) John is the mayor.   (non-inverse copular construction)

     a. $^?$I wonder who is the mayor.   (*wh*-question)

     b. John I think is the mayor.   (topicalisation)

     c. I met the man who is the mayor.   (relativisation)

(106) The mayor is John.   (inverse copular construction)

     a. I wonder who the mayor is.   (*wh*-question)

     b. *John I think the mayor is.   (topicalisation)

     c. *I met the man who the mayor is.   (relativisation)

These data thus provide strong evidence for a distinction between *wh*-questions on the one hand, and topicalisation and relativisation on the other.[27]

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[26] In Italian, it is impossible to extract this constituent, even for *wh*-questions (see Moro, 1997, 2000; Rizzi, 2016). The English facts suggest that a criterial freezing approach to this construction (see Rizzi, 2016) might be too strong.

[27] However, there are cases where relativisation and *wh*-questions seem to pattern together and unlike topicalisation, e.g. (in)sensitivity to anti-pronominal contexts (Postal, 1994, 1998; J. Stanton, 2016). We leave the very interesting questions of exactly when and why various A'-constructions pattern together or not to future research.

7 Beyond English

In this section, we explore some similarities and differences between the clausal RCs of English and other languages, namely Italian, Welsh and Malagasy, with each language picking up on some aspect of our analysis in Chapters 3 and 4. The following subsections are not intended to be a comprehensive comparison, but rather to show how our analysis can be applied cross-linguistically and what sorts of insights it can offer. In Section 7.1, we consider the Italian and English C-domains, which behave quite differently in that, unlike English, Italian permits topic fronting in RCs, multiple topics in general, and does not exhibit categorial distinctness effects (at least in the C-domain). In Section 7.2, we observe that, like English, Welsh has a distinction between *wh-* and Ø-RCs in terms of focus fronting, which supports the idea that different types of clausal RC differ in structural size. Finally, in Section 7.3, we suggest that Malagasy and English are potentially much more similar in terms of accessibility and relativisation than previously thought, a suggestion which builds on the proposed link between relativisation and topicalisation.

7.1 Italian

The C-domain of (varieties of) Italian has been intensively studied, especially in the wake of Rizzi's (1997) seminal study on the fine structure of the left periphery. With respect to RCs, Italian differs from English in permitting both topicalised and focalised arguments in RCs (English only permits the latter). The following examples are from Rizzi (1997: 298):

(107) un   uomo a   cui,   il   premio   Nobel, lo   daranno

       a   man   to   whom the   prize   Nobel it   they.will.give

       senz'altro

       undoubtedly

       '(lit.) a man to whom, the Nobel Prize, they will give it undoubtedly'

(108) Ecco un   uomo a   cui   IL   PREMIO   NOBEL dovrebbero

       here   a   man   to   whom the   prize   Nobel they.should

       dare   (non   il   premio   X).

       give   not   the   prize   X

       'Here is a man to whom THE NOBEL PRIZE they should give (not prize X).'

In (107), we have topicalisation within the RC, and in (108), we have focalisation. In both cases, the relative operator precedes the topic or focus.

Also unlike English, there seem to be no categorial distinctness effects in the Italian C-domain. Consider the following examples:

(109) un   uomo che, il   tuo   libro, lo   potrebbe   comprare

a   man   who   the   your   book   it   could   buy

'a man who, your book, could buy it'   (Rizzi, 1997: 306)

(110) Gianni,   la   tua   macchina,   lo   ho   convinto   a

Gianni   the   your   car   him   I.have convinced   to

comprarla

buy.it

'(lit.) Gianni, your car, I convinced to buy.'   (Rizzi, 2016)

In (109), it is possible to have a DP topic without the relative operator needing to pied-pipe a preposition. Similarly, in (110), it is possible to have two DP topics in non-RC contexts.

(110) is also evidence for another difference between Italian and English, namely Italian allows multiple topics whilst English does not. The literal English translation of (110) runs afoul of categorial distinctness, but even when this is controlled for, the English result is still ruled out.

(111) a.   I convinced Mary to give the car to John.

b.   The car, I convinced Mary to give to John.

c.   To John, I convinced Mary to give the car.

d.   John, I convinced Mary to give the car to.

e.   *The car, to John, I convinced Mary to give.

f.   *To John, the car, I convinced Mary to give.

g.   *John, the car, I convinced Mary to give to.

Starting from the baseline sentence in (111a), we see that it is possible to topicalise the direct and indirect objects of *give* individually (111b-d), but impossible to topicalise both simultaneously (111e,f). Topicalising *John* and stranding the preposition whilst also topicalising *the car* violates the categorial distinctness condition operating in English (111g).

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We tentatively propose that the ability to have more than one topic in Italian is related to its ability to host a topic inside a clausal RC. Assuming that relativisation is essentially a form of topicalisation (as suggested above), a language which permits more than one topic at a time will be able to relativise and topicalise distinct elements simultaneously. In contrast, a language like English, which only permits a single topic, will be able to either relativise or topicalise, but not both simultaneously.

This difference between Italian and English may be related to the strategies that these languages have at their disposal for the derivation of topic constructions. Rizzi (2016) proposes that English, which lacks resumptive clitics, uses a null operator to connect the topic and the gap (see Chomsky, 1977; Cinque, 1990). A double topic in English would thus involve an operator crossing another operator, resulting in a Relativised Minimality violation.

In contrast, Italian object topics are obligatorily resumed by a clitic (the clitic left dislocation (CLLD) structure). Following Cinque (1990), Rizzi (2016) suggests that clitic resumption serves to 'bind' the gap thereby making a null operator unnecessary. Consequently, multiple topics in Italian do not involve multiple operators and so do not violate Relativised Minimality.[28]

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[28] Note that Italian object RCs do not have a resumptive clitic, as in (i), but Italian object topics in CLLD structures obligatorily do, as in (ii).

(i)   l'uomo che   la   donna ha   colpito
         the-man who   the   woman has   hit
         'the man who the woman has hit'   (Keenan & Comrie, 1979: 339)

(ii)   Il   tuo   libro,   *(lo)   ho   comprato.
         the   your   book   it   I.have bought
         'Your book, I bought it.'   (Cinque, 1990; Rizzi, 1997: 289)

This argues against treating relativisation as a type of CLLD, unless the relative pronoun itself (which is obligatory in Italian RCs) could be considered to be fulfilling the same function as the clitic in CLLD, thus making a resumptive clitic redundant in object RCs.

There are apparent counterexamples to (111e,f) (Ian Roberts, p.c., cited in Rizzi, 2016):

(112)   Words like that, in front of my mother, I would never say __ __.

In (112), it seems that multiple topics are permitted in English so long as they are not both DPs. Rizzi (2016) suggests that the PP does not need a null operator to connect it to the gap, and notes that a resumptive clitic, obligatory with an object topic, is only optional with a PP topic. Rizzi suggests that a topic-like PP might actually target SpecModP (where Mod attracts highlighted adverbials). Since Op and Mod are two distinct feature classes (Rizzi, 2004), there is no Relativised Minimality violation. We propose that the difference between (112) and (111e,f) lies in the fact that the PP in (111e,f) is an argument (in SpecTopP), whilst the PP in (112) is indeed more like an adverbial (in SpecModP).

This still leaves unexplained the difference between the presence vs. absence of the categorial distinctness effect in English vs. Italian respectively. If one adopts Richards' (2010) account of distinctness, it would suggest either that the Italian C-domain contains more domain (i.e. phase) boundaries than the English C-domain, or that Italian does not compute distinctness with respect to categorial features. Pursuing the first option, given that the Italian C-domain is so richly articulated, we might expect there to be more phase boundaries according to the Menzerath-Altmann law, which states that "the increase of a linguistic construct results in a decrease of its constituents, and vice versa[, e.g.] the longer a word, the shorter its syllables (i.e., the larger the number of syllables)" (Boeckx, 2014: 87). By analogy, the more articulated a given domain (such as the C-domain) is, the greater the number of phase boundaries there will be in that domain.

Pursuing the second option (i.e. the idea that English computes distinctness with respect to categorial features, whilst Italian does not), we might think of this as a syntactic OCP (Obligatory Contour Principle) effect which is sensitive to different types of feature in different languages. Neeleman & Van de Koot (2006) review a number of cases of syntactic haplology including Romanian possessive deletion, Old French pro drop, Dutch second person singular verb forms, Modern Standard Arabic agreement alternations with pre- and post-verbal subjects, and Huastec weak pronouns. In all cases, these effects seem to be

sensitive to phi-features or subsets of phi-features. For example, they argue that syntactic haplology in the Dutch case is sensitive to the addressee feature. Suppose then that there is a difference between English and Italian where English exhibits OCP effects with respect to categorial features, but Italian does not (indeed Richards' (2010) empirical arguments for distinctness predominantly come from *categorial* distinctness effects in English).

These suggestions are admittedly very speculative at this stage. Further research on the C-domain of other languages and syntactic OCP/haplology effects will hopefully shed light on these issues.

7.2 Welsh

An example of colloquial Welsh subject and object RCs is given in (113) and (114) respectively (Borsley, Tallerman, & Willis, 2007: 118-119):

(113) y   dyn   gafodd   y   wobr

the   man   get.PAST.3S   the   prize

'the man who got the prize'

(114) y   ffrwydrad   glywais   i   wedyn

the   explosion   hear.PAST.1S I   then

'the explosion that I heard then'

Welsh RCs are typically marked by soft mutation of the verb (also found in *wh*-questions), as seen in the examples (<g> being the lenited form of <c>). Relative pronouns and resumptive pronouns are excluded from subject and object RCs. In the literary language, the particle *a* (also found in *wh*-questions in the literary language) immediately precedes the verb.[29]

(115)   y dyn a gafodd y wobr

(116)   y ffrwydrad a glywais i wedyn

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[29] The particle *a* is not a relative pronoun (see Borsley et al., 2007: 106-107).

Although *wh*-phrases used as relative pronouns are ruled out from argument RCs, i.e. RCs formed on arguments, as in (117), the *wh*-words *lle* 'where', *pryd* 'when' and *pam* 'why' are used in adjunct RCs, as in (118) (Borsley et al., 2007: 119):[30]

(117) *y   dyn   **pwy**   gafodd   y   wobr
       the   man   **who**   get.PAST.3S   the   prize
       ('the man who got the prize')

(118) yr   ardal **lle**   gafodd   ei   fagu
       the   district **where** get.PAST.3S   3MS   raise.INF
       'the district where he was brought up'

We thus have two types of RC in Welsh: *wh*-RCs used for adjunct relativisation and non-*wh*-RCs used for argument relativisation.

An alternative name for non-*wh*-RCs might be *a*-RCs or Ø-RCs depending on whether we are dealing with literary or colloquial Welsh respectively, i.e. whether the particle *a* is used or not. Following Roberts (2004), we assume that the particle *a* is a C-head and, more specifically, that *a* is located in Fin (the lowest C-head). In Welsh, adverbs can appear after some complementisers but not others (Roberts, 2004: 301; Tallerman, 1996). The particle *a* obligatorily follows such adverbs suggesting it occupies a low position in the C-domain. Furthermore, this particle must be adjacent to the verb. Assuming that the verb is in T and that SpecTP is empty (Welsh being VSO), this suggests that *a* is in the lowest C-head, namely Fin (Roberts, 2004). We can thus conclude that *a*-RCs have a C-domain with at least one C-head in it. We assume, without argument, that colloquial Welsh Ø-RCs are structurally identical to literary Welsh *a*-RCs, with the only difference being that Fin is overt in literary Welsh and null in colloquial Welsh.

We can now ask whether Welsh *wh*-RCs and non-*wh*-RCs are of the same structural size. We argue that *wh*-RCs are larger than non-*wh*-RCs based on evidence from embedded focus constructions.

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[30] Borsley et al. (2007) suggest that argument *wh*-phrases are inherently interrogative.

Focus constructions can be embedded using a focus complementiser: *mai* (northern and literary) or *taw* (southern) (Borsley et al., 2007: 128-129; Tallerman, 1996). This can be seen in the following example (Borsley et al., 2007: 128):

(119) Dw   i'n   siwr   mai/taw   hi   gaiff   y   wobr.
      be.PRES.1S I-PRED sure   COMP.FOCUS   she   get.FUT.3S   the   prize
      'I'm sure that she's the one who'll get the prize.'

The exact position of the focus complementiser *mai/taw* is a matter of debate. Tallerman (1996) observes that adverbs can intervene between *mai* and the focussed constituent, but cannot precede *mai* with embedded scope (see Roberts, 2004: 302). Furthermore, Roberts (2004) observes that it is possible for an adverb to intervene between the focus constituent and a focus particle (if present). Roberts thus concludes that *mai* is in Force, the focussed constituent in SpecFocP, and the focus particle in Fin.

However, in colloquial Welsh, *mai* may also appear following the conditional complementiser *os* 'if' or in embedded questions following *pam* 'why', as in (120) and (121) respectively (Borsley et al., 2007: 129):

(120) **Os**   mai   hi   gaiff   y   wobr …
      if   COMP.FOCUS   she   get.FUT.3S   the   prize
      'If *she* gets the prize …'

(121) Esboniodd   Aled   **pam**   mai   Ewrop fydd   yn
      explain.PAST.3S   Aled   **why**   COMP.FOCUS   Europe be.FUT.3S   PROG
      rheolu   'r   21ain   ganrif
      rule.INF   the   21st century
      'Aled explained why *Europe* will be ruling the 21st century.'

This suggests that *mai* is reasonably high in the C-domain, but not in the highest C-head position.[31]

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[31] Though see Willis (2014), who suggests that *mai* and the focussed constituent form a larger constituent which occupies SpecFocP, i.e. *mai* is not a C-head at all.

Returning to RCs, it is possible to find examples of embedded focus constructions in *wh*-RCs. Consider the following example (David Willis, p.c.).[32]

(122) | Un | o | amcanion | polisi | rheolaeth | tobaco | yn | y | DU |
| one | of | aims | policy | management | tobacco | in | the | UK |

| ac | yn | rhyngwladol | oedd | creu |
| and | PRED | international | was | create.INF |

| **amgylchedd** | **lle** | **mai** | **peidio** | **ysmygu** | **yw'r** | **norm.** |
| atmosphere | where | COMP.FOCUS | not | smoke.INF | is.the | norm |

'One of the tobacco management policy aims in the UK and internationally was to create an atmosphere where not smoking is the norm.'

In (122), we have an adjunct RC with a relative pronoun *lle* 'where' followed by the focus complementiser *mai* and the focussed constituent *peidio ysmygu* 'not smoking'. The relative pronoun is clearly able to target a position higher than the focus complementiser. Therefore, we conclude that *wh*-RCs are large enough to host focussed constituents and the focus complementiser. In contrast, non-*wh*-RCs are unable to co-occur with an embedded focus construction (David Willis, p.c.).

Considering Welsh in isolation, it would be unclear whether embedded focus constructions in non-*wh*-RCs is ruled out due to some property of non-*wh*-RCs or due to the fact that argument relativisation is involved (since in Welsh, non-*wh*-RCs can essentially only

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[32] Example is from: http://www.bbc.co.uk/cymrufyw/25341083

be used to relativise arguments).[33] However, comparing Welsh with English suggests that the former option is correct. More specifically, it suggests that embedded focus constructions are ruled out in non-*wh*-RCs because these RCs are too small, i.e. they do not contain enough structure in the C-domain to host focussed constituents or the focus complementiser. In this respect, Welsh *wh*-RCs are analogous to English *wh*- and *that*-RCs, whilst Welsh non-*wh*-RCs are analogous to English Ø-RCs. In English, however, relative operators (or the internal copy of the RC head) could target either a low or a high position in Ø- or *that*-RCs respectively. The latter option is apparently unavailable in Welsh. In other words, *wh*-relative pronouns in Welsh consistently target a high position in the C-domain, whilst the relative operator (or copy of the RC head) in non-*wh*-RCs consistently targets the single C-head available in a simplex C-domain.

Finally, embedded focus constructions in Welsh provide a nice comparison with English in another respect. Borsley et al. (2007) observe that it is difficult to test for *that*-trace effects in Welsh because there is no overt embedding complementiser like English *that* to begin with. However, they suggest that there is perhaps a *mai*-trace effect. They observe that extraction of the fronted element in an embedded copula clause is possible

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[33] An exception to this comes from generic nouns denoting places, times, reasons, etc. where the *wh*-relative pronoun can be omitted (with other nouns, the relative pronoun is compulsory) (Borsley et al., 2007: 122). Note that *ges* in (i) is the lenited form of *ces* in (ii).

(i)   y   flwyddyn   ges   i   'ngeni

         the   year   get.PAST.1S   I   1S.be.born.INF

         'the year I was born'

(ii)   yr   ysbyty   lle   ces   i   'ngeni

         the   hospital where get.PAST.1S   I   1S.be.born.INF

         'the hospital where I was born'

In literary Welsh, in cases like (i), the particle *y(r)* is required and the verb does not mutate (Borsley et al., 2007: 122).

(iii)   y   flwyddyn   y   cefais   fy   ngeni

         the   year   PRT   get.PAST.1S   1S   be.born.INF

         'the year I was born'

only if the focus complementiser *mai* is omitted. In the baseline sentence, *mai* is optional in colloquial Welsh. The examples are from Borsley et al. (2007: 143).

(123) Pa ddinas wyt ti 'n meddwl **(*mai)**

which city be.PRES.2S you PROG think.INF (COMP.FOCUS)

yw prifddinas Cymru?

be.PRES.3S capital Wales

'Which city do you think is the capital of Wales?'

(124) Dw i 'n meddwl **(mai)** Caerdydd yw

be.PRES.1S I PROG think.INF COMP.FOCUS Cardiff be.PRES.3S

prifddinas Cymru.

capital Wales

'I think that Cardiff is the capital of Wales.'

Assuming that no predicate directly selects for a focus complement, which seems reasonable, we can posit an empty C-head above *mai* (recall as well that we have already seen that *mai* may follow *wh*-adjuncts and the conditional complementiser *os* 'if'). Furthermore, let us assume that when *mai* is absent, the C-head hosting it when it is overt is also absent. We thus have the following schematic configurations:

(125) a. $[_{CP1}$ C_1 $[_{CP2}$ C_2=mai $[_{CP3}$ XP C_3 ... (*mai* is present)

b. $[_{CP1}$ C_1 $[_{CP3}$ XP C_3 ... (*mai* is absent)

Adopting the account of the *that*-trace effect above, C_1 is the phase head and the phase escape hatch is the specifier of the phase head's complement, i.e. SpecCP$_2$ in (125a) and SpecCP$_3$ in (125b). If we try to extract XP in (125a), XP must move to the phase escape hatch. However, this movement is anti-local and extraction is ruled out. In (125b), XP is already in the phase escape hatch position and extraction is permitted. It remains to be seen whether an adverb intervening between *mai* and the XP, which is claimed to be possible (Tallerman, 1996), alleviates the *mai*-trace effect in the same way as in English.

7.3   Malagasy

We have proposed that there is a close connection between topicalisation and relativisation in English. We argued that topicalisation and relativisation target the same structural positions in the C-domain, with relativisation involving the additional matching relation with an RC-external RC head. Another way to think of this is that topicalisation feeds relativisation. In other words, in order to relativise an element, that element must first be topicalised. If so, there is only really one position in English from which relativisation is possible, namely the topic position in the C-domain.

Such a claim would make English look extremely similar to various Austronesian languages like Malagasy (spoken in Madagascar) and Tagalog (spoken in the Philippines). These languages have a famous 'voice-system' which indicates the grammatical function of the prominent element (often called the *trigger* or *pivot*) in the clause. The following examples are from Malagasy (Pearson, 2005: 389-390) (the trigger appears clause-finally):

(126) a.   Mamono   ny   akoho   amin'ny   antsy   ny   mpamboly.

AT.kill   DET   chicken   with-DET   knife   DET   farmer

'The farmer is killing the chickens with the knife.'

b.   Vonoin'   ny   mpamboly   amin'ny   antsy   ny   akoho.

TT.kill   DET   farmer   with-DET   knife   DET   chicken

'The chickens, the farmer is killing (them) with the knife.'

c.   Amonoan'   ny   mpamboly   ny   akoho   ny   antsy.

CT.kill   DET   farmer   DET   chicken   DET   knife

'The knife, the farmer is killing the chickens (with it).'

When the trigger is the agent, as in (126a), the verb appears in the AT (Actor-Topic/Trigger) form. When the trigger is the patient or theme, as in (126b), the verb appears in the TT (Theme-Topic/Trigger) form. And when the trigger is an oblique, as in (126c), the verb appears in the CT (Circumstantial-Topic/Trigger) form.

Following Richards (2000), Pearson (2005) and Van Urk (2015a), we assume that the trigger is a topic.[34] The evidence that these authors provide for this includes: (i) the trigger is necessarily given and formally definite; (ii) the trigger exhibits reconstruction effects but does not exhibit WCO effects; and (iii) pronominal deletion is only possible if the pronoun is the trigger, which parallels the conditions on topic-drop in German. Furthermore, we also adopt Pearson's (2005) proposal that the AT, TT and CT forms are effectively *wh*-agreement forms (see also Rackowski & Richards, 2005 on Tagalog).

Crucially, when the agent is relativised, the AT form is obligatory, as in (127); when the theme is relativised, the TT form is obligatory, as in (128); and when an oblique is relativised, the CT form is obligatory, as in (129).[35] These examples are from Pearson (2005: 412ff) (Pearson describes *izay* as an operator; it is optional in Malagasy RCs):

(127) a.
ny	mpamboly	[(izay)	mamono	ny	akoho
DET	farmer	OP	AT.kill	DET	chicken

amin'ny	antsy]
with-DET	knife

'the farmer who is killing chickens with the knife'

b.
*ny	mpamboly	[(izay)	vonoina	amin'ny	antsy
DET	farmer	OP	TT.kill	with-DET	knife

ny	akoho]
DET	chicken

'the farmer who is killing the chickens with the knife'

c.
*ny	mpamboly	[(izay)	amonoana	ny	akoho
DET	farmer	OP	CT.kill	DET	chicken

ny	antsy]
DET	knife

'the farmer who is killing the chickens with the knife'

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[34] See Pearson (2005: 384) for an overview of the different treatments of the trigger in Tagalog.

[35] This applies to all types of A'-movement.

(128) a. *ny   akoho   [(izay) mamono   amin'ny   antsy

          DET   chicken   OP   AT.kill   with-DET   knife

          ny   mpamboly]

          DET   farmer

          'the chickens which the farmer is killing with the knife'

      b. ny   akoho   [(izay) vonoin'   ny   mpamboly

          DET   chicken   OP   TT.kill   DET   farmer

          amin'ny   antsy]

          with-DET   knife

          'the chickens which the farmer is killing with the knife'

      c. *ny   akoho   [(izay) amonoan'   ny   mpamboly

          DET   chicken   OP   CT.kill   DET   farmer

          ny   anysy]

          DET   knife

          'the chickens which the farmer is killing with the knife'

(129) a. *ny   antsy [(izay) mamono   ny   akoho   (amin')

          DET   knife   OP   AT.kill   DET   chicken   with

          ny   mpamboly

          DET   farmer

          'the knife that the farmer is killing the chickens with'

      b. *ny   antsy [(izay) vonoin'   ny   mpamboly   (amin')

          DET   knife   OP   TT.kill   DET   farmer   with

          ny   akoho]

          DET   chicken

          'the knife that the farmer is killing the chickens with'

      c. ny   antsy [(izay) amonoan'   ny   mpamboly   ny   akoho]

          DET   knife   OP   CT.kill   DET   farmer   DET   chicken

          'the knife that the farmer is killing the chickens with'

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We can capture this by saying that, in Malagasy, only the trigger (a topic) can be relativised. This is slightly different from what Pearson (2005) proposes. He claims that topicalisation, *wh*-movement and relativisation are all types of A'-movement competing for the trigger-position (akin to the first position in Germanic V2). What we are claiming is that topicalisation feeds relativisation.

Interestingly, it may also be the case that relativisation feeds interrogatives and focalisation in Malagasy. Pearson (2005) points out that Malagasy questions and focus constructions are cleft constructions (following Paul, 1999, 2001), which are arguably derived from RCs. This seems preferable to treating topicalisation, *wh*-movement and relativisation as three types of A'-movement all with the same effect on verbal morphology. Instead, we have one type of A'-movement creating topic structures (with the relevant effects on verbal morphology). This structure can then form the basis of an RC, and the RC structure in turn can form the basis of a cleft used for focus and questions. Because RCs and clefts are directly or indirectly constructed from topicalisation structures, they all exhibit the relevant morphology on the verb determined by which element was topicalised in the first instance.

The comparison between English and Malagasy is particularly interesting given how differently they are typically treated in terms of accessibility. Keenan & Comrie (1977) classify Malagasy (and Tagalog) as languages that can only relativise subjects, whilst English can relativise all positions on the Accessibility Hierarchy (albeit not with a single strategy as defined by Keenan & Comrie). However, if the suggestions above are correct, Malagasy and English are virtually identical in terms of accessibility in relativisation. Assuming that Malagasy 'subjects' are actually topics, both English and Malagasy can be said to relativise topics. The difference would be that Malagasy topicalisation triggers a morphological reflex on the verb, whilst English topicalisation does not. Whether all of Keenan & Comrie's subject-only languages can be reanalysed in these terms remains to be seen. If it turns out that subject-only languages do not exist, this will have important consequences for the AH proposal. We leave this for future research (see Chapter 7).

Chapter 5

Control into infinitival relatives

1 Introduction

This chapter is concerned with examples of the form in (1), which to our knowledge have not been described or studied before.

(1)   a.   This is John's book to read.

      b.   That is the school's decision to make.

      c.   It is her game to lose.

We argue that these are instances of infinitival RCs (IRCs) and are interesting because of the relationship between the prenominal possessor attached to the RC head and the IRC subject, which we argue is a case of control. As we will see, these constructions are challenging in various ways for many existing theories of control. They may thus offer important empirical and theoretical insights to control theory, whilst simultaneously giving us a new perspective on the structure of IRCs.

The structure of this chapter is as follows: in Section 2, we show that the examples in (1) are IRCs and not object purpose clauses, which superficially look the same. In Section 3, we establish that the relation between the prenominal possessor and IRC subject is one of control and consider what type of control it is. In Section 4, we evaluate the extent to which current theories of control are successful or not in predicting/accounting for the properties uncovered in Section 3. We then propose an analysis of control into IRCs based on Landau's (2015) Two-Tiered Theory of Control (TTC). Section 5 provides a summary and Section 6 is a brief note on a superficially similar construction found in Polynesian languages.

2 Infinitival relative clauses or object purpose clauses?

The infinitival clauses in the examples in (1) look superficially similar to object purpose clauses (OPCs). It is widely known that there is control into OPCs (Bach, 1982; Jones, 1991; Landau, 2000, 2013). An example is given in (2).

(2)   a.   I bought the book to read.

        b.   I bought John's book to read.

(3)   I$_i$ bought the/John's book [PRO$_i$ to read]

The surface string *the/John's book to read* is also found in the IRCs in (4).

(4)   a.   This is the book to read.

        b.   This is John's book to read.

However, there are various ways to show that IRCs and OPCs are syntactically (as well as semantically) distinct. We apply these diagnostics, where applicable, to the examples in (2a,b) and (4a,b), demonstrating that (4a,b) are examples of IRCs.

First, in OPCs, the infinitival object can appear as a pronoun. This is impossible in IRCs.

(5)   OPCs

        a.   I bought the book to read (it).

        b.   I bought John's book to read (it).

(6)   IRCs

        a.   This is the book to read (*it).

        b.   This is John's book to read (*it).

The appearance of a pronoun in OPCs is not entirely free: when a pronoun is present, it is necessarily referential. Thus compare (5) with (7).

(7)   a.   I didn't buy any books to read (*them) on holiday.

        b.   I bought every book (on the Bestseller's List) to read (*it).

Quantificational expressions are not referential and are incompatible with an overt pronominal infinitival object. We can thus conclude that OPCs can modify both referential and non-referential expressions, with overt pronominal infinitival pronouns only being compatible with the former.

IRCs, on the other hand, are always incompatible with such overt pronouns. Given the significance of (non-)referentiality in determining the availability of pronouns in OPCs,

we can say that IRCs (like restrictive RCs generally) simply cannot modify referential expressions. This is confirmed by the fact that OPCs can modify pronouns and proper names (referring expressions) whilst IRCs cannot (Bach, 1982; Faraci, 1974; Jones, 1991).

(8)   OPCs

    a.   I bought it to read.

    b.   I brought Bill to talk to.

(9)   IRCs

    a.   *This is it to read.

    b.   *This is Bill to talk to.

A second difference can be seen in the linear ordering of OPCs and IRCs with respect to finite RCs. When a finite RC and an OPC co-occur, the OPC appears to the right of the finite RC, but when a finite RC and an IRC co-occur, the IRC appears to the left of the finite RC (Jones, 1991). Applying these diagnostics shows that our examples pattern with IRCs, not OPCs.

(10)   OPCs

    a. $^{??}$I bought John's/the book [to read] [that I was about to sell].

    b.   I bought John's/the book [that I was about to sell] [to read].

(11)   IRCs

    a.   That is John's/the book [to read] [that I was about to sell].

    b. $^{??}$That is John's/the book [that I was about to sell] [to read].

A third difference relates to extractability of the modified nominal: extraction is permitted in the case of OPCs, but is prohibited in the case of IRCs.[1]

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[1] Note that, whilst it is not possible to *wh*-extract the RC head, as in (13), it does seem to be possible to question the possessor, which pied-pipes the RC head (*who* is to be interpreted as the IRC subject).

(i)   a.   This is John's book to read.

    b.   Whose book is this to read?

(ii)   a.   This is John's book to write in.

    b.   Whose book is this to write in?

(12)   OPCs

    a.   What did you buy to read?

    b.   What did you buy to write in?

(13)   IRCs

    a.   *What is this to read?

    b.   *What is this to write in?

The differences so far can be accounted for in terms of the structural position of OPCs and IRCs relative to the nominal they are modifying (see, for example, Jones, 1991).

A fourth difference concerning the internal structure of the infinitival clause relates to the acceptability of *wh*-relative pronouns: OPCs cannot be introduced by *wh*-relative pronouns, but IRCs can (they must pied-pipe a preposition in infinitival contexts (see Chapter 3)) (Faraci, 1974).

(14)   OPC

    *I bought John's/the book in which to write my thoughts and feelings.

(15)   IRC

    This is John's/the book in which to write his thoughts and feelings.

To summarise, we have shown that examples such as (4a,b), repeated below, are IRCs and not OPCs. Consequently, we use examples of this form in what follows.[2]

However, even if the RC head is pied-piped by the possessor, the result is degraded if the IRC is introduced by a *wh*-relative pronoun.

(iii)   a.   This is John's book in which to write.

    b.   [??]Whose book is this in which to write?

We are unsure how to account for these data at present.

[2] Another difference is that IRCs, but not OPCs, are incompatible with *in order to*.

(i)   a.   I bought the book in order to read it.

    b.   *This is the book in order to read it.

(16) a. This is the book to read.

b. This is John's book to read.

We leave aside the interesting question of why the string *the/John's book to read* in (16a,b) is interpreted as an IRC, but apparently not as an OPC (and conversely for the examples in (2a,b)).

3 Control

In this section we ask whether the relation between the possessor and the IRC subject is one of control, and, if so, what type of control relation it is.

3.1 Is it control?

PRO, i.e. the element being controlled by some antecedent/controller, is virtually always a subject. If we are dealing with control, we would expect that the possessor can only be interpreted as the IRC subject and should never be interpreted as any internal argument of the IRC (modulo derived subjects). This is exactly what we find.

(17) a. This is the book (for John) to read to Mary.

b. This is John's book to read to Mary.

c. *This is Mary's book (for John) to read to.

(18) a. That is the general (for the Emperor) to give a slave to.

b. ?That is the Emperor's general to give a slave to.

c. *That is the slave's general (for the Emperor) to give to.

(19) a. This is the patient (for the new surgeon) to operate on.

b. This is the new surgeon's patient to operate on.

c. #This is the old patient's surgeon to operate on.

(20) a. This is the man to fix the sink.

b. *This is the sink's man to fix.

However, as Jones (1991) observes, there are a number of differences between *in order to* clauses and (O)PCs, so this difference may not be directly relevant. Nevertheless, it clearly shows that IRCs are incompatible with the 'purpose' semantics contributed by *in order to*.

The (a) examples are the baseline IRCs. (17b) and (18b) show that it is perfectly possible for the prenominal possessor to be interpreted as the IRC subject. (17c) shows that the prenominal possessor cannot be interpreted as the IRC indirect object. (18c) shows that the prenominal possessor cannot be interpreted as the IRC direct object either (see also (20b)). (19c) is odd precisely because world knowledge tells us that surgeons operate on patients and not vice versa, showing that the prenominal possessor is being interpreted as the IRC subject. It thus looks as if we are dealing with a control relation, i.e. the prenominal possessor is capable of controlling the IRC subject PRO.

A clear consequence of this is that such a control interpretation should be impossible in subject IRCs, as in (20b), since the IRC subject position here is linked with the RC head, not the prenominal possessor attached to the RC head. This would also apply to passivised IRCs.

(21)   This is John's book to be read.

(21) is a subject IRC. Therefore, even if there is a PRO rather than an A'-trace/copy (see Bhatt, 1999), this will be interpreted as the RC head *book* and not as the prenominal possessor *John*. The prenominal possessor cannot be interpreted as the implicit external argument of *read* either, consistent with a control analysis.

So far, we have simply been assuming that there is a PRO subject in IRCs. That PRO is present in IRCs is plausible for *wh*-IRCs (= infinitival *wh*-RCs) since this type contains at least some portion of a C-domain. It is not immediately obvious whether Ø-IRCs (= infinitival Ø-RCs) should have a PRO subject. As discussed in Chapter 3, Ø-IRCs may lack a C-domain altogether, but we did not make any conclusions about whether this type of IRC has a full T-domain or not. However, as we will see, the relation between the prenominal possessor and IRC subject does not seem to be affected by the presence or absence of a *wh*-relative pronoun. We take this to indicate that both *wh*-IRCs and Ø-IRCs have a PRO subject. Note that in standard English, the complementiser *for* only appears with overt subjects in subject position (PRO and subject traces are not permitted). *For*-IRCs (= infinitival *for*-RCs) are thus incompatible with the phenomenon at issue.[3]

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[3] In varieties where *for* + PRO is permitted, e.g. Belfast English, we would expect *this is John's book for to read* to be possible.

Further evidence for the presence of PRO in both *wh*-IRCs and $\emptyset$-IRCs can be seen from the fact that anaphors are permitted in IRCs.

(22) a.   These are the sweets on which PRO_i to gorge yourselves$_i$.

     b.   These are the sweets PRO_i to share with each other$_i$.

Successful binding of anaphors in IRCs suggests that the IRC subject is a PRO, rather than an implicit argument, since implicit arguments cannot bind (see Wurmbrand, 2001).[4]

To summarise, we conclude that the relation between the prenominal possessor and the IRC subject is one of control.

3.2   OC or NOC?

We now turn to the question of what type of control is involved. Since Williams (1980), a distinction has been made between Obligatory Control (OC) and Non-Obligatory Control (NOC), and further distinctions have since been recognised, including Exhaustive Control and Partial Control. There is disagreement in the literature about how these further distinctions relate to the OC/NOC distinction. The reason appears to be definitional: different authors assume different definitions or defining characteristics of OC and NOC, which in turn leads to differences in the way the empirical phenomena are categorised. See Landau (2000, 2013) for a thorough overview of approaches to control and for extensive discussion of various OC/NOC diagnostics that have been proposed.

For concreteness and because they are widely recognised and adopted, we use the OC/NOC diagnostics given in Landau (2000: 31):

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[4] The issue is more complicated than this. Landau (2013: 183ff) argues that implicit arguments can enter into Binding Conditions B and C, but cannot bind anaphors. However, arbitrary implicit arguments seem to be able to bind arbitrary anaphors, at least in some contexts, e.g. *Such privileges should always be kept to oneself* (Ian Roberts, p.c.) (see also M. Baker et al., 1989; Williams, 1985, 1987).

(23)   The OC/NOC Categories

a.   Arbitrary Control is impossible in OC, possible in NOC.

b.   Long-distance Control is impossible in OC, possible in NOC.

c.   Strict reading of PRO is impossible in OC, possible in NOC.

d.   *De re* reading of PRO is impossible in OC (only *de se*), possible in NOC.

These diagnostics are illustrated below for the general cases. Examples are (slightly adapted) from Landau (2000: 34-36).

(24)   Arbitrary Control

a.   John tried [PRO$_{John/*arb}$ to be quiet].   (OC)

b.   It is dangerous for babies [PRO$_{arb}$ to smoke around them].   (NOC)

(25)   Long-distance Control

a.   *Mary knew that John dared [PRO$_{Mary}$ to perjure herself].   (OC)

b.   John said that Mary thought that [PRO$_{John}$ shaving himself] would bother Sue.

(NOC)

(26)   Strict reading of PRO

a.   John tried [PRO$_{John}$ to leave early], and Bill did <try [PRO$_{Bill/*John}$ to leave early]> too.   (OC)

b.   John thinks that [PRO$_{John}$ feeding himself] will be difficult, and Bill does <think that [PRO$_{John/Bill}$ feeding himself] will be difficult> too.   (NOC)

(27)   *De re* vs. *de se*

Context: an amnesiac sees a TV programme describing his own exploits and is impressed by that person's courage thinking him worthy of a medal, though he does not realise he himself is that person.

a.   The amnesiac expects that he will get a medal.

b.   The amnesiac believes that [PRO getting a medal] would be boring.

(NOC)

c.   The amnesiac expects [PRO to get a medal].   (OC)

(27a,b) are true in the context given, but (27c) is false. This shows that PRO in (27c), the OC example, must be interpreted *de se* (and cannot be interpreted *de re*), whilst in (27b), the NOC example, PRO can be interpreted *de re*.

We now turn to our IRC examples, applying these diagnostics where applicable to see whether the control relation between the prenominal possessor and IRC subject is one of OC or NOC. As we will see, the results are conflicting.

Turning first to the *de re*/*de se* diagnostic, we have been unable to apply this to IRCs. It is not possible to insert an attitude predicate between the prenominal possessor and the IRC subject since the prenominal possessor is directly attached to the RC head which is directly modified by the IRC.

Turning now to the strict/sloppy interpretation diagnostic, the strict reading of PRO is impossible in IRCs. Under ellipsis, PRO can only be interpreted sloppily, as shown in (28).

(28)   This is John's book to read and that is Mary's.
    a.   This is John's book to read and that is Mary's <book PRO$_{Mary}$ to read>.
    b.   *This is John's book to read and that is Mary's <book PRO$_{John}$ to read>.

This holds even in a context where various people (including Mary) are choosing books for John to read. In order to get such a reading, an overt subject with *for* is required. In such cases, the overt subject is in the ellipsis site.

(29)   This is John$_i$'s book for him$_i$ to read and that is Mary's.

(30)   This is John$_i$'s book for him$_i$ to read and that is Mary's <book for him$_i$ to read>.

This strongly suggests that the PRO subject is obligatorily controlled by the prenominal possessor.

Turning now to the long-distance control diagnostic, long-distance control is impossible in IRCs, as (31) shows.

(31)   a.   This is John's book PRO$_{John}$ to read.
    b.   Mary said this is John's book PRO$_{John/*Mary}$ to read.

This holds even in a context where John has chosen a book for Mary to read. To express such a meaning, an overt subject with *for* must be used instead.

(32)   Mary$_i$ said this is John's book for her$_i$ to read.

This diagnostic thus also suggests that we are dealing with OC. If the reference of PRO were free, we would not expect this restriction.

The diagnostics so far suggest that prenominal possessor control into IRCs is an instance of OC, not NOC. Before moving on to the final diagnostic, let us consider a few predictions that are made if we are dealing with OC. If Partial Control (PC) is a species of OC (Landau, 2000, 2008, 2013), we would predict PC readings to be possible. As the following examples show, this prediction is borne out.

(33)   Context: There are tours around the set of the *Fifty Shades of Grey* film. The tour guide is pointing out the various rooms and what Christian Grey uses each room for (censored version!).

    a.   This is his room to meet in.

    b.   This is his room to kiss in.

    c.   This is his room to hug in.

All of these examples exhibit PC, i.e. the referent of PRO properly includes the controller. Furthermore, verbs like *hug* (and for many speakers *kiss* as well) do not take comitative arguments. This shows that the PC interpretation does not arise from a covert comitative argument (*pace* Boeckx, Hornstein, & Nunes, 2010), at least in English (see footnote 6).

PC can also be seen in the following examples:

(34)   This is John's matter to discuss/debate (in parliament).

(35)   A: You had to be at school at 7am?!
        B: That was the headmaster's time to gather at! It certainly wouldn't have been mine!

The presence of PC in IRCs supports the results from the structural diagnostics above.

If we are dealing with OC, then we would also expect c-command to be relevant, i.e. if the prenominal possessor controls the IRC subject, we would expect that it must c-command the IRC subject.[5] In this respect, compare prenominal possessors with postnominal possessors.

(36) a.   This is John's book to read.

        This is John's book PRO$_{John}$ to read.

      b.   This is the book of John's to read.

        *This is the book of John's PRO$_{John}$ to read.

In (36a), PRO can be controlled by the prenominal possessor *John*. However, in (36b), PRO cannot be controlled by the postnominal possessor *John*. This suggests that postnominal possessors attached to the RC head do not c-command the IRC subject, whilst prenominal possessors do. This is confirmed by Condition C effects.

(37) a.   *This is his$_i$ book for John$_i$ to read.

      b.   This is that book of his$_i$ for John$_i$ to read.

As (37a) shows, a prenominal possessor cannot be co-indexed with an R-expression as the IRC subject. This results in a Condition C violation. In contrast, there is no Condition C violation in (37b) with a postnominal possessor.

The contrast between prenominal and postnominal possessors falls out reasonably straightforwardly from most analyses of RCs. As we discussed in Chapter 2, the external determiner attached to the RC head has no RC-internal representation since it never reconstructs. Furthermore, the external determiner c-commands the RC (either because it takes the RC as its complement or because it scopes over both the RC head and the RC). Now, on the standard assumption that prenominal possessors (except those in compounds such as *men's shoes* or *children's book*) are in SpecDP (Alexiadou, Haegeman, & Stavrou, 2007), prenominal possessors are higher than the external determiner and would thus c-

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[5] As Landau (2000, 2013) points out, strictly speaking PRO need not be c-commanded by the controller itself, but it must nonetheless be c-commanded by the functional head that introduces the controller. This does not affect the arguments here.

command the RC and everything in it, including the IRC subject. Postnominal possessors, however, are contained inside a PP attached to the RC head. They are unable to c-command out of the PP and out of the RC head and into the IRC. They are thus unable to control the IRC subject. This state of affairs would be unexpected if the reference of the IRC subject PRO were free since then we might expect accidental co-reference to be possible between PRO and a possessor regardless of the latter's structural position.

We have now seen several pieces of evidence that suggest there is an OC relation between the prenominal possessor and IRC subject. However, the fourth and final diagnostic concerning arbitrary control, which by definition should be impossible with OC, leads to a very different conclusion, namely control is not obligatory.

It is perfectly possible to have a prenominal possessor attached to the RC head whilst simultaneously interpreting the IRC subject as arbitrary PRO.

(38)   This is John's book to read.

We know that this example has an interpretation where the IRC subject is interpreted as *John*. However, it also has an interpretation where PRO is arbitrary. For example, John may have recommended a book for others to read.

(39)   This is John's book PRO$_{arb}$ to read.

Note that PRO is interpreted either as co-referential with the prenominal possessor or as arbitrary. Its reference is not free. We saw this with the long-distance control diagnostic.

(40)   Mary said this is John's book PRO$_{John/*Mary/arb}$ to read.

We pointed out that PRO cannot be interpreted as *Mary* but could be interpreted as *John*. However, PRO can also be interpreted as arbitrary.

One possibility that immediately suggests itself is that, whenever the control relation between the prenominal possessor and the IRC subject fails, we are actually dealing with a different structure. However, we have already seen that prenominal possessors generally c-command the RC head and the RC. If it were possible for the prenominal possessor to appear in a position that did not c-command the IRC subject (modulo possessors appearing

in compounds), we would expect it to be possible to avoid the Condition C violation we saw above. However, this does not seem to be a possibility suggesting that the c-command relations do not change. It thus seems more parsimonious to assume that the structure of these RCs is uniform both in the controlled and non-controlled cases.

To summarise, the structural diagnostics suggest that we are dealing with OC. However, since PRO can be interpreted as arbitrary, control is evidently not obligatory.

4 Analysis

4.1 Problems for existing theories of control

The literature on control is vast and it would be far beyond the scope of this thesis to provide a review (see Landau, 2000, 2013 for comprehensive overviews). Interestingly, we are not aware of any discussion of the types of example being considered here, though the issue of control involving possessors has been addressed in other contexts, for example, logophoric extensions and control into nominalisations. However, we will see that these are very different from the structures we are looking at.

Landau (2000: 109ff) notes that a controller seems not to be a direct argument of the matrix predicate in a well-defined set of cases. The following examples are taken from Landau (2000: 109-110):

(41)   a.   It would help $Bill_i$'s development [PRO_i to behave himself in public].

      b. PRO_i finishing his work on time is important to $John_i$'s development.

      c. PRO_i finishing his work on time is important to John's $friends_i$.

(42)   a.   *It would help $Bill_i$'s friends [PRO_i to behave himself in public].

      b.   It would help Bill's confidence [PRO to plan his itinerary in advance].

      c.   *It would help Bill's car [PRO to plan his itinerary in advance].

      d.   [PRO causing an uproar] is important for John's career.

Landau notes that the class of nouns that can contain the controller (as a possessor) is quite small and coherent, denoting abstract notions reflecting the individuality of the controller via actions, characters traits or social attributes (Landau, 2000: 110). This class contains nouns like *career, status, confidence, performance, development, image, reputation,*

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behaviour, etc. When a prenominal possessor denoting an individual, call it X, is attached to one of these nouns, Landau calls the result the *logophoric extension of X*. Landau (2000: 111) suggests that the class of logophoric extensions could be assimilated to the class of inalienably possessed nouns. These nouns do not introduce new individuals to the discourse, but rather highlight some aspect of the individual denoted by the possessor. Consequently, Landau suggests that such nouns do not block the index of the possessor (or, alternatively, such nouns inherit the index of their possessors) and so, in a way, the possessor can be considered an argument of the matrix predicate. However, in the examples under discussion, the RC head need not belong to the class of logophoric extensions.

Another instance of control involving possessors comes from control within DPs. This is potentially more relevant since, in our examples, the possessor controls within the DP of the external determiner. Hornstein (2003), cited in Landau (2013: 215), notes that possessors can be related to their head nouns in a number of different ways. In some cases, it looks as if we can choose between OC and NOC, which is particularly interesting from our perspective.

(43)   [John$_i$'s plan [PRO$_{j\neq i}$ to bury him$_i$ in the pit]] just won't work.

(43) can have an interpretation where PRO is disjoint in reference from *John* (ensured by the Condition B effect). However, Landau points out a potential confound. This interpretation relies on *John* not being interpreted as the thematic agent of *plan*. However, in such cases, *plan* has a result reading rather than an eventive/process reading. Consequently, in such cases, *plan* does not take genuine arguments. Landau concludes that there is OC within DPs in derived nominals on their event readings (parallel to clauses).

However, in our examples, we cannot fall back on an event vs. result distinction. The RC head is clearly not necessarily eventive. Furthermore, the RC head need not be a nominalisation of a canonical control predicate.

(44)   This is John$_i$'s book to read to him$_i$.

This example forces disjoint reference between the prenominal possessor and PRO, but this does not seem to be related to any ambiguity relating to the RC head.

Our examples are also problematic for many existing (syntactic) theories of control, which typically rely on movement (e.g. Boeckx et al., 2010; Hornstein, 1999; Manzini & Roussou, 2000) or Agree (e.g. Landau, 2000, 2008, 2013; Sundaresan & McFadden, 2015) or some combination of the two (e.g. Sheehan, 2014b). The reason our examples are so problematic is that they involve IRCs. Movement out of RCs is generally banned.[6] One might say that the controller does not actually move *out* of the RC, but instead moves to its edge, i.e. the specifier of the external determiner. But even then we would run into an intervention problem since the RC head itself would presumably be an intervener. This problem would also apply to Agree-based approaches. These considerations suggest that the control relation is established by some mechanism other than movement or Agree, but which is nonetheless subject to structural constraints and locality.

Our examples are also puzzling for semantic approaches to control (H. Pearson, 2013; Williams, 1987), where the control relation is typically determined by the semantics of the control verb/predicate. The problem posed by our examples is that there is no obvious control verb/predicate unless it is *be* itself. This might account for the following examples:

(45)   You are to stay there until I return.

        You$_i$ are [PRO$_i$ to stay there until I return].

It might also account for why the OPC reading is unavailable in our examples, and conversely why the IRC reading is unavailable with other matrix predicates. Even when the OPC reading would be pragmatically odd, the IRC reading still seems to be unavailable. This suggests that the absence of an IRC reading is not due to a blocking effect by the OPC reading, though more empirical work is required before further conclusions can be drawn.

(46)   a.   This is John's book to read.   (IRC; *OPC)

        b.   John's book to read is this one.   (IRC; *OPC)

(47)   a.   I bought John's book to read.   (#IRC; OPC)

        b.   John's book to read was bought.   (#IRC; *OPC)

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[6] Partial Control is very difficult to account for on movement approaches to control, as pointed out by Landau (2000). Null comitatives have been suggested to give the illusion of Partial Control (Boeckx et al., 2010), but this analysis is not correct for English at least (Landau, 2016; Sheehan, 2014a).

(48) a.   I sold John's book to read.   (#IRC; #OPC)

b.   John's book to read was sold.   (#IRC; *OPC)

However, the control relation between the prenominal possessor and the IRC subject seems to be established within the DP consisting of the external determiner, RC head and RC, i.e. independently of the verb (note that the prenominal possessor is not an argument of *be*). We therefore conclude that the control relation itself is established independently of any matrix verb semantics, though the matrix verb semantics evidently plays a role in the distribution of OPC vs. IRC readings.

4.2   Landau's (2015) Two-Tiered Theory of Control

We adopt Landau's (2015) Two-Tiered Theory of Control (TTC) for reasons that will become apparent below. According to the TTC, there are two types of (obligatory) control: Predicative Control and Logophoric Control (see also Bianchi, 2003). The various types of OC that have been identified in the literature fall under one of these two types as shown in the following table (Landau, 2015: 65).

(49)   Predicative and Logophoric Control

	Predicative control	Logophoric control
Inflected complement	✓	*
[-human] PRO	✓	*
Implicit control	*	✓
Control shift	*	✓
Partial control	*	✓
Split control	*	✓

Landau notes that logophoricity is also characteristic of NOC. Given the OC/NOC-hybrid nature of our examples, logophoric control already seems to be a good candidate for our analysis. Furthermore, we saw that our examples permit PC readings and PC is categorised as a type of logophoric control (see also Bianchi, 2003).

But how do Predicative and Logophoric Control work? Let us first consider Predicative Control. The structure is given in (50).
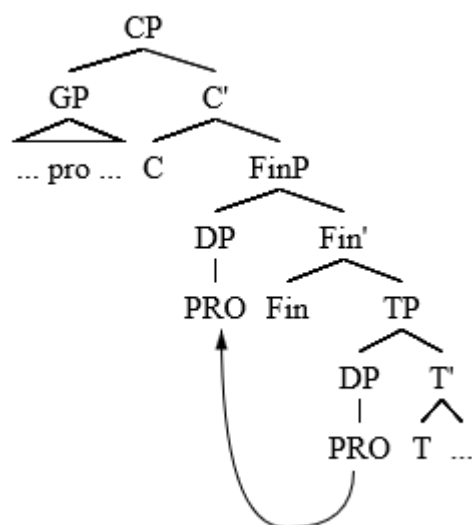
(50)   Predicative Control
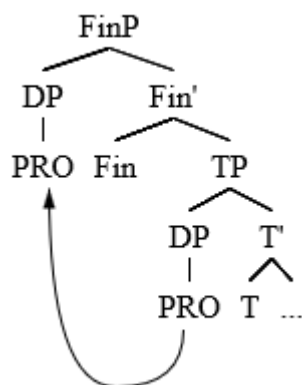
According to Landau, the infinitival clause is too large to be a semantic predicate. Therefore, we either need to insert an operator or have movement to create a lambda abstraction or derived predicate (see Chomsky, 1980; Heim & Kratzer, 1998). Landau proposes that this is done via movement of PRO itself. To instigate this, Landau proposes that Fin has a [uD] probe. Fin finds PRO as its (closest) goal and PRO moves to SpecFinP. Landau claims that this [uD] probe derives the subjecthood of PRO in a straightforward fashion, though exactly why such a probe should exists remains a stipulation.[7] FinP is then predicated of the matrix controller by means of a Relator head (Den Dikken, 2006).

The second type of OC is Logophoric Control, which is more complex. Logophoric Control involves Predicative Control plus an additional 'second tier' of structure. This is illustrated in (51).

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[7] Note that this movement from SpecTP to SpecFinP is ruled out by Spec-to-Spec Anti-Locality (see Chapter 4). Therefore, we might want to adopt the more traditional analysis where PRO remains in SpecTP. Alternatively, depending on how we derive Spec-to-Spec Anti-Locality, movement of PRO from SpecTP to SpecFinP might be permitted in cases where movement of an overt DP would be prohibited. In Chapter 4, Section 3.3.2, we proposed that Spec-to-Spec Anti-Locality arises as a type of derived Comp-to-Spec Anti-Locality. This crucially relied on the label of Fin's complement being φ (φ coming from the φ-features of the DP subject). However, if PRO is a minimal pronoun (as Landau claims), it has no intrinsic content, i.e. no φ-features or φ-specifications. Suppose then that no φ-label is projected when PRO is in SpecTP. Movement of PRO from SpecTP to SpecFinP would thus not look like a case of (derived) Comp-to-Spec Anti-Locality.

(51)   Logophoric Control

As can be seen, the FinP structure in Logophoric Control is identical to that of Predicative Control. In other words, the derived predicate is created by movement of PRO from SpecTP to SpecFinP. However, unlike in Predicative Control, this FinP is predicated of a variable *pro* (also a minimal pronoun), a relation mediated by the Relator head C, which according to Landau is perspectival (see also Bianchi, 2003; Sundaresan, 2016) and phasal.[8] Therefore, PRO is controlled by *pro* in Logophoric Control. In turn, *pro* is bound by the matrix controller via variable binding. To summarise, Logophoric Control is established via predication *and* variable binding.

4.3   Extension of the TTC to IRCs

We saw that the OC/NOC-hybrid nature of IRCs, plus the possibility of PC readings, already gives us cause to think Logophoric Control is relevant to IRCs. We also now have a structural reason. If Predicative Control involves PRO being directly predicated of the matrix controller, it follows that we could not have an RC head intervening between PRO and the matrix controller as this would interfere with the predication relation. Therefore, only Logophoric Control has enough structure to be able to host relativisation. By this logic, relativisation would have to target a position higher than what Landau calls CP. If it targeted a lower

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[8] GP is the Concept Generator Phrase containing *pro*, which is a nominal co-ordinate (author or addressee) projected by the C head. See Landau (2015) for full details.

position in the C-domain, it would presumably interfere with the predication relation between PRO and *pro*.

We also suggest that variable binding, which is responsible for establishing the control relation between the matrix controller and *pro*, is the mechanism (distinct from both movement and Agree (see Kratzer, 2009)) required to avoid the intervention problem posed by the RC head.

We thus propose the following structure for our IRC examples:

(52)   (This is) John's book to read.
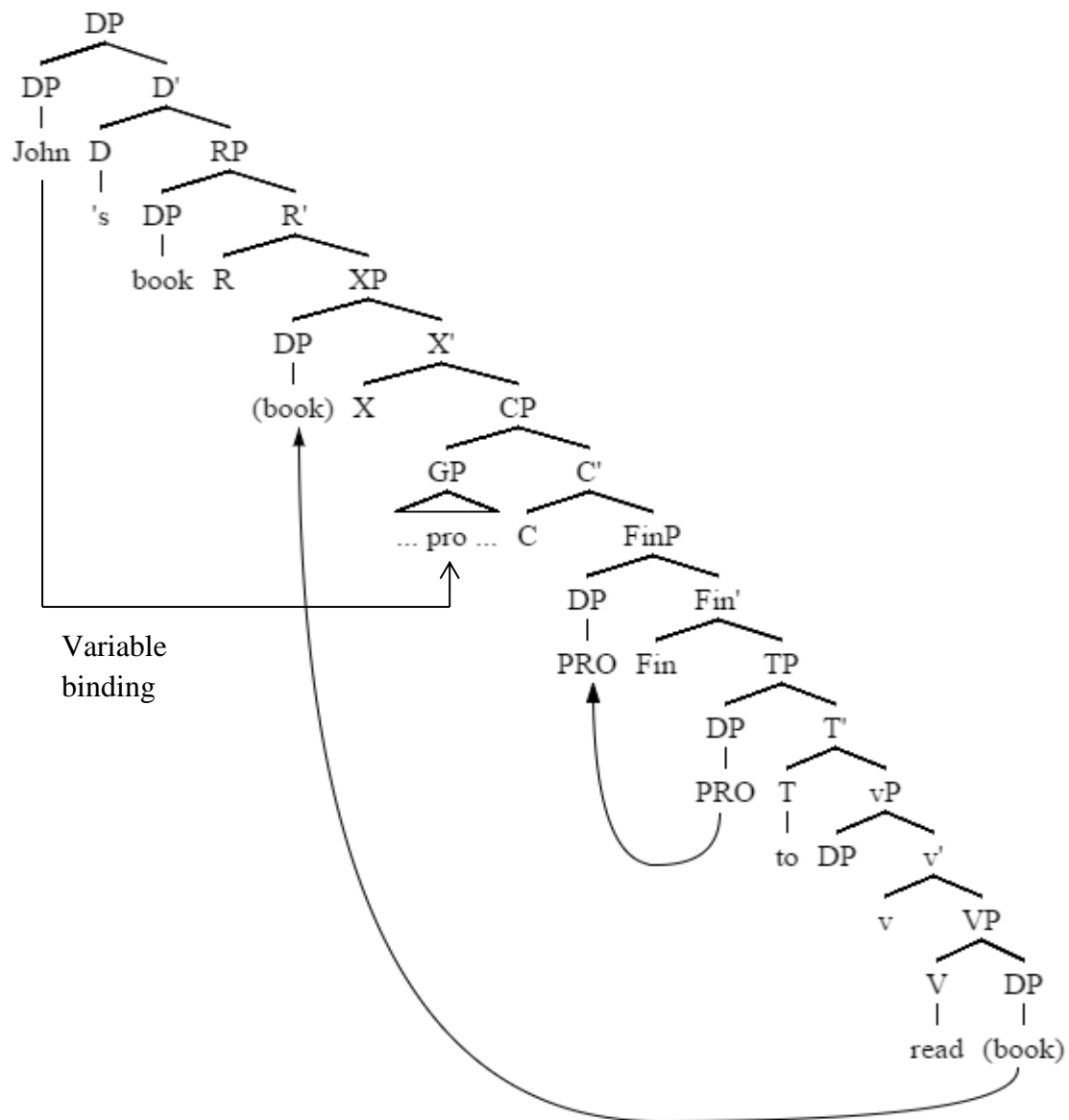
Relativisation targets SpecXP (ignoring any intermediate landing sites). For $\emptyset$-IRCs, as in (52), X is in the C-domain, higher than Fin and C. Note that adverbial fronting is generally disallowed in $\emptyset$-IRCs (see Chapter 3). This means that X in $\emptyset$-IRCs must be lower than Mod, i.e. the head hosting fronted adverbials in its specifier.[9] For *wh*-IRCs, X is the Foc head (see Chapter 3). This is higher than Mod, hence fronted adverbials are permitted.

(53)   a.   [?]This is John's book in which tomorrow to write a message.

       b.   *This is John's book tomorrow to write a message in.

Alternatively, if we do away with movement of PRO from SpecTP to SpecFinP (see footnote 7), C and Fin could be collapsed.

We propose that the RC head is not available as a binder for *pro* because the RC head is already binding a variable, namely the RC-internal copies of the RC head. If the RC head were to bind *pro* as well, this would violate the Bijection Principle (Koopman & Sportiche, 1982).

The question now is how variable binding between the prenominal possessor and *pro* works. Recall from the description of our examples that control between the prenominal possessor and the IRC subject is local but optional. Since the predication relation between PRO and *pro* is presumably obligatory (and local), we hypothesise that the variable binding relation must be optional (and local).

According to Landau (2015), in local variable binding there must be feature matching between the binder and the pronominal variable. Furthermore, variable binding is a vehicle for feature transmission, i.e. bound variables are assumed to inherit their ϕ-features from their binders at PF (Heim, 2008; Kratzer, 2009). As such, bound variables are minimal pronouns as far as the syntax and LF are concerned. In Logophoric Control, *pro* is a bound variable, i.e. a minimal pronoun with unvalued features. Landau assumes that all unvalued

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[9] This conclusion requires a slight modification to the conclusions concerning the structures of infinitival $\emptyset$-RCs in Chapter 3. In Chapter 3, we concluded that infinitival $\emptyset$-RCs were CPs (or possibly even TPs) where CP is simplex, i.e. it contains only one C head. In any case, the structure is too small to host fronted adverbials. The conclusion here says that the XP structure is still too small to host fronted adverbials, but the C-domain is no longer simplex.

features must be valued at spellout. The features of *pro* are valued via feature transmission. Therefore, *pro* must be visible to the controller. In phasal terms, this means that X and R cannot be phase heads since otherwise *pro* would be spelled out before feature transmission takes place (note that D could be a phase head since feature transmission between the controller in SpecDP and *pro* could presumably take place before D's complement is spelled out, but we are assuming, following Richards (2010), that D is not a phase head). In Chapter 3, we also independently suggested based on distinctness effects that the R and Foc heads in infinitival *wh*-RCs are not phasal. We have thus reached the same conclusion from two independent perspectives: distinctness effects and control.

This accounts for the locality of variable binding, but not its optionality. We tentatively propose that feature transmission can fail, i.e. variable binding is a fallible operation (on the fallibility of Agree, see Preminger (2014)). When variable binding fails, *pro*'s features must be valued by default. We suggest that the default interpretation is the arbitrary interpretation, ultimately leading to the arbitrary interpretation of PRO.[10]

Finally, there is the issue of selection. Landau (2015) suggests that *pro* in NOC contexts is a free variable because the control clause in such cases is not selected. If the control clause is selected by an attitude predicate, we get Logophoric Control where *pro* is a bound variable, resulting in OC. We tentatively propose that IRCs are intermediate between these two extremes. On the one hand, IRCs (like RCs generally) are not selected by any higher predicate. But on the other hand, RCs are widely thought to be complements of the external determiner D (see, e.g., Bianchi, 1999; Kayne, 1994; Sternefeld, 2006). This is also the head hosting the prenominal possessor in its specifier. So in some sense, the possessor is attached to the element selecting the IRC.

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[10] That the arbitrary interpretation may be a default or elsewhere interpretation is a long-standing idea (see Chomsky, 1981, among many others), though it is implemented in a variety of ways. For example, Sundaresan & McFadden (2015) propose that control results when an Agree relation is established, which happens automatically when the correct structural configuration is met. If the Agree relation is not established, i.e. when the correct structural configuration is not met, we get an arbitrary interpretation. However, if our examples really instantiate the same syntactic structures yet still show the option of OC or NOC interpretation, they are problematic for Sundaresan & McFadden's particular account.

5   Summary

We have seen that IRCs with prenominal possessors attached to the RC head seem to exhibit many structural characteristics of obligatory control, yet the control is evidently not obligatory. Furthermore, the RC head does not seem to intervene with the control relation between the prenominal possessor and the IRC subject. We suggested that Landau's (2015) TTC offers useful insights into these problems. We extended the TTC, specifically Logophoric Control, to IRCs. This successfully captured various properties of these constructions. We suggested that the control relation involves both predication and variable binding (Landau's Logophoric Control), and that variable binding is fallible. When it succeeds, we get the control reading, but when it fails, we get a default arbitrary interpretation. Several challenges remain but we leave these for future research.

6   A note on Polynesian

The English examples examined here bear a superficial resemblance to so-called genitive subject RCs in Polynesian languages (see, for example, Baker, 2006; Besnier, 2000; Herd, Macdonald, & Massam, 2011; Otsuka, 2006, 2010), as well as to genitive-marked subjects in Altaic languages (see, for example, Hale, 2002; Kornfilt & Whitman, 2011; Maki & Uchibori, 2008; Miyagawa, 2008, 2011).

Genitive subject RCs in Polynesian refer to cases where a non-subject has been relativised and the subject of the RC is expressed as a possessor attached to the RC head.[11] The following examples are from Māori (Herd et al., 2011: 1258):

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[11] Massam (2011) relates genitive subject RCs to unaccusative genitive constructions in Niuean. English also has a superficially similar construction to unaccusative genitives, as Massam points out.

(i)   a.   His mistake was made (when he left the room).
       b.   His nap was taken (at 2pm).

In these cases, the possessor is interpreted as the external argument of the passive. It would be interesting in future research to compare these constructions with Control into IRCs.

(54) a.

ka	mōhio	ahau	**ki**	**t-ā**	**Hone**	**tangata**	i
T/A	know	I	to	the+Gen	John	man	T/A

kōhuru	ai.
murder	Resprn

'I knew the man that John murdered.'

(lit. 'I knew John's man that murdered')

b.

ka	mōhio	ahau	**ki**	**te**	**tangata**	**a**	**Hone**	i
T/A	know	I	to	the	man	Pers	John	T/A

kōhuru	ai
murder	Resprn

'I knew the man that John murdered'

(lit. 'I knew the man of John that murdered')

However, Herd et al. convincingly argue that Māori genitive subject RCs cannot be derived by movement of the subject or by control of a subject PRO. They note that Māori does not permit direct relativisation of direct objects. In order to relativise a direct object, it must first be promoted to subject and then relativised. Consequently, in the examples above we are dealing with a type of subject RC. Interestingly, the external argument of the RC can still be expressed as a possessor attached to the RC head, as the acceptability of both (54a) and (54b) show. The possessor cannot have moved from subject position in the RC since the direct object was promoted to this position, nor can the possessor be controlling a PRO in subject position since it would contain an operator or trace/copy of the RC head. The authors thus propose a mechanism of semantic control by process of elimination, though they admit that the details of such a mechanism remain to be worked out.

A full review and analysis of RCs with genitives and possessors goes far beyond the scope of this thesis. However, we can already see that constructions in different languages which bear a superficial resemblance to one another may in fact have very different syntactic properties. Although it would be very interesting to look at the variation in such similar-looking constructions, we must leave this for future research.

Chapter 6

Reduced relatives

1   Introduction

In this chapter, we focus on reduced relative clauses (RRCs) (aka participial RCs) in English. More specifically, we distinguish various subtypes of RRC and investigate their structural size before turning to the question of how relativisation in RRCs is achieved. However, it is useful to start by showing that RRCs are indeed distinct from the types of RC we were concerned with in Chapter 3.

1.1   RRCs are different from clausal RCs

Starting with finite clausal RCs, RRCs are different in a number of ways. The first difference concerns accessibility: whilst finite clausal RCs can relativise virtually all positions on the Accessibility Hierarchy (Keenan & Comrie, 1977), as in (1), RRCs can only relativise subjects, as in (2) and (3).

(1)   a.   the man [that saw me]   (subject)

        b.   the man [that I saw]   (direct object)

        c.   the man [that I gave the book to]   (indirect object/oblique)

        d.   the man [that I stole the book from]   (oblique)

        e.   the man [that I am taller than]   (oblique/object of comparative)

(2)   a.   the man [sitting on the wall]   (subject)

        b.   *the wall [sitting on]   (*oblique)

        c.   the wall [being sat on]   ((derived) subject)

(3)   a.   the man [giving flowers to the woman]   (subject)

        b.   *the flowers [giving to the woman]   (*direct object)

        c.   the flowers [being given to the woman]   ((derived) subject)

        d.   *the woman [giving flowers to]   (*indirect object/oblique)

        e.   the woman [being given flowers]   ((derived) subject)

Second, recall that there is a ban on finite short subject Ø-RCs (the anti-*that*-trace effect, see Chapter 4), i.e. finite short subject RCs require an overt complementiser or relative pronoun.

(4) a. John is the man [that/who saw me].

  b. *John is the man [saw me].

RRCs can only relativise subjects (see Section 7.1) but can never appear with a complementiser *that* or relative pronoun.

(5) a. *the man [that/who sitting on the wall]

  b. *the flowers [that/which being given to the woman]

  Third, RRCs cannot contain a finite auxiliary/verb.

(6) *John is the man [was sitting on the wall].

If (6) is analysed as a finite RC, it violates the ban on finite short subject Ø-RCs. The fact that we cannot analyse it as an RRC instead, shows that RRCs cannot contain a finite verb. RRCs are thus non-finite. Furthermore, there is a restriction on which auxiliaries/participles can appear in RRCs.

(7) a. those books [that must have been being published in their thousands]

  b. those books [(*must) (*have) (*been) (being) published in their thousands]

We have already seen that finite forms (including modal auxiliaries) are impossible in RRCs. (7b) shows that infinitives (here the auxiliary *have*) and perfect/past participles (here *been*) are also ruled out. The present participle *being* can appear, but it is not obligatory.

  Although non-finite, RRCs are also distinct from infinitival clausal RCs.[1] Like finite clausal RCs and unlike RRCs, infinitival clausal RCs can relativise virtually all positions on the Accessibility Hierarchy.

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[1] According to Bhatt (1999), subject infinitival RCs are RRCs whilst non-subject infinitival RCs are clausal RCs, i.e. the latter have a C-domain whilst the former do not.

(8)   a.   the man [to fix the sink]

       b.   the book [to read]

       c.   the man [to give the book to]

       d.   the man [to steal the book from]

       e.   the man [to appear taller than]

Second, infinitival clausal RCs may appear with a complementiser, i.e. *for*, or a relative pronoun (if so, there is obligatory pied-piping of a preposition), as in (9). RRCs, however, cannot appear with complementiser *for*, as in (10).[2]

(9)   a.   the book [for John to write in]

       b.   the book [in which to write]

(10)   a.   *the man [for sitting on the wall]

       b.   *the flowers [for being given to the woman]

Third, infinitival RCs contain *to* and an infinitive and may contain perfect/past participles as well. Recall that RRCs cannot contain auxiliaries/participles higher than the present participle.

(11)   a.   *the man [sit on the wall]

       b.   *the man [to sitting on the wall]

       c.   the first book [to have been published here]

(11a) is out because either there is an infinitive without *to* or there is no (present or passive) participle. (11b) is out because *to* is present but there is no infinitive. (11c) contains *to*, an infinitive (*have*) and a perfect/past participle (*been*), all of which are impossible in RRCs. Furthermore, as Harwood (2016) points out, infinitival RCs often require the RC head to be

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[2] We have already seen that RRCs cannot appear with a relative pronoun, but it is impossible to test for preposition pied-piping since RRCs only relativise subjects and PPs cannot be subjects. Furthermore, although *for*-subject infinitival RCs are impossible, this is possibly an anti-locality effect (see Chapter 4).

further modified in some way (in (11c), *first* seems virtually obligatory), a requirement not seen in RRCs (or finite clausal RCs for that matter).[3]

These differences show that RRCs are distinct from both finite and infinitival clausal RCs in English. We argue that RRCs are smaller than finite and infinitival RCs, which are clausal as argued in Chapter 3. More specifically, the upper boundary of RRCs is higher than the present/progressive participle, but not high enough to contain (or license) auxiliaries/participles that are generally higher than the present/progressive participle. This accounts for the auxiliary restrictions exhibited by RRCs, though, as we will see, this boundary is not unique to RRCs (see especially Aelbrecht & Harwood, 2015; Harwood, 2013, 2014, 2015, 2016; Ramchand & Svenonius, 2014).

1.2   The subtypes of RRC

In Chapter 3, we distinguished different types of clausal RC based on what sort of element introduced the RC, e.g. *that-*, *wh-* and *Ø*-RCs. RRCs cannot be distinguished on this basis since they all lack complementisers and relative pronouns. However, RRCs can be subdivided into two groups based on the form of the participle. One group uses *–ing* participles, as in (12), whilst the other uses *–ed/-en* participles, as in (13).

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[3] Harwood (2016: 51-52) claims that infinitival RCs are possible in predicational small clauses whilst RRCs are not.

(i)   a.   I consider him the first womble [*(to be) elected prime minister].

      b.   I consider him the first womble [*(to be) running for office].

Although we agree that there is a contrast, we do not think that RRCs are completely impossible in such contexts.

(ii)   I considered him the first womble elected to the premiership but it turns out there had been three womble prime ministers before him.

(12)   a.   All properties **having been built prior to 1900** are eligible for exemption from land tax.[4]   (Hudson, 1973: 252)

        b.   The man **sitting on the bench** is John.

        c.   The cake **being eaten by the guests** is a chocolate cake.

(13)   a.   The cake **eaten by the guests** was a chocolate cake.

        b.   The leaf **fallen from the tree** is red.   (Marvin, 2002: 141)

We classify examples like (12a) and (12c) as *–ing* RRCs because the *–ing* participle is the left-most (overt) participle in the structure. This division is quite simplistic (too simplistic as we will see), but it will serve as a point of departure for a systematic investigation of the syntactic and interpretive properties of each of these types.

Anticipating the discussion to follow, as far as the syntax is concerned, we will see that examples like (12a) are systematically different from ones like (12b) and (12c), which pattern together. Finally, we will see that examples like (12b) and (12c) pattern with ones like (13a) and (13b) in certain respects. In other words, we will see the following distribution, where A and B refer to different types of RRC structure (to be identified more precisely in what follows).

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[4] Note that the restrictions on auxiliaries/participles seen in the other RRCs do not hold in RRCs of the type in (12a).

(14)   The subtypes of RRC in English

	A	B
-ing RRCs	(12a) All properties **having been built prior to 1900** are eligible for exemption from land tax.	(12b) The man **sitting on the bench** is John. (12c) The cake **being eaten by the guests** is a chocolate cake.
-ed/-en RRCs		(13a) The cake **eaten by the guests** was a chocolate cake. (13b) The leaf **fallen from the tree** is red.

A major aim of this chapter is to identify what the syntactic structures of A and B are, both in terms of how much structure is present (i.e. identifying where the upper bound of RRCs is) and in terms of how relativisation is achieved. The B type and in particular examples like (12b,c) and (13a) are the most common, unmarked and readily acceptable of English RRCs. As the discussion proceeds, we will refer to examples like (12a) as absolute RRCs (because of their superficial resemblance to absolutive constructions), those like (12b,c) as present participle RRCs, those like (13a) as passive participle RRCs, and those like (13b) as stative RRCs.

The restrictions on the types of participles permitted in B-type RRCs affects the sorts of predicates that can appear. Passive participle RRCs only permit predicates that can appear in passive forms. In English, this generally means transitive predicates, but not unaccusative or unergative predicates, because only transitive predicates have internal arguments that can become the grammatical subject via passivisation. However, all of these

types can appear in present participle RRCs. In other words, in present participle RRCs, the relativised subject can correspond to either an external argument, as with unergatives and active transitives, or an internal argument, as with unaccusatives and passive transitives.

Note that unergative and active transitive predicates in the *-ed/-en* participle form are perfect/past participles, not passive participles. Since perfect/past participles are not licensed in English RRCs, unergative and active transitive *–ed/-en* RRCs are impossible. Interestingly, middles pattern with perfect/past participles rather than passive participles, i.e. they cannot form *–ed/-en* RRCs. In other words, the evidence from RRCs suggests that the subject of a middle verb in English corresponds to an external argument rather than an internal argument (see also Ackema & Schoorlemmer, 1995).

(15)   a.   *The car [driven well in the past] is no longer being manufactured.

           b.   *The metal [hammered well in the past] is no longer being manufactured.

Present participle RRCs, however, are possible with middles since these are able to relativise external arguments.

(16)   a.   The car [driving well at the moment] had all sorts of problems in the past.

           b.   The metal [hammering well at the moment] had all sorts of problems in the past.

The structure of this chapter is as follows: in Section 2, we set out our analytic assumptions concerning the licensing and distribution of auxiliaries in English, showing that the restrictions on auxiliaries/participles seen in RRCs are not unique to RRCs but apply to various other phenomena in English as well. In Section 3, we adopt and illustrate Harwood's (2016) analysis of English RRCs. In Section 4, we discuss two potential problems for our analysis involving the interpretation of the present participle in RRCs vs. full clauses, and the presence of high adverbs (evaluative, evidential and epistemic adverbs) in RRCs. In Section 5, we discuss so-called stative and absolute RRCs, RRC-types that are seldom recognised or discussed. Section 6 considers French RRCs and compares them with English RRCs in terms of their structural size. In Section 7, we address the question of how relativisation in RRCs is achieved. Section 8 provides a summary.

2   Analytic assumptions

We have already seen that the B-type RRCs exhibit a restriction on which auxiliaries/participles can appear. Specifically, they do not allow those auxiliaries or participles which appear higher than the present participle in full clausal contexts.

(17)   a.   those books [that must have been being published in their thousands]

        b.   those books [(*must) (*have) (*been) (being) published in their thousands]

How can we account for this? Following Harwood (2016), we argue that the upper boundary of B-type RRCs lies between the present/progressive and past/perfect participles. As we will see, this conclusion finds strong independent support from a range of other phenomena in English to be reviewed below. Furthermore, the restrictions on auxiliaries/participles also provide evidence in favour of auxiliary-raising approaches to auxiliary distribution in English.

2.1   The importance of *been* and *being*

Most researchers agree on the following relative ordering of projections, though exact labels may differ.

(18)   T (> Mod) > Perf > Prog > Voice

In other words, T is higher than Mod (modals),[5] Mod is higher than Perf (perfective aspect), Perf is higher than Prog (progressive aspect), and Prog is higher than Voice. There is some question about whether Mod actually exists as an independent projection (see Harwood, 2014), but this point is tangential.

However, despite such agreement, there is disagreement in the literature about where the auxiliaries/participles corresponding to these projections are actually located. According to the aux-raising family of approaches, auxiliaries raise to their surface positions (see, e.g., Aelbrecht & Harwood, 2015; Bošković, 2014; Harwood, 2014; Pollock, 1989; among many others), whilst in the affix-lowering family of approaches, inflections are passed downwards to the auxiliaries (see, e.g., Adger, 2003; Bjorkman, 2011; Chomsky, 1957; Sailor, 2014; Wurmbrand, 2012; among many others). To be sure, there are other

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[5] On the surface in English, Mod and T coalesce since modals are always finite.

proposals, but aux-raising and affix-lowering currently appear to be the two major families of proposals (see Harwood, 2014 for further details and discussion).

As Harwood (2014) observes, these two families make different and testable predictions regarding the distribution of auxiliaries. According to the aux-raising approach, a given inflection is always associated with a particular surface position, for example, *been* is always located in Perf, *being* is always located in Prog, etc. In other words, the morphological form of the auxiliary determines its distribution. In contrast, according to the affix-lowering approach, auxiliaries are located in their base positions, for example, passive auxiliaries are always located in Voice regardless of whether they appear as *been* or *being*. In other words, the type of the auxiliary (not its morphological form) determines its distribution. As Harwood (2014) shows, English auxiliaries are distributed according to morphological inflection, not auxiliary type, thus supporting the aux-raising approach. The schematic structures for the examples in (19) are represented in (20) and (21) according to the two types of approach (X and Y are positions; we abstract away from their labels).

(19)   a.   The books have been being read.

       b.   The books have been read.

       c.   The books are being read.

(20)   Aux-raising approach

	X	Y	
a.	been	being	read
b.	been		read
c.		being	read

(21)   Affix-lowering approach

	X	Y	
a.	been	being	read
b.		been	read
c.		being	read

In (19a), we have two *be* auxiliaries. The first, *been*, is the progressive auxiliary and is in a past/perfect participle form. The second, *being*, is the passive auxiliary and is in a present/progressive participle form. In (19b), *been* is the passive auxiliary and is in a past/perfect participle form, and in (19c), *being* is the passive auxiliary and is in a present/progressive form. According to the aux-raising analysis, *been* will always appear in position X regardless of whether it is a passive or progressive auxiliary (20a,b), and *being* will always appear in position Y (20a,c). According to the affix-lowering analysis, the passive auxiliary will always appear in position Y regardless of whether it is spelled out as *been* or *being* (21a,b,c), and the progressive auxiliary will always appear in position X (21a). The crucial difference between the two approaches lies in (20b) and (21b). Does *been* behave in a consistent way regardless of whether it is a progressive or passive auxiliary as per the aux-raising analysis? Or does it behave differently depending on whether it is a progressive or passive auxiliary as per the affix-lowering analysis?

Below we will review the evidence from VP ellipsis, VP fronting, specificational pseudoclefts, predicate inversion, expletive-associate constructions, and idioms. This evidence shows a clear divide between *been* and *being*, thus supporting the aux-raising analysis. It also indicates the presence of a structural boundary between the past/perfect and the present/progressive participles, i.e. between Asp$_{PERF}$ and Asp$_{PROG}$.

2.2   VP ellipsis

Evidence from VP ellipsis shows that *being* is obligatorily part of the ellipsis site (see Aelbrecht & Harwood, 2015; Akmajian & Wasow, 1975; Harwood, 2013, 2014, 2015; Sag, 1976; Sailor, 2014; among many others). However, *been* is only optionally elided (Aelbrecht & Harwood, 2015; Harwood, 2015; Sailor, 2014).

(22)   a.   This film has been being screened since 1940, but that film hasn't (been)
                (*being).
        b.   This film has been screened twice this year, but that film hasn't (been).
        c.   This film was being screened in 1940, but that film wasn't (*being).

Crucially, *been* as a passive auxiliary, as in (22b), patterns with *been* as a progressive auxiliary, as in (22a), and not with *being* as a passive auxiliary, as in (22c). In other words,

been is always optionally elided regardless of auxiliary type, and *being* is always obligatorily elided.[6] This pattern of behaviour is consistent with the aux-raising approach, but unexpected on the affix-lowering approach (though see Sailor, 2014).

2.3 VP fronting

Evidence from VP fronting shows that *being* is obligatorily fronted (see Akmajian & Wasow, 1975; Harwood, 2014, 2015; Johnson, 2001), whilst *been* cannot be fronted (see Akmajian, Steele, & Wasow, 1979; Akmajian & Wasow, 1975; Harwood, 2014, 2015; Roberts, 1998).

(23)   If the Academy says that …

      a.   … this film has been being screened since 1940, then …

            i.   [being screened since 1940] it has been.

            ii.   *[screened since 1940] it has been being.

            iii.   *[been being screened since 1940] it has.

      b.   … this film has been screened twice this year, then …

            i.   [screened twice this year] it has been.

            ii.   *[been screened twice this year] it has.

      c.   … this film was being screened in 1940, then …

            i.   [being screened in 1940] it was.

            ii.   *[screened in 1940] it was being.

Again, *been* cannot be fronted regardless of whether it is a progressive or passive auxiliary, as in (23a) and (23b) respectively, whilst *being* is always obligatorily fronted, as in (23a) and (23c). This is consistent with the aux-raising approach but not with the affix-lowering approach.

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[6] See Aelbrecht & Harwood (2015) and Harwood (2015) for recent aux-raising analyses of the optional ellipsis of *been*. In brief, they argue that *been* optionally elides because it is generated within the ellipsis site (the lower phase in their analyses) and must raise for feature checking. If it raises, it raises beyond the ellipsis site and so escapes ellipsis. If it does not raise, its features remain unchecked, but there is no crash because ellipsis rescues the derivation by not pronouncing the lower phase.

2.4 Specificational pseudoclefts

Evidence from specificational pseudoclefts shows that *being* is obligatorily fronted, whilst *been* cannot be fronted (Harwood, 2014; Sailor, 2012, 2014), just as in the VP fronting cases. Example (24a) is taken from Sailor (2014: 144).

(24) a. A: John should have been being praised.

　　　　B: No, …

　　　　　　i. [being criticised] is what John should have been.

　　　　　　ii. *[criticised] is what John should have been being.

　　　　　　iii. *[been being criticised] is what John should have.

　　 b. A: John should have been praised.

　　　　B: No, …

　　　　　　i. [criticised] is what John should have been.

　　　　　　ii. *[been criticised] is what John should have.

　　 c. A: John should be being praised.

　　　　B: No, …

　　　　　　i. [being criticised] is what John should be.

　　　　　　ii. *[criticised] is what John should be being.

This too is consistent with the aux-raising approach but not with the affix-lowering approach.

Predicate *wh*-questions show that *being* is obligatorily part of the *wh*-predicate and *been* is obligatorily not part of it, and the fragment answers to such questions show that *being* is obligatorily part of the fragment answer and *been* is obligatorily not part of it (Sailor, 2014: 145-146).

(25) If Galileo shouldn't have been being persecuted, then …

　　 a. *… what should he have been being?

　　 b. … what should he have been?

　　 c. *… what should he have?

　　 d. *… what should he?

(26)   If the room shouldn't have been being decorated, what should it have been?

    a.   #[Made child-proof].[7]

    b.   [Being made child-proof].

    c.   *[Been being made child-proof].

    d.   *[Have been being made child-proof].

    e.   *[Should have been being made child-proof].

Extending this observation, we note that these patterns are the same regardless of whether *been* is a passive or progressive auxiliary.

(27)   If Galileo shouldn't have been persecuted, then …

    a.   … what should he have been?

    b.   *… what should he have?

    c.   *… what should he?

(28)   If Galileo shouldn't be being persecuted, then …

    a.   *… what should he be being?

    b.   … what should he be?

    c.   *… what should he?

(29)   If the room shouldn't have been decorated, what should it have been?

    a.   [Made child-proof].

    b.   *[Been made child-proof].

(30)   If the room shouldn't be being decorated, what should it be?

    a.   #[Made child-proof].

    b.   [Being made child-proof].

    c.   *[Be being made child-proof].

---

[7] Sailor (2014: 146, fn 7) notes that this is syntactically well-formed, but interpreted as non-progressive, hence the # in the progressive context. The same applies to (30a).

2.5 Predicate inversion

Evidence from predicate inversion shows that *being* is obligatorily part of the fronted constituent, whilst *been* cannot be part of the fronted constituent (see, e.g., Harwood, 2014; Sailor, 2014). The following examples are taken from Harwood (2014: 318-319):

(31) a. [Also being examined for body parts] is the tonnes of rubble being removed from the site.

     b. *[Also examined for body parts] is being the tonnes of rubble being removed from the site.

(32) a. [Also examined for body parts] has been the tonnes of rubble being removed from the site.

     b. *[Also been examined for body parts] has the tonnes of rubble being removed from the site.

(33) a. [Also appearing on today's show] has been our local congressman.

     b. *[Also been appearing on today's show] has our local congressman.

Crucially, *been* is excluded from the fronted constituent both when it is a passive auxiliary, as in (32), and when it is a progressive auxiliary, as in (33).

2.6 Expletive-associate constructions

Evidence from expletive-associate constructions shows that the associate obligatorily precedes *being* and obligatorily follows *been* (see Harwood, 2013, 2014, 2015; Ramchand & Svenonius, 2014).

(34) a. There has been a film being screened since 1940 …

     b. *There has a film been being screened since 1940 …

     c. *There has been being a film screened since 1940 …

                                … but I don't recall which one.

(35) a. There has been a film screened twice this year …

     b. *There has a film been screened twice this year …

                                … but I don't recall which one.

(36) a. There was a film being screened in 1940 …

　　b. *There was being a film screened in 1940 …

<div align="right">… but I don't recall which one.</div>

As can be seen, *been* always precedes the associate regardless of whether it is a progressive or passive auxiliary, as in (34) and (35) respectively, whilst *being* always follows the associate, as in (34) and (36). This is straightforwardly predicted by the aux-raising approach. On the affix-lowering approach, either the position of the associate would vary such that it always follows *been* and always precedes *being*, or all auxiliaries pronounced as *been* would have to move so as to precede the associate. These options seem unduly stipulative.

2.7　Idioms

Further evidence for a structural divide between Asp$_{PERF}$ and Asp$_{PROG}$ comes from idioms. Harwood (2015) observes that a number of idioms rely on progressive aspect but there are apparently no verbal idiomatic constructions which depend on perfective aspect or any material higher than perfective aspect, at least in English (see Harwood & Temmerman, 2015 on Dutch idioms, which can also depend on perfective aspect and modality). The following English examples are from Harwood (2015: 555-556):

(37) a. Bob is dying to meet you = Bob is very keen to meet you.

　　b. Something is eating Bob = Something is bothering Bob.

　　c. Bob is pushing up daisies = Bob is dead.

　　d. You are cruising for a bruising = You are heading for trouble.

　　e. They were chomping at the bit = They were keen to get started.

This suggests that idiom interpretation is sensitive to the same structural units as the phenomena reviewed above.

2.8　Summary

Evidence from VP ellipsis, VP fronting, specificational pseudoclefts, predicate inversion, expletive-associate constructions and idioms all converges on the idea that there is a structural boundary located between the past/perfect participle and the

present/progressive participle. Furthermore, the distribution of auxiliaries is determined by their morphological inflection and not by auxiliary type, as per the aux-raising approach. Therefore, adopting the aux-raising approach, we can conclude that this structural boundary is located between Asp_{PERF} and Asp_{PROG}.[8]

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[8] A potential problem for the aux-raising view is that voice mismatches are permitted in (low) VP ellipsis contexts (Merchant, 2008, 2013; Sag, 1976: 75, note 2; Sailor, 2014). This is illustrated in the following examples from Merchant (2013: 78-79):

(i)   a.   The janitor must remove the trash whenever it is apparent that it should be <removed>.
        b.   The system can be used by anyone who wants to <use it>.

In (ia), the antecedent is active but the ellipsis contains a passive, whilst in (ib), the antecedent is passive but the ellipsis contains an active. The guiding intuition underlying Merchant's (2008, 2013) and Sailor's (2014) proposals is that the verb in the ellipsis site is underspecified for voice, i.e. it is neither active nor passive and is thus compatible with either active or passive antecedents. For this to work, voice must be licensed/specified by a functional head external to the elided constituent. Nevertheless, *being* is obligatorily elided in such contexts. If *being* is in Asp_{PROG} and Asp_{PROG} is higher than Voice, as per the aux-raising approach, we cannot account for voice underspecification and the obligatory ellipsis of *being* simultaneously. Sailor (2014), adopting the affix-lowering approach, proposes that Asp_{PROG} is external to the elided constituent but *being* is spelled out within the elided constituent. He also proposes that voice *inflection* is licensed within the elided constituent (by a head labelled VoiceInfl), but voice *interpretation* is licensed just outside (by a head labelled VoiceSyn). (Low) VP ellipsis targets VoiceInflP.

If this account is correct, RRCs and (low) VP ellipsis would not be sensitive to the same structural boundary (*pace* Sailor, 2014: 141-143) since RRCs can be genuinely passive in interpretation (see Section 3.1). Further evidence comes from temporal subordinate clauses. Sailor (2014) argues that associates in existential constructions are either in SpecVoiceInflP or just above VoiceInflP. Now, subjects in SpecTP can bind into temporal subordinate clauses, but associates cannot, as in the following examples (Sailor, 2014: 67).

(ii)   a.   [No officer]$_i$ has been investigated after he$_i$ used the phrase "resisting arrest".
        b.   *There has been [no officer]$_i$ investigated after he$_i$ used the phrase "resisting   arrest".

These data suggest that temporal subordinate clauses are located higher than VoiceInflP so that associates cannot c-command (into) them. Note that this places temporal subordinate clauses outside the constituent targeted by low VP ellipsis. Now observe that these temporal subordinate clauses are acceptable in RRCs.

(iii)   No officer [(being) investigated after he used the phrase "resisting arrest"] will admit to it later.

Furthermore, the nominal in the *by*-phrase of a passive can bind into these subordinate clauses.

Given that (B-type) RRCs exhibit the same divide between *been* and *being*, we can straightforwardly say that the upper boundary of RRCs is the structural boundary between Asp$_{PERF}$ and Asp$_{PROG}$. This is Harwood's (2016) conclusion. In fact, Harwood (2013, 2014, 2015, 2016) proposes that this boundary delimits the first (or clause-internal) phase (see also Aelbrecht & Harwood, 2015; Ramchand & Svenonius, 2014), hence (B-type) RRCs are constructed from the first phase.

3   Analysis

Of course, as Harwood (2016) points out, drawing conclusions about the structure of RRCs based on a comparison between RRCs and full clauses only really makes sense if the participles in RRCs are the same as those seen in full clausal contexts. In other words, is the *–ing* participle in RRCs a genuine present/progressive participle like the one seen in full clauses or is it a gerund? And is the passive participle a genuinely passive participle or is it an adjectival or stative participle?

3.1   Genuine passive and progressive participles in RRCs

Harwood (2016) argues at some length that the passive participle in RRCs can be a genuine eventive passive participle. For example, he shows that eventive but not adjectival/stative passives are compatible with adverbials of duration, rationale clauses, manner adverbials, instrument phrases, agentive *by*-phrases, eventive verbs, idiom chunks, raising verbs and progressive passives.[9] Furthermore, all of these are possible in passive participle RRCs. We illustrate this using agentive *by*-phrases and eventive verbs. Following Wasow (1977) and Levin & Rappaport (1986), Harwood (2016) notes two syntactic contexts in which adjectival/stative passives are obligatory. One is as a prenominal modifier, the other is as

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(iv)   Every woman [serenaded by someone$_i$ before he$_i$ left the party] talked about it with the remaining party guests.

These data strongly suggest that RRCs would have to be structurally larger than the constituent involved in low VPE on an approach like Sailor's (2014) (see also footnote 25).

[9] *Un-* prefixation is compatible with adjectival/stative passives but not eventive passives.

the complement of verbs selecting adjectival complements. The following examples with agentive *by*-phrases and eventive verbs are taken from Harwood (2016: 13):

(38) a. The womble was defeated by a gang of chavs.

  b. *the defeated by a gang of chavs womble[10]

  c. *The womble looks defeated by a gang of chavs.

(39) a. The womble was followed wherever he went.

  b. *the followed womble

  c. *The womble looks followed.

These examples show that agentive *by*-phrases and eventive verbs cannot appear with adjectival/stative passives. They are only compatible with eventive passives. That they can appear in RRCs thus indicates that the RRC may contain a genuine eventive passive participle (Harwood, 2016: 15).

(40) a. the womble defeated by a gang of chavs

  b. the womble followed yesterday

That is not to say that adjectival/stative passives are not possible in RRCs (see Section 5.1). Rather it shows that eventive passive participles are possible in RRCs.

Turning to the present/progressive participle, Harwood (2016) identifies four diagnostics for distinguishing present/progressive participles from gerunds: progressive adverbs, the predicate *in the process of*, perfect *having*, and idiomatic constructions. We illustrate using progressive adverbs and idiomatic constructions. The following examples are taken from Harwood (2016: 16):

(41) a. The womble is currently stealing my socks.

  b. *Currently stealing socks is a common habit of wombles.

  c. *Uncle Bulgaria's currently stealing (of) my socks is really ruining the party.

(41) shows that progressive adverbs like *currently* are compatible with present/progressive participles but incompatible with gerunds. Such adverbs are perfectly acceptable in RRCs

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[10] This example is independently out because English does not permit prepositional modifiers to an adjective in prenominal position, e.g. *the proud of his son father.

showing that the present/progressive participle can be genuinely progressive (Harwood, 2016: 17).

(42)   the womble currently making an ass of himself

 As for idiomatic expressions, certain English idioms are dependent on progressive aspect (Harwood, 2013, 2016; Harwood & Temmerman, 2015; Sailor, 2014). The following examples are from Harwood (2016: 18):

(43)   a.   The wombles are dying to see the new Star Wars film.
         b.   #The wombles all died to see the new Star Wars film.

The idiomatic expression *to be dying to* (meaning 'to be keen to') depends on progressive aspect. In the absence of progressive aspect, the idiomatic interpretation is lost and only the odd literal interpretation remains. The idiomatic interpretation is absent from gerunds but present in RRCs, showing that RRCs can contain genuine progressive aspect (Harwood, 2016: 19).[11]

(44)   #Dying to see the new Star Wars film does not necessarily make one a hardcore fan.

(45)   The person dying to see the new Star Wars film the least is probably George Lucas.

     These data show that genuine passive and genuine present/progressive participles are possible in RRCs, thereby justifying the comparison of these participles in RRCs with those in full clauses.

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[11] We believe that Harwood's (2016) other two diagnostics (the predicate *in the process of*, and perfect *having*) are problematic. First, perfect *having* is claimed to be compatible with gerunds but not RRCs. However, it seems to be possible in English to have *having* in restrictive RRC contexts, though it is stylistically convoluted (see Section 5.2). Second, the predicate *in the process of* is claimed to be compatible with progressive participles but not gerunds. Whilst we agree, the presence of such a predicate in (i) (Harwood, 2016: 17) does not seem to say anything about RRCs as we are arguably now dealing with a postnominal PP-modifier rather than an RRC.
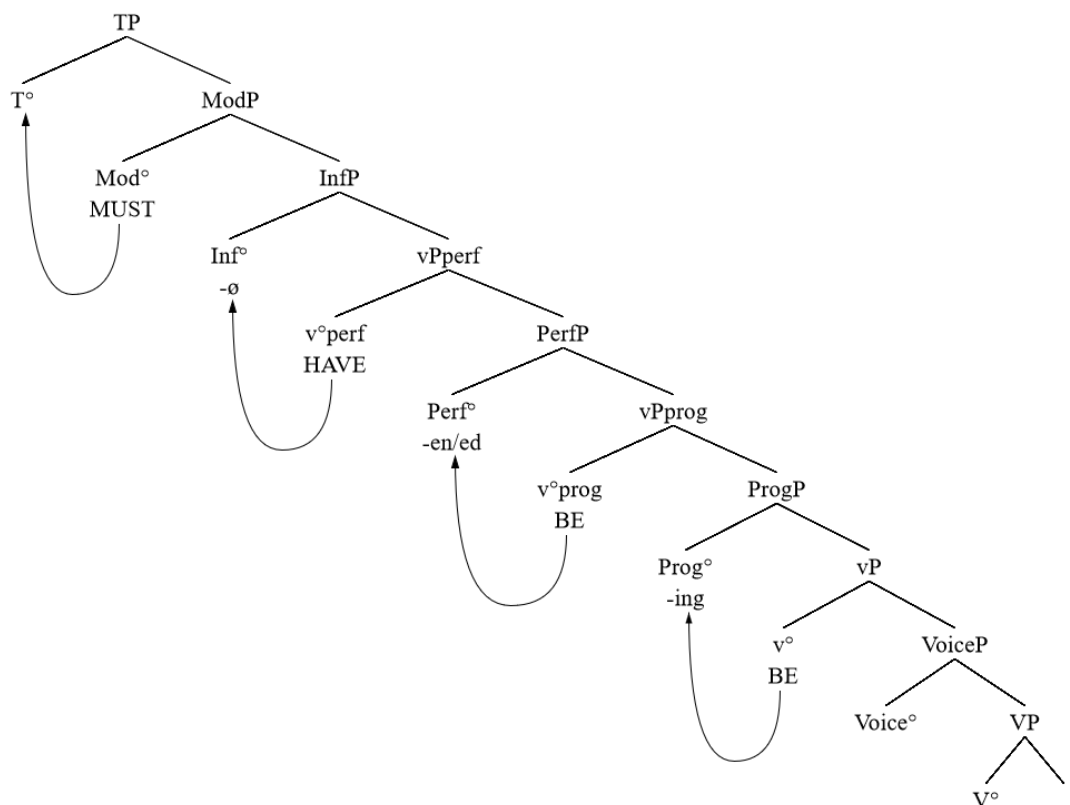
(i)   the womble in the process of stealing my socks

3.2 RRC structures

We turn now to Harwood's (2016) specific analysis. First, Harwood adopts a paired layering structure, i.e. the heads that we have been assuming thus far, e.g. Asp_{PERF}, Asp_{PROG} and Voice, are each divided into two projections. The higher of these two is a vP-shell where the auxiliary is first-merged, whilst the lower is the 'inflectional' head, i.e. the position to which (lower) auxiliaries move. An example like (46) would thus have the (partial) structure in (47).

(46)   Those books must have been being read.

(47)

```
                        TP
                       /  \
                    T°     ModP
                    ↑      /   \
                        Mod°    InfP
                        MUST    /  \
                             Inf°   vPperf
                             -ø     /    \
                               v°perf    PerfP
                               HAVE      /    \
                                     Perf°    vPprog
                                     -en/ed   /    \
                                          v°prog   ProgP
                                          BE       /    \
                                               Prog°    vP
                                               -ing     /  \
                                                      v°    VoiceP
                                                      BE    /    \
                                                        Voice°    VP
                                                                 /  \
                                                               V°    ...
```

The passive auxiliary originates in v° and raises to Prog°. The progressive auxiliary originates in v°prog and raises to Perf°. The perfect auxiliary originates in v°perf and raises to Inf°. And the modal originates in Mod° and raises to T°. Note that raising moves heads from the higher head of a lower pair to the lower head of a higher pair. The paired layering structure ensures that heads do not raise into the first-merge position of another moving head. Harwood (2014, 2016) does not actually assume that auxiliaries raise for inflection. Instead

they raise for formal feature checking and the inflection reflects the feature specifications.[12] Nevertheless, since the precise mechanisms of head raising are not our main concern, we continue to illustrate such structures as above.

Furthermore, Harwood (2014, 2016) assumes that 'What You See Is What You Get' (WYSIWYG), e.g. if there is no observable progressive auxiliary, then Asp$_{PROG}$ pair (v°prog and Prog°) is absent from the syntactic structure, as in (48) and (49).

(48)   Those books must have been read.

(49)
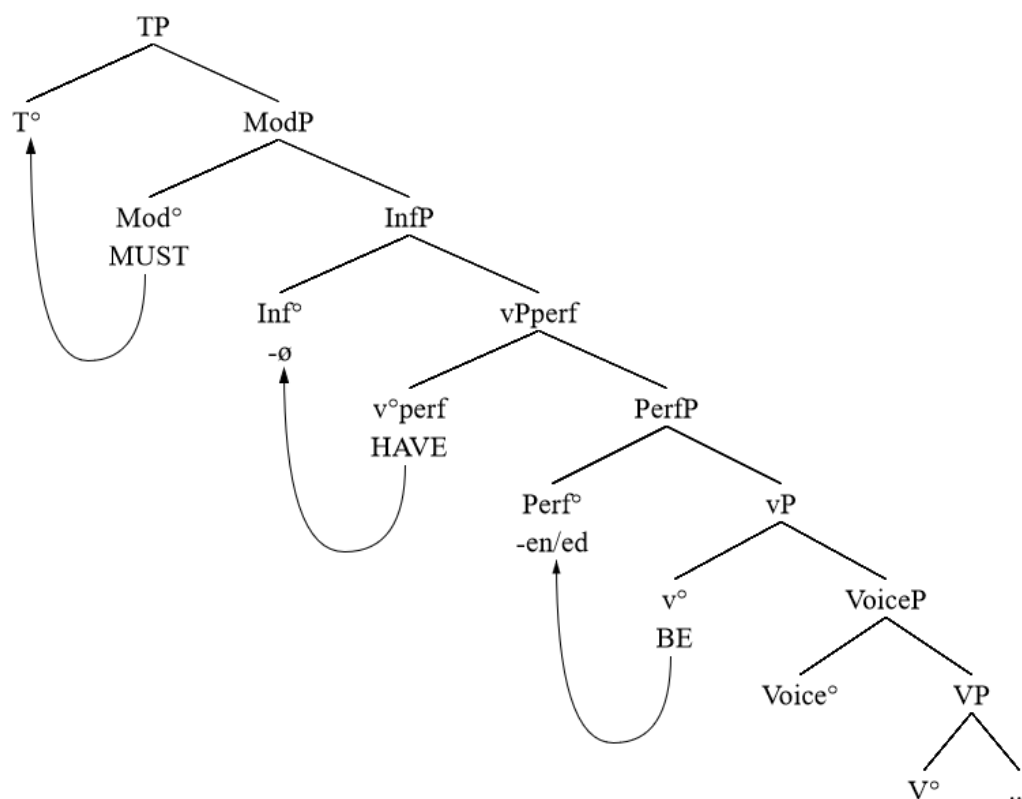
The passive auxiliary originates in v°. Since v°prog and Prog° are absent, the passive auxiliary raises to Perf° and is ultimately spelled out as *been*.

Crucially, Harwood (2016) also assumes that phases are dynamic (see also Bošković, 2014; Harwood, 2013, 2015; Wurmbrand, 2012), i.e. phases (phase heads and phase

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[12] As for the lexical verb, Harwood (2016) assumes that it undergoes Agree with an inflectional head without raising. Hence, in (47), there is an Agree relation between Voice° and V° (not shown) but V° does not raise.

boundaries) are not absolute, but rather relative to the material that is present in the derivation. In other words, the phase head is the highest head present in a given phase domain. The first phase is the v-domain (or predicational or event domain) and progressive aspect (when present) has been argued to be the highest aspectual head possible in this domain (see Aelbrecht & Harwood, 2015; Harwood, 2013, 2015, 2016; Ramchand & Svenonius, 2014; Wurmbrand, 2012). Therefore, when v°prog is present, it serves as the phase head and the phase boundary is between vPprog and PerfP. When v°prog is absent, the next highest head present in the v-domain serves as the phase head, i.e. v° is the phase head in (49) and the phase boundary is between vP and PerfP.

Turning to RRCs, these are constructed from the first phase. Assuming phases are dynamic, RRCs can vary in terms of how much structure they contain. Present participle RRCs are the largest since they contain Asp$_{PROG}$, whilst passive participle RRCs are slightly smaller since they lack Asp$_{PROG}$. In a paired layering approach, however, there is a question about whether both the heads of the highest pair are present or not (Harwood, 2016). Consider present participle RRCs: we can assume that Prog° is present to license the present participle, but what about v°prog?
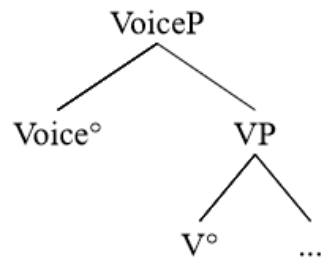
Harwood (2016) argues that the progressive auxiliary is not actually generated in present participle RRCs, i.e. v°prog is absent, because it is not required by the inflectional system since no further inflectional heads will be merged in the RRC. This follows from the assumption that the *raison d'être* of auxiliaries is to satisfy the formal featural requirements of higher inflectional heads that fail to establish a relation with the lexical verb (see Bjorkman, 2011; Harwood, 2016 for further discussion and references).

More specifically, following Harwood (2016), we can say that there is a choice about whether to include v°prog in the derivation or not. If it is included, there is a progressive auxiliary requiring formal feature checking with a higher inflectional head. This means more inflectional structure must be projected for such a derivation to converge. This happens in full clauses, for example. If v°prog is absent, there is no progressive auxiliary in the derivation. This means that if any higher inflectional structure were projected, formal feature checking would fail and the derivation would crash. The only option, therefore, is not to project any further inflectional structure, resulting in an RRC (or similarly truncated

structure). The same logic applies to v° in passive participle RRCs, i.e. v° is absent in passive participle RRCs.
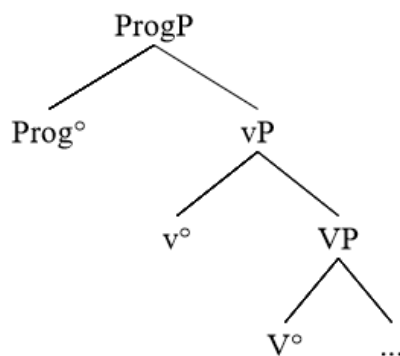
To summarise, Harwood (2016) proposes the following structures (only the RRC is shown):
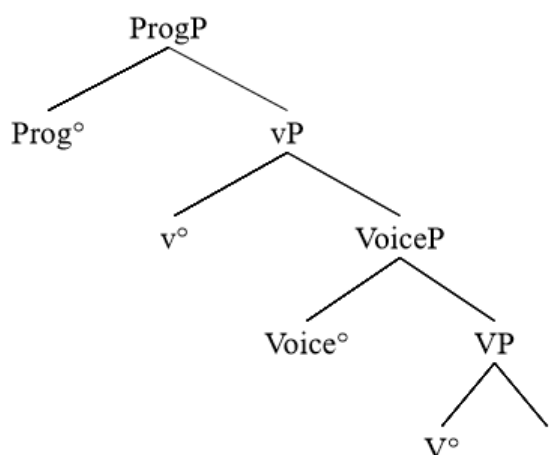
(50)   Passive participle RRCs

```
              VoiceP
             /      \
         Voice°      VP
                    /  \
                  V°    ...
```

(51)   Present participle RRCs

a.   Progressive active[13]

```
              ProgP
             /     \
         Prog°      vP
                   /  \
                 v°    VP
                      /  \
                    V°    ...
```

---

[13] Harwood (2016) assumes that v° is still present even in the absence of Voice° to introduce agentivity.

b.   Progressive passive

```
                    ProgP
                   /     \
              Prog°       vP
                         /   \
                       v°     VoiceP
                             /      \
                        Voice°       VP
                                    /  \
                                  V°    ...
```

4   Some potential problems

4.1   The interpretation of the present participle

One potential problem for the idea that the present/progressive participle in RRCs is directly analogous to the present/progressive participle in full clausal contexts comes from interpretive differences. In full clausal contexts, as well as in the complements of perception verbs and verbs of temporal aspect such as *keep*, *start* and *stop*, the present participle is obligatorily interpreted as progressive (Bjorkman, 2011; Comrie, 1976; Cowper, 1995; Smith, 1991; among many others). Therefore, in these contexts, stative verbs generally cannot appear in the present participle form since progressivity and stativity are generally assumed to be incompatible (Comrie, 1976; Cowper, 2005; Vendler, 1957, 1967; Williams, 1975).

However, in present participle RRCs, stative predicates are perfectly acceptable (Comrie, 1976: 39-40; Williams, 1975). Compare the following clausal RC and RRC examples:

(52)   a.   The woman who resembles my mother is Mary.

         b.   *The woman who is resembling my mother is Mary.

         c.   The woman resembling my mother is Mary.

This observation might not be as problematic as it first appears though. It has been pointed out that the present participle is compatible with stative predicates in many contexts in English.

(53) a. The socks are lying under the bed.

  b. Mary is loving this new book.

However, this is not sufficient to account for the acceptability of stative predicates in a present participle form in RRCs. In full clausal contexts, use of a stative predicate in present participle form yields a 'temporal contingency' effect, i.e. the state described by the predicate is liable to change (see, e.g., Deo, 2009, 2015a, 2015b; Dowty, 1979; among many others).[14] Hence, consider the following contrasts:

(54) a. The socks are lying under the bed.

  b. *New Orleans is lying at the mouth of the Mississippi River.

(55) a. The woman who is resembling my mother more and more these days is

    Mary.

  b. *The woman who is resembling my mother is Mary.

On everyday assumptions, the spatial location of socks is far more likely to change than the geographical location of a city, hence the contrast in (54). Similarly, in (55), Mary could be changing her appearance to match my mother (either deliberately through surgery or accessories, or naturally, etc.), but this must be made explicit by the degree phrase *more and more*. Without it, one's appearance/resemblances are considered more permanent.

Importantly, the temporal contingency effect is absent from RRCs, at least when active predicates are involved (more on this below). In other words, RRCs permit stative predicates in a present participle form *without* necessarily yielding a temporal contingency effect. We thus still have a real interpretive difference between the present participle in RRCs vs. full clausal contexts. In fact, the present participle seems to exhibit a greater range of possible interpretations in RRCs compared to full clausal contexts.

This situation is not unique to English; it is also found in Nepali involving the non-past participle (thanks to Joe Perry, p.c., for bringing these facts to our attention). In Nepali, the non-past participle in RRCs has a wider range of meanings than it does in full clausal

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[14] Alternatively, it has been argued that the progressive turns a stative into an event or at least into a dynamic predicate, though see Arche (2014), who shows that statives remain statives when appearing with progressive aspect.

contexts. In (56), an RRC, the non-past participle can be interpreted with any non-past meaning (present or future), whilst in (57), a full clause, the non-past participle can only be interpreted with future meaning (the present meaning is ungrammatical).

(56) curoṭ   khā-ne   mānche
     cigarette   eat-NPST.PTCP   person
     'the person who smokes/will smoke/is smoking'

(57) tyo   mānche   curoṭ   khā-ne   (cha)
     that   person   cigarette eat-NPST.PTCP   be.PRS.3SG
     'That person will smoke' (*smokes/*is smoking

Something similar also happens with the past participle, but the situation is more complicated in full clausal contexts owing to the presence/absence of an auxiliary. In RRCs, the past participle has a general past meaning, as in (58). In full clauses, the past participle plus an auxiliary yields a perfect meaning, as in (59). In contrast, the past participle without an auxiliary yields a simple past meaning with a kind of assertive force, as in (60) (this assertive force is not present in RRCs). To get a plain declarative simple past meaning, the participle cannot be used and a full inflected past tense form must be used instead, as in (61).

(58) curoṭ   khā-eko   mānche
     cigarette   eat-PST.PTCP   person
     'the person who smoked/has smoked'

(59) tyo   mānche-le   curoṭ   khā-eko   cha
     that   person-ERG   cigarette eat-NPST.PTCP   be.PRS.3SG
     'That person has smoked.'

(60) tyo   mānche-le   curoṭ   khā-eko
     that   person-ERG   cigarette eat-NPST.PTCP
     'That person really smoked.' (assertive reading)

(61) tyo   mānche-le   curoṭ   khā-yo

that   person-ERG   cigarette   eat-3SG

'That person smoked.'

Returning to our main discussion, we can ask whether the differences in interpretation of the present participle in RRCs vs. full clausal contexts in English are a structural or pragmatic phenomenon. We will consider these two possible approaches, ultimately concluding that the effect is pragmatic, though crucially sensitive to structural size.

Let us first consider a structural account. We could hypothesise that the present participle in RRCs has a wider range of interpretations because it is inherently underspecified, i.e. the present participle is not inherently progressive, but rather a more general imperfective participle. In other words, what we have been calling Asp_{PROG} might more accurately be called Asp_{IMPERF}. We could then say that specifically progressive interpretations are licensed by higher functional structure (an instantiation of Ramchand & Svenonius' (2014) Principle of Compositional Coherence perhaps). This structure would be present in full clauses but absent in RRCs. In other words, Asp_{PROG} is external to the first phase. Consequently, the present participle is morphologically licensed in the first phase and receives a general imperfective interpretation. A specifically progressive interpretation is licensed externally to the first phase and so the present participle in RRCs is never specified as being progressive.

Such an approach would raise a number of issues. First, how do we ensure that the present participle is obligatorily progressive in full clausal contexts? In such contexts we would have to ensure that Asp_{IMPERF} always appears with Asp_{PROG} and that Asp_{PROG} always appears with Asp_{IMPERF}. This could be modelled as a selectional restriction, i.e. Asp_{PROG} selects Asp_{IMPERF} and Asp_{IMPERF} is selected by Asp_{PROG}.[15] Assuming that selection is maximally local, i.e. a sisterhood relation, we would have to say that Asp_{IMPERF} can appear in RRCs without Asp_{PROG} precisely because RRCs are not selected. If so, no selectional restrictions are violated. This would predict that absolutely no material could be projected within the RRC above Asp_{IMPERF}. However, as we will see in the next subsection, adverbs can appear inside

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[15] This is similar to Sailor's (2014) distinction between VoiceSyn and VoiceInfl (see footnote 8).

the RRC to the left of the present participle. If adverbs occupy specifier positions and are not adjoined (Alexiadou, 1997; Cinque, 1999, 2004; Haumann, 2007), this is problematic for the selection account.

A second problem is how progressive interpretations do arise in RRCs at all. We would have to say that it is simply one possible interpretation of the imperfective participle. But if this is the case, it is unclear why we would also require a structurally represented Asp_{PROG} in full clauses as well.

A third, and more serious, problem for this structural account is that it makes an incorrect prediction regarding present participle RRCs with passive predicates. These RRCs *do* have an obligatorily progressive interpretation and give rise to the temporal contingency effect seen in full clausal contexts. To see this, consider the following contrasts:

(62)   The city lying at the mouth of the Mississippi River is New Orleans.

(63)   The city being situated at the mouth of the Mississippi River is New Orleans.

With the active stative predicate *lie/lying* there is no temporal contingency effect. However, if *lie/lying* is replaced by the virtually synonymous passive predicate *be situated*, as in (63), there is a very strong temporal contingency effect; we get an obligatorily eventive passive reading, which is odd given world knowledge. The point is that, if the present participle (*lying* or *being*) is not inherently progressive, why does (63) but not (62) have an obligatorily progressive interpretation? One possibility would be to say that present participle RRCs with passive predicates are slightly larger than those with active predicates, i.e. the former contain Asp_{PROG} whilst the latter do not. This would be an entirely ad hoc stipulation though. Therefore, whilst approaches of this general kind may well be appropriate for certain phenomena, English RRCs seem not to work in this way.

Let us consider instead a pragmatic account. The basic idea is as follows: interpretations of certain aspectual forms in full clausal contexts may arise because the use of a particular form implies that use of another possible form is not appropriate in a given context (in essence, a Gricean idea). In virtue of being structurally smaller, RRCs cannot express as many aspectual distinctions as full clauses. Therefore, in RRCs, there are fewer possibilities in the first place, so the use of a particular form is not due to the

inappropriateness of another form but simply because that other form is impossible given the amount of structure RRCs contain. We might thus expect that the interpretation of the present participle in RRCs will not be as restricted as in full clausal contexts because there are not as many possible and competing forms in RRCs compared to full clauses. Let us consider this idea in more detail.

According to Deo (2009, 2015), the temporal contingency effect seen when the present participle is used with stative predicates is the result of inference. Consider again examples of the following type:

(64)   a.   New Orleans lies at the mouth of the Mississippi River.

        b.   New Orleans is lying at the mouth of the Mississippi River.

(65)   a.   The socks lie under the bed.

        b.   The socks are lying under the bed.

Following Deo, under normal circumstances, we generally assume that the geographical location of a city is permanent. This is most appropriately rendered using the simple present, as in (64a). If we were to use the present participle, as in (64b), this would imply that the expected (64a) was somehow not appropriate. The hearer thus makes an inference, by the Maxim of Quantity (Deo, 2009: 38), for example, that New Orleans' geographical permanence should not be taken for granted.

If we are talking about socks rather than cities, however, the expectations are reversed. In general, we expect that the position of socks can change, hence (65b) is felicitous in normal circumstances. To the extent that socks have a 'permanent' position, it would generally be the place where they are kept when not in use, e.g. in a drawer. The use of the simple present in (65a) suggests that the usual place for the socks to be is under the bed (in fact, for this reading a different predicate would be more appropriate, e.g. *go* or *live*). Therefore, none of the examples above are ungrammatical, but given world knowledge, some are more expected than others. The use of the unexpected form alerts the hearer to start generating inferences.

Let us apply this idea to RRCs. For predicates in the active voice, present participle RRCs are the only option. Because they are structurally smaller than full clauses, there is no

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possibility to license, among other things, a simple present in the RRC. There is thus no competition in the RRC contexts akin to the competition seen in (64) and (65). The only form available in RRCs covers both the temporally contingent and the temporally non-contingent cases.

(66) a. The socks lying under the bed are mine.

b. The city lying at the mouth of the Mississippi River is New Orleans.

The RRCs in (66) can be used in both 'expected' and 'unexpected' contexts, e.g. (66b) can be used in a context where the permanent geographical position of New Orleans is not in doubt. The impossibility of any other aspectual form means that no inferences will be generated so the present participle can have a wider range of interpretations.[16]

However, for this account to work, it is necessary to constrain the notion of competition between forms such that the use of the present participle in an RRC is not compared to the use of a simple present in a full clausal RC. If such a comparison were possible, we might expect the temporal contingency inference to be drawn for present participle RRCs. In other words, we might expect that the use of (67b) or (67c) implies that (67a) is inappropriate, hence leading to the inference that the permanence of the city's geographical location should not be taken for granted, for example.

(67) a. the city that lies at the mouth of the Mississippi River

b. the city that is lying at the mouth of the Mississippi River

c. the city lying at the mouth of the Mississippi River

Since the temporal contingency inference is not drawn for (67c), it appears that clausal RCs can be compared to each other for the purposes of generating inferences, but clausal RCs and RRCs cannot.

However, RRCs can be compared with each other. As pointed out above, for active predicates, a present participle RRC is the only available option. For predicates in the passive voice, however, there are two RRC options: a present participle RRC or a passive participle RRC. In other words, we have a choice about whether to use a present participle

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[16] We assume that this is possible here because the progressive asymmetrically entails the imperfective, i.e. they form an implicational scale (Deo, 2009, 2015b).

or not. This choice is available in full clausal contexts. As pointed out above, the temporal contingency effect that arises in full clausal contexts is also found in present participle RRCs with passive predicates.

(68) a.   New Orleans is situated at the mouth of the Mississippi River.

      b.   New Orleans is being situated at the mouth of the Mississippi River.

(69) a.   The city situated at the mouth of the Mississippi River is New Orleans.

      b.   The city being situated at the mouth of the Mississippi River is New Orleans.

(68a) is generally interpreted as a situational passive, whilst (68b) can only really be interpreted as an eventive passive. (68a) potentially has the eventive passive reading as well, but it will generally be blocked, especially in present tense contexts, by the existence of (68b).[17] (68b) is unexpected given our everyday assumption that cities generally cannot be moved, but if this assumption does not hold for whatever reason, (68b) is fine. Crucially, the same contrast is maintained in RRCs, as shown in (69). (69b) is a present participle RRC like (67c) and (66b). However, whilst (66b) can cover the interpretations of (64a) and (64b), (69b) cannot cover the interpretations of (68a) and (68b). We propose that the reason for this is that (69a) is available, hence the (relevant) inferences that are drawn in full clausal contexts are also drawn in RRC contexts.

If this approach is correct, we can maintain the idea that the present participle in RRCs and full clausal contexts is the same sort of participle both in morphological form and in basic semantics. Its interpretation in RRCs differs from its interpretation in full clauses as an indirect result of the structural size difference between RRCs and full clauses. The aspectual interpretation of the participle is dependent on what other aspectual forms are available in a given structure, and the availability of aspectual forms is in turn dependent on the structural size of the clause. If RCs and RRCs are constructed from phasal domains (the

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[17] If different tenses are used, an agentive *by*-phrase (indicating an eventive passive reading) seems far more acceptable.

(i)   a.   New Orleans was situated (by its founders) at the mouth of the Mississippi River.

      b.   New Orleans will be situated upstream of the Mississippi River (by the federal government) (in a drastic move to preserve the city).

C- and v-domains respectively) (Harwood, 2016), we could say that inference generation (or the calculation of scalar implicatures) takes place cyclically throughout the derivation at the phase-level. This accords nicely with Chierchia's (2004, 2006) proposals that scalar implicatures are recursively factored into meaning rather than being generated in a purely post-syntactic pragmatics.

This account also extends to cases where the progressive participle is used in habitual contexts. Progressive and habitual aspect are often viewed as different subtypes of imperfective aspect (Comrie, 1976). Furthermore, in many cases, they seem to be incompatible. For example, whilst (70a) has a habitual interpretation, this interpretation is lost when the present/progressive participle is used, as in (70b).

(70) a.   John walks to school every morning.

      b.   #John is walking to school every morning.

In RRCs, however, the present/progressive participle is perfectly compatible with a habitual interpretation.

(71)   The boy walking to school every morning is John.

We suggest that this too is due to the fact that RRCs are too small for the aspectual distinctions seen in (70) to be present. Consequently, the inferences drawn on the basis of competition between (70a) and (70b) are not drawn in (71) because there are no other competing RRC forms.

Note that examples like (70b) become more acceptable in certain contexts, for example, when a contrast is being drawn between past and present habits.

(72)   I feel great! I'm **eating** healthily, I'm **running** every day and I'm **sleeping** better.

(73)   I can't do Sunday mornings – I'm **attending** church again now.

This strongly suggests that the contrast in (70) is due to pragmatics in the way sketched above, and not to some structural or semantic restriction on the co-occurrence of two types of imperfective aspect (see Arche (2014) and Pratas (2014) for more detailed proposals

about the combinations of different types of aspect, including perfective and imperfective aspects).

4.2 Adverbs

According to the aux-raising analysis applied to RRCs, the perfect/past participle *been* is impossible in RRCs because Asp$_{PERF}$ is external to the first phase, i.e. too high to be included in RRCs. Consequently, *been* (or any perfect/past participle for that matter) cannot be licensed in RRCs. This makes the very clear prediction that any element merged or licensed higher than Asp$_{PERF}$ will also be impossible in RRCs. This prediction can be evaluated using adverbs, which come in a variety of types that are typically associated with different structural positions, either due to licensing by dedicated functional projections or due to considerations of semantic scope (see, e.g., Alexiadou, 1997; Cinque, 1999; Ernst, 2001; Haumann, 2007; Jackendoff, 1972; Laenzlinger, 1998; Morzycki, 2015; Potsdam, 1998). For concreteness, we use the relative orderings identified by Cinque (1999: 106) (we have highlighted Asp$_{perfect}$ and Asp$_{generic/progressive}$ for ease of reference).

(74)   [*frankly* Mood$_{speech\ act}$ [*fortunately* Mood$_{evaluative}$ [*allegedly* Mood$_{evidential}$ [*probably* Mod$_{epistemic}$ [*once* T(Past) [*then* T(Future) [*perhaps* Mood$_{irrealis}$ [*necessarily* Mod$_{necessity}$ [*possibly* Mod$_{possibility}$ [*usually* Asp$_{habitual}$ [*again* Asp$_{repetitive(I)}$ [*often* Asp$_{frequentative(I)}$ [*intentionally* Mod$_{volitional}$ [*quickly* Asp$_{celerative(I)}$ [*already* T(Anterior) [*no longer* Asp$_{terminative}$ [*still* Asp$_{continuative}$ [*always* **Asp$_{perfect(?)}$** [*just* Asp$_{retrospective}$ [*soon* Asp$_{proximative}$ [*briefly* Asp$_{durative}$ [*characteristically(?)* **Asp$_{generic/progressive}$** [*almost* Asp$_{prospective}$ [*completely* Asp$_{SgCompletive(I)}$ [*tutto* Asp$_{PlCompletive}$ [*well* Voice [*fast/early* Asp$_{celerative(II)}$ [*again* Asp$_{repetitive(II)}$ [*often* Asp$_{frequentative(II)}$ [*completely* Asp$_{SgCompletive(II)}$

We predict that any adverb higher than Asp$_{PERF}$ (Asp$_{perfect}$) will be impossible in RRCs whilst any adverb lower than Asp$_{PROG}$ (Asp$_{generic/progressive}$) will be acceptable in principle. As we will see, the prediction is borne out when low adverbs, i.e. those licensed below Asp$_{PROG}$, and illocutionary adverbs (Mood$_{speech\ act}$) are concerned. However, it is not borne out for evaluative, evidential and epistemic adverbs (Mood$_{evaluative}$, Mood$_{evidential}$ and Mod$_{epistemic}$, respectively). This constitutes quite a serious challenge for the analysis so far, as independently noted by Harwood (2016).

We first consider low adverbs. We illustrate using the completive aspectual adverb *completely*, which according to Cinque (1999) can be licensed in two positions, both of which are below Asp$_{PROG}$.

(75) a. The chocolate cakes have been being completely demolished by the guests.

   b. The cakes [being completely demolished by the guests] are chocolate cakes.

(76) a. The chocolate cakes have been completely demolished by the guests.

   b. The cakes [completely demolished by the guests] are chocolate cakes.

As can be seen, *completely* is perfectly acceptable in both present and passive participle RRCs in line with our predictions.

Turning now to illocutionary adverbs, we see that these are impossible in RRCs.[18]

(77) a. (Frankly) the chocolate cakes (frankly) have (frankly) been being demolished by the guests.

   b. *The cakes [frankly being demolished by the guests] are chocolate cakes.

(78) a. (Frankly) the cakes (frankly) have (frankly) been demolished by the guests.

   b. *The cakes [frankly demolished by the guests] are chocolate cakes.

This too is straightforwardly predicted by our analysis so far. Illocutionary adverbs are merged in SpecMood$_{speech\ act}$ (Cinque, 1999) or are at least licensed by this head at a distance (Haumann, 2007). This head is too high to appear in RRCs, thus illocutionary adverbs in RRCs are impossible.[19]

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[18] At least on the restrictive RRC interpretation. These examples seem to be acceptable under a non-restrictive interpretation. We do not discuss non-restrictive relativisation in this thesis so we set this contrast aside for future research.

[19] A Google search reveals some *apparent* counterexamples:

(i) This is the story of **people frankly behaving like little children when given the generous opportunity to take a few laps around a track for free**.
   https://www.youtube.com/watch?v=faUyiHDXc84

Interestingly, there is a difference between RRCs and full clausal RCs with respect to illocutionary adverbs. Haumann (2007: 339) claims that illocutionary adverbs cannot appear within the scope of relative operators (in full clausal RCs), citing the following data (based on actual examples from the British National Corpus):

(79)   a.   *Demelza, whose mother *frankly* is her only relative, wanted a gran so much she advertised for one in a Jobcentre.

          b.   *On the way down I fell over a man hiding in a dark corner, who *roughly* ran away immediately.

However, whilst we agree with the judgements, we think these examples are constructed from sentences that are strange even in non-RC contexts.

(80)   a.   (#/$^?$Frankly) Demelza's mother (#/*frankly) is her only relative.

          b.   (#/*Roughly) that man (#/*roughly) ran away immediately.

A Google search reveals many fully acceptable examples of illocutionary adverbs appearing in the scope of relative operators (many of the examples are headlines, but this phenomenon is not restricted to 'headlinese').[20]

(ii)   A failure by successive governments to build enough affordable housing here in the UK, coupled with a lack of restrictions being placed on private landlords, has resulted in a rise of the number of **people simply being unable to buy or rent a place to live**.
http://www.bemerciful.co.uk/the-fourth-work-of-mercy-shelter-the-homeless/

However, the putative RC head can be replaced by a pronoun without a change in acceptability suggesting that these are not examples of restrictive RRCs. We thus conclude that these are not genuine counterexamples and set these aside.

[20] Note that illocutionary adverbs are possible in full clausal RCs on the restrictive reading (compare with footnote 18).

(81) a.   Jennifer Aniston Engaged To Guy Who Frankly Will Never Replace Brad (headline)

b.   Talented and wonderful people who frankly deserve better (headline)

c.   The Players Who Simply Aren't Worth the Astronomical Fees Paid for Them (headline)

d.   There's no place like home: The people who simply won't live anywhere else (headline)

e.   Batista is known by many as The Animal, A beast who simply you just can't tame[21]

We believe that illocutionary adverbs are generally permitted in clausal RCs (not just finite *wh*-RCs).

(82) a.   a person [that simply won't live anywhere else]

b.   a beast [you simply just can't tame]

c.   a person [with whom simply to chat when you feel like it]

d.   a person [(simply) for you (simply) to chat with when you feel like it]

e.   a person [simply to chat with when you feel like it]

We thus conclude that clausal RCs are large enough to contain the projection responsible for licensing illocutionary adverbs, whilst RRCs are not (modulo footnote 18).

Returning to RRCs, we have seen that our analysis so far correctly predicts the possibility of low adverbs and the impossibility of illocutionary adverbs in RRCs. However, our prediction is not borne out by evaluative, evidential and epistemic adverbs, which are all possible in both present and passive participle RRCs (see also Harwood, 2016). We illustrate these types using *(un)fortunately*, *clearly* and *probably*, respectively.

(83) a.   The cakes [unfortunately (being) eaten by the guests] will cause stomach upsets.

b.   The cakes [clearly (being) eaten by the guests] will cause stomach upsets.

c.   The cakes [probably (being) eaten by the guests] will cause stomach upsets.

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[21] This example is better with *simply* immediately following *you* (Ian Roberts, p.c.).

This is unexpected because such adverbs are standardly taken to be merged or licensed in a very high position (semantically, these adverbs scope over propositions), too high to be able to occur in RRCs. However, as the data in (83) show, they are evidently perfectly acceptable. There are two potential ways to approach this problem.

One option would be to conclude that RRCs are actually structurally larger than we have proposed, i.e. large enough to contain evaluative, evidential and epistemic adverbs (though still not large enough to contain illocutionary adverbs). This would place the upper boundary of RRCs between Mood$_{speech\ act}$ and Mood$_{evaluative}$ in terms of Cinque's (1999) hierarchy. However, whilst this would capture the adverb facts, we would lose our account of the restrictions on auxiliaries and participles in RRCs, which as we saw finds strong independent support from a range of other phenomena involving full clausal structures where the relevant structural boundary clearly seems to be between Asp$_{PERF}$ and Asp$_{PROG}$.

A second option is to conclude that evaluative, evidential and epistemic adverbs in RRCs are in fact licensed RRC-internally. A theory of adverbs goes far beyond the scope of this thesis, so we will simply make some preliminary speculations.

Evaluative and evidential adverbs are often analysed as factive operators (or licensed by factive operators) (Ernst, 2001; Haumann, 2007).[22] In full clausal contexts, factive operators are associated with the clausal left periphery, i.e. the C-domain. But suppose factive operators could also appear in the left periphery of the first phase. This is essentially an extension of an idea that has been developing in recent years that phasal left peripheries might be more similar than previously thought. In other words, structure traditionally associated with the clausal left periphery (the C-domain) is also associated with a clause-medial left periphery (the v-domain), possibly with interactions between the two. This bifurcation or bi-locational idea has been applied to topics/foci (Belletti, 2001, 2004; Horvath, 1986; Jayaseelan, 2001; Ndayiragije, 1999; Tuller, 1992; Watters, 1979), aspect

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[22] Haumann (2007) refers to evidential adverbs as *factive-ish* operators [@FACT], subtly different from evaluative adverbs, which are bona fide factive operators [FACT].

(Travis, 1991; Wiltschko, 2014), negation (Laka, 1990),[23] polarity particles (Batllori & Hernanz, 2013), particles more generally (Biberauer, 2016, to appear) and emphasis/assertion (Duffield, 2007, 2013; Kandybowicz, 2013) in a range of languages. To this we could add factivity as well. Aboh (2005, 2010) and Haegeman (2012) propose that factivity in full clauses is the result of an event operator originating below the T-domain moving into the C-domain. This provides some initial plausibility to the idea that factivity originates in the clause-medial left periphery. In RRCs, the clause-medial left periphery is the only left periphery present, whilst in full clauses factivity moves into the clausal left periphery.

As for epistemic adverbs, these could also be considered operators, though not factive operators as epistemic adverbs operate on unspecified truth values (Ernst, 2001; Haumann, 2007). We will simply refer to these as epistemic operators and assume that, like factive operators, they can be found within the first phase as well.

This is analogous to Duffield's (2013) suggestion concerning assertion, which he suggests might originate in a low, clause-medial position (overtly evidenced in Vietnamese) and move to the C-domain in languages where assertion appears to be high. Interestingly, Duffield suggests that assertion in English also originates low, or rather it originates lower than T and Neg. Evidence for this comes from *n't* encliticisation and contrastive intonation 'moving with *do*' in inversion structures. Neither of these arguments applies to RRCs. In fact, if illocutionary adverbs are assertion operators (Ernst, 2001; Haumann, 2007), then the impossibility of illocutionary adverbs in RRCs observed above suggests that, even if assertion is lower than T and Neg, it might not be low enough to be contained in the first phase and

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[23] Note that negation is also possible in RRCs, as in (i), though it is unclear whether this is sentential or constituent negation to the extent that the two are distinct in RRC contexts (see also the issue of negation in French RRCs in Section 6.1).

(i)   a.   the man [not being followed]

        b.   the child [not listening to me]

        c.   any letters [not opened by tomorrow]

hence within RRCs (though recall from footnote 18 that illocutionary adverbs seem to be possible in non-restrictive RRCs).[24]

Note that the adverb ordering effects seen in full clausal contexts are also found in RRCs.

(84) a. The cakes have **fortunately clearly** been (being) eaten by the guests.

     b. *The cakes have **clearly fortunately** been (being) eaten by the guests.

(85) a. the cakes [**fortunately clearly** (being) eaten by the guests]

     b. *the cakes [**clearly fortunately** (being) eaten by the guests]

This suggests that it is something external to phrase structure that is determining the relative ordering of operators (and hence of adverbs) (contra Cinque, 1999). That is not to say that operator and adverb positions are not formally instantiated in the syntax, but it does suggest that whatever ultimately accounts for the ordering of the Cinque hierarchy recurs at different points in phrase structure. We suspect that similar arguments could be extended to other adverbs higher than Asp$_{PERF}$ according to the Cinque hierarchy which can nevertheless appear in RRCs.[25]

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[24] This raises the very interesting question of why the C- and v-phases should exhibit such similarities (except with respect to illocutionary force, footnote 18). It seems conceptually redundant to have to state similar properties twice. One option is to associate these properties with a phasal scaffolding. The reason C and v both exhibit similar properties is because they are both built from a single scaffolding. This can be interpreted in abstract acquisitional/emergent terms (see Biberauer & Roberts, 2015). Suppose that at earlier stages of language acquisition, there is a single phase. Over the course of acquisition, distinct phasal domains are recognised and emerge by successive division of the original set defined by the single phase. All subsequent phasal categories are thus descended from this single phase and thus inherit all of its properties. This is admittedly speculative, but it suggests a conceptually appealing way of accounting for the apparent redundancy of the bifurcational/bi-locational approach.

[25] Interestingly, Sailor (2014), citing experimental results from Moulton (2008), argues that manner adverbs are too high to be contained in the elided constituent in low VP ellipsis contexts. According to Sailor (2014), low VP ellipsis is found in subordination contexts whilst high VP ellipsis is found in co-ordination contexts. Given this, consider the following contrasts (Sailor, 2014: 24):

(i) Jordy carefully reviewed the book, and then Kiley did.

4.3   Summary

We have argued that passive and present/progressive participle RRCs are constructed from the first phase, i.e. they are no larger than ProgP (Harwood, 2016). Two potential problems were identified with this conclusion. The first involved the observation that the present/progressive participle in RRCs can have a wider range of interpretations that the present/progressive participle in full clausal contexts. We argued that this is due to a structurally constrained pragmatic effect. With active predicates, the present/progressive participle is the only form structurally available. Consequently, no inferences are drawn on the basis of the use vs. non-use of progressive aspect. With passive predicates however, there is a choice about whether to use progressive aspect or not. Consequently, the temporal contingency effect arises in these contexts. This allowed us to maintain that the present/progressive participle in RRCs and in full clausal contexts is the same element despite differences in the range of interpretation.

The second problem involved the observation that high adverbs (evaluative, evidential and epistemic adverbs), which are typically assumed or argued to be licensed by structure significantly higher than Asp_{PERF}, are perfectly acceptable in RRCs. We suggested that English RRCs have a left periphery that can contain factive and epistemic operators but potentially not assertion operators (unlike full clausal RCs which can readily host all three operator types). This is an extension of the idea that many properties typically associated with the clausal left periphery are being revealed to be associated with a clause-medial left periphery as well.

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a.   … and then Kiley carefully reviewed the book.

b.   # … and then Kiley reviewed the book.

(ii)   Jordy carefully reviewed the book after Kiley did.

a.   # … after Kiley carefully reviewed the book.

b.   … after Kiley reviewed the book.

According to Sailor, when high VPE is involved, as in the co-ordination context in (i), the manner adverb *carefully* is preferentially recovered in the ellipsis site. However, when low VPE is involved, as in the subordination context in (ii), the manner adverb is preferentially *not* recovered in the ellipsis site. If this is correct, the fact that manner adverbs are permitted in RRCs would provide further evidence that the constituent involved in RRCs is larger than the one involved in low VP ellipsis (see footnote 8).

5 Stative and absolute RRCs

5.1 Stative participle RRCs

We have seen good evidence that *been*, the past/perfect participle, is not permitted in RRCs because Asp_{PERF} is too high to be contained in the constituent that forms RRCs. This straightforwardly accounts for the absence of active transitive and unergative past participles in RRCs.

(86) a.   *the man [eaten an apple]

 b.   *the man [swum the Channel]

However, it appears to be possible to have *–ed/-en* RRCs with some (though not all) unaccusative predicates. This is potentially problematic for our generalisation that past/perfect participles are impossible in (B-type) RRCs.[26] However, this problem is only illusory. Such participles are obligatorily interpreted as stative, i.e. these RRCs contain stative participles rather than past/perfect participles (Marvin, 2002, 2003). Consider the following examples (Marvin, 2002: 141, 151):

(87)   The leaf [fallen from the tree] is red.

(88)   *The apples [fallen from the table] are back on the table.

According to Marvin, (88) is ruled out because the state described by the reduced RC contradicts the state described at the so-called topic time, i.e. the time of utterance.

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[26] Some languages genuinely do allow perfect participles in RRCs, for example, Bulgarian (Iatridou et al., 2001, 2003). Iatridou et al. claim that auxiliary selection is the relevant factor, i.e. if a participle is introduced by BE in a given language, it will be permitted in RRCs, whilst if a participle is introduced by HAVE, it will not. Bulgarian uses BE in the perfect whilst English uses HAVE. However, Bjorkman (2011) shows that this correlation breaks down when more languages and varieties are considered. The way we would interpret this would be to say that Bulgarian RRCs are structurally larger than English (B-type) RRCs. We discuss French later on where we propose that French and English passive participle RRCs are approximately the same size, but that French present participle RRCs are larger than English present participle RRCs, in fact being more like English absolute RRCs. If the structural size of RRCs can vary both within and between languages, it seems reasonable to suppose that this may account for why some languages permit past/perfect participles in RRCs whilst others do not (see also Harwood & Temmerman (2015) on variation in the size of idiomatic expressions in English vs. Dutch).

However, not all unaccusatives are possible in stative participle RRCs (Stanton, 2011: 61).

(89) a.   *The guests [appeared at the party] are late.

 b.   ?The parcel [arrived at the office] is in the inbox.

 c.   *The man [died in the hospital] will be missed.

 d.   *The countries [existed for a long time] have more history.

 e.   *The events [happened regularly] can be easily predicted.

In fact, as Marvin points out, on her analysis, this is not a restriction to unaccusatives *per se*. If different types of verb (transitive, unergative, unaccusative, etc.) are distinguished by different types of v, stative participles should not be sensitive to verb type because there is no v head in their structure. As Stanton (2011) points out, following Horvath & Siloni (2005), it may be the case that the only unaccusatives that can appear in RRCs are 'adjectival' (or 'decausative' in Horvath & Siloni's sense), whilst those that are 'verbal' (or 'underived') cannot. The former class includes predicates like *fall* and *arrive*, whilst the latter class includes ones like *die* and *happen*.[27]

The existence of RRCs with stative participles is problematic for Collins' (2005b) analysis of participles. He claims that the English *–ed/-en* participle must either be licensed by PartP moving to SpecVoiceP (as in passives, resulting in a passive participle) or by being selected by auxiliary *have* (as in actives, resulting in a past/perfect participle). However, with unaccusatives, there is neither a VoiceP (on Collins' assumption, since unaccusatives are not passives), nor an auxiliary *have*. Hence, on Collins' theory, they should be completely impossible as the participle will be unlicensed.

Even if stative participles are smaller than vP (see Embick, 2004; Marvin, 2002, 2003), the RRCs containing them may be larger. Evaluative and epistemic adverbs like *(un)fortunately* and *probably* are licit in these RRCs.

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[27] We have found that unaccusative *–ed/-en* participles in RRCs tend to be more acceptable when the predicate describes a change of location or an externally-caused change of state. Two exceptions to this are *sit* and *stand* in their locational senses.

(90) a. The leaves [probably (now) fallen from the tree] had such beautiful colours!

b. The leaves [unfortunately (now) fallen from the tree] had such beautiful colours!

Furthermore, these RRCs can appear with temporal subordinate clauses (recall footnote 8), suggesting they contain more structure than just the participle.

(91) the leaves [fallen from the trees before the photographers arrived]

These facts suggest that present, passive and stative participle RRCs are all built from the first phase, though the amount of structure within that phase and the size of the participles themselves may well vary (Embick, 2004; Lundquist, 2008, 2013, Marvin, 2002, 2003). This implies that RRCs *contain* a participle rather than being participle phrases themselves (*pace* Bhatt, 1999; Iatridou, Anagnostopoulou, & Izvorski, 2001, 2003).

5.2   Absolute RRCs

The final subtype of RRC to be discussed is what we refer to as an absolute RRC, so-called because it resembles an absolutive construction. As far as we are aware, these have received virtually no attention in the literature on relativisation in English since their mention in Hudson (1973).

(92) All properties [having been built prior to 1900] are eligible for exemption from

land tax. (Hudson, 1973: 252)

(93) All students [having written more than 5 pages today] may leave early.

Hudson (1973) notes that such structures are not typical of colloquial English and seem more like 'officialese'. Many of the native speakers we have consulted indeed find such structures stylistically convoluted (with many commenting that *having been* in (92) is redundant), but they nonetheless accept such constructions under a restrictive relative interpretation.

Although absolute RRCs are superficially a type of *–ing* RRC, they are distinct from present participle RRCs. This can be seen straightforwardly from examples where there is a

present participle inside the absolute RRC (note, however, that such examples sound extremely convoluted).

(94)   all properties [**having** been **being** built prior to 1900]

(95)   All suspects [**having** been **being** followed before 2008] are entitled to compensation.

The most remarkable difference between absolute and present participle RRCs is that absolute RRCs seem to be significantly larger than present participle RRCs in that they obligatorily have the auxiliary HAVE (in the form *having*) and a past/perfect participle. These elements are impossible in present participle RRCs, as we have seen.

Since the past/perfect participle is licensed, these structures must contain Asp_{PERF}. They must also contain higher structure to license *having*. We tentatively suggest that this higher functional head may be a flavour of T (see Section 6 for comparative evidence from French present participle RRCs, which we argue are comparable in size to English absolute RRCs).

High adverbs are possible in absolute RRCs. Whilst such adverbs appear in initial position in present, passive and stative participle RRCs, in absolute RRCs they seem to preferentially follow *having*, and be marginal in RRC-initial position[28] (interestingly, exactly the same pattern is found in French present participle RRCs, see Section 6.1).

(96)   a.   all properties [having probably been built prior to 1900]

          b.   The group [having probably done the most work] may leave early.

(97)   a.   ?all properties [probably having been built prior to 1900]

          b.   ??The group [probably having done the most work] may leave early.

In full clausal contexts, such adverbs are marked when preceding finite *have* as well.

(98)   a.   These properties have **probably** been built prior to 1900.

          b.   ?These properties **probably** have been built prior to 1900.

---

[28] Some speakers fully accept (97).

(99)   a.   This group has **probably** done the most work.

    b.   ?This group **probably** has done the most work.

We remain agnostic as to whether this degradedness is due to the adverb or *have* being in a marked position. The important point is that the marked position, which is arguably in the T-domain at least, is structurally available in both full clauses and absolute RRCs.

6   French RRCs

We have argued that English RRCs come in two basic structural sizes. Absolute RRCs are the largest: they potentially a type of (non-finite) TP. Present, passive and stative participle RRCs are smaller and constructed from the first phase (though there is size variation within this). We now turn our attention to French RRCs. As in English, French RRCs can be divided into two groups based on the morphology of the (leftmost) participle: these are passive participle RRCs and present participle RRCs (where the present participle has the affix *–ant*).

(100) a.   Passive participle RRC

        l'homme   [arrêté   par   la   police]

        the.man   arrested   by   the   police

        'the man arrested by the police'

    b.   Present participle RRC

        l'homme   [lisant   le   journal]

        the.man   reading   the   newspaper

        'the man reading the newspaper'

Our discussion of French draws heavily on the observations of Siloni (1995),[29] though we will add novel observations of our own. We argue that French present and passive participle RRCs are of different structural sizes with the former being larger than the latter. More

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[29] We have made minor changes to Siloni's examples in terms of formatting, and providing/changing (informal) glosses and translations where appropriate. We have also included brackets to show the RRC. Furthermore, note that our English translations are not always exact, for example, if a French RRC is ungrammatical, we typically use an English finite RC for the intended translation since the English RRC would also typically be ungrammatical.

specifically, French present participle RRCs seem to be analogous to English absolute RRCs, whilst French passive participle RRCs are analogous to English passive participle RRCs.

6.1   Data

RRCs and finite RCs are distinct in French. As in English, French RRCs can only relativise subjects (Siloni, 1995: 464).

(101) a.   L'homme   [lisant   le   journal]   est   un   espion.

          the.man   reading   the   newspaper   is   a   spy

          'The man reading the newspaper is a spy.'

     b.   *Le   journal   [l'homme   lisant]   est   intéressant.

          the   newspaper   the.man   reading   is   interesting

          '(int.) The newspaper the man is reading is interesting.'

The complementiser *qui* is impossible in RRCs, as in (102), though it is obligatory in finite subject RCs, as in (103) (Siloni, 1995: 464-465).[30]

(102) L'homme   [(*qui) lisant   le   journal]   est   un   espion.

       the.man   who   reading   the   newspaper   is   a   spy

       '(int.) The man reading the newspaper is a spy.'

(103) L'homme   [*(qui) lit   le   journal]   est   un   espion.

       the.man   who   reads   the   newspaper   is   a   spy

       'The man who is reading the newspaper is a spy.'

Like English, French present participle RRCs can appear with verbs of all kinds of argument structure (Siloni, 1995: 465).

(104) a.   Le   policier   [arrêtant   toujours   des   étudiants]

          the   policeman   arresting   always   some   students

          a   été   licencié.

          has   been   fired

          'The policeman always arresting students was fired.'

---

[30] Unlike English, French does not have finite Ø-RCs.

b. L'étudiant [arrivant à Genève] est sud-américain.

the student arriving in Geneva is South-American

'The student arriving in Geneva is South American.'

c. L'étudiant [téléphonant chaque jour à sa mère]

the.student calling every day to his mother

est parti.

is left

'The student (who was) phoning his mother every day left.'

d. L'étudiant [connaissant Marie] est mon voisin.

the.student knowing Marie is my neighbour

'The student knowing (who knows) Marie is my neighbour.'

In other words, the relativised subject can correspond to an external argument or an internal argument.

Past and passive participles are morphologically identical in French (as in English). Passive participle RRCs are possible in French, as in (105a), but past participle RRCs are not, as in (105c,d) (the unaccusative participle in (105b) is more accurately a *stative* rather than a *passive* or *past* participle) (Siloni, 1995: 465-466).

(105) a. L'étudiant [arrêté par la police] est mon cousin.

the.student arrested by the police is my cousin

'The student arrested by the police is my cousin.'

b. L'étudiant [arrivé à Genève] est sud-américain.

the.student arrived in Geneva is South-American

'The student (who) arrived in Geneva is South American.'

c. *L'étudiant [téléphoné à sa mère] est parti

the.student called to his mother is left

sans payer.

without paying

'(int.) The student who phoned his mother left without paying.'

d. *L'étudiant [connu Marie] est mon voisin.

    the.student known Marie is my neighbour

    '(int.) The student who knew Marie is my neighbour.'

The passive participle agrees in number and gender with the grammatical subject, as in (106a), but the present participle shows no agreement at all, as in (106b) (Siloni, 1995: 466).

(106) a. Les voitures [repeintes par le garagiste] semblent

    the cars.**F.PL** repainted.**F.PL** by the mechanic seem

    neuves.

    new.F.PL

    'The cars repainted by the mechanic seem new.'

    b. Les actrices [repeignant(*es) leurs voitures sont

    the actresses.**F.PL** repainting**(.F.PL)** their cars are

    rares.

    rare.F.PL

    'Actresses repainting their cars are few and far between.'

Agreement is also found on the passive participle in full clausal contexts in French.

Evidence suggests that the present participle and passive participle occupy different structural positions. This can be seen from their position relative to VP-initial adverbs such as *toujours* 'always'. Specifically, passive participles follow such adverbs, as in (107), whilst present participles precede them, as in (108) (Siloni, 1995: 467).

(107) a. L'étudiante [**toujours étonnée** par vos réponses]

    the.student always astonished by your replies

    est jeune.

    is young

    'The student always astonished by your replies is young.'

    b. *L'étudiante [**étonnée toujours** par vos réponses] est jeune.

(108) a.   L'étudiant   **[arrivant**   **toujours**   en   retard]   est

            the.student   arriving   always   in   lateness   is

            mon   frère.

            my   brother

            'The student always arriving late is my brother.'

     b.   *L'étudiant [**toujours arrivant** en retard] est mon frère.

In other words, passive participles are VP-internal, whilst present participles are VP-external.

We observe that the same contrast is also found with evaluative and epistemic adverbs.[31] First, note that high adverbs like *probablement* 'probably' and *malheureusement* 'unfortunately' obligatorily follow finite verbs/auxiliaries (see Cinque, 1999; Kayne, 1975; Schifano, 2015).

(109) Les   étudiants   **(*probablement/*malheureusement)**   ont

      the   students   probably/unfortunately   have

      (probablement/malheureusement)   manifesté

      probably/unfortunately   demonstrated

      (*probablement/*malheureusement)   hier.

      probably/unfortunately   yesterday

      'The students probably/unfortunately demonstrated yesterday.'

These high adverbs also typically follow the present participle in present participle RRCs as well (see also Cinque, 1999; Kayne, 1975; Schifano, 2015). This is different from the situation in English present participle RRCs, but it resembles the facts for English absolute RRCs seen above (Section 5.2). Interestingly, the high adverbs may marginally precede the present participle as well, again just as in English absolute RRCs (Section 5.2).

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[31] Thanks to Louise Raynaud (p.c.) for judgements.

(110) Les étudiants [(**[?]probablement/[?]malheureusement)** ayant

the students probably/unfortunately having

(probablement/malheureusement) manifesté

probably/unfortunately demonstrated

(*probablement/*malheureusement) hier] sont invités

probably/unfortunately yesterday are invited

au poste de police.

to.the station of police

'The students having probably/unfortunately demonstrated yesterday are invited to the police station.'

(111) Les étudiants [(**[?]probablement/[?]malheureusement)** manifestant

the students probably/unfortunately demonstrating

(probablement/malheureusement) aujourd'hui] seront invités

probably/unfortunately today will.be invited

au poste de police.

to.the station of police

'The students probably/unfortunately demonstrating today will be invited to the police station.'

In contrast, passive participles obligatorily follow the high adverbs. This is true of passive participles in RRCs as well as in full clausal contexts. Note that in full clauses the high adverbs can appear on either side of the past/perfect participle, apparently without any difference in acceptability (unlike in English where high adverbs appearing lower than *been* are somewhat marked).

(112) L'étudiant   **(*probablement/*malheureusement)**   a

the.student   probably/unfortunately   has

(probablement/malheureusement) été   **(probablement/malheureusement)**

probably/unfortunately   been   probably/unfortunately

arrêté   **(*probablement/*malheureusement)**   par   la   police.[32]

arrested   probably/unfortunately   by   the   police

'The student has probably/unfortunately been arrested by the police.'

(113) L'étudiant   [**(probablement/malheureusement)**   arrêté

the.student   probably/unfortunately   arrested

(*probablement/*malheureusement)   par   la   police] est   un

probably/unfortunately   by   the   police is   a

étranger.

foreigner

'The student probably/unfortunately arrested by the police is a foreigner.'

The high adverb facts support the idea that the passive and present participles in French occupy distinct positions, with the present participle being quite high (higher than the present/progressive participle of English).

Evidence from negation, auxiliary restrictions and clitics indicates that French present participle RRCs are structurally larger than French passive participle RRCs. Turning first to negation, present participle RRCs allow sentential negation *ne pas*. The present participle precedes *pas* (Siloni, 1995: 467).

(114) a.   Le   policier   [**n'arrêtant   pas**   les   étudiants]

the   policeman   NE.arresting PAS   the   students

a   été   licencié.

has   been   fired

'The policemen not arresting the students was fired.'

b.   *Le policier [**ne pas arrêtant** les étudiants] a été licencié.

---

[32] The final *probablement/malheureusement* is grammatical if it scopes over the PP *par la police* 'by the police' only.

In contrast, passive participle RRCs do not permit sentential negation (*ne pas*) at all, as in (115). They only allow constituent negation *pas*, which must precede the passive participle (note that constituent negation *pas* is not allowed in present participle RRCs), as in (116) (Siloni, 1995: 468).

(115) a. *L'étudiant   [**n'arrêté**   **pas**   par   la   police] est

the student   NE.arrested   PAS   by   the   police is

mon   cousin.

my   cousin

'(int.) The student not arrested by the police is my cousin.'

b. *L'étudiant [**ne pas arrêté** par la police] est mon cousin.

(116) a. L'étudiant   [**pas   arrêté**   par   la   police] est

the.student   PAS   arrested   by   the   police is

mon   cousin.

my   cousin

'The student not arrested by the police is my cousin.'

b. *Le   policier   [**pas   arrêtant**   les   étudiants]   a

the   policeman   PAS   arresting   the   students   has

été   licencié.

been   fired

'(int.) The policeman not arresting the students was fired.'

These data suggest not only that present participles occupy a different (and higher) structural position than passive participles, but also that present participle RRCs are structurally larger than passive participle RRCs in French, i.e. present (but not passive) participle RRCs are large enough to contain *sentential* negation.

A second argument for a difference in structural size comes from auxiliaries. Auxiliaries in the present participle form are permitted (Siloni, 1995: 468-469) (similar to the English absolute RRCs).

(117) a. Les   étudiants   [**ayant** manifesté   hier]   sont   invités

          the   students   having protested   yesterday   are   invited

          au   poste de   police.

          to.the station of   police

          'The student having protested yesterday are invited to the police station.'

(117) b. Les   filles   [s'**étant**   arrêtées   en   chemin]   sont

          the   girls   being   stopped   in   path   are

          mes   soeurs.

          my   sisters

          'The girls being stopped on the way are my sisters.'

In contrast, auxiliaries in the past participle form are not permitted (Siloni, 1995: 469).

(118) a. *L'étudiant   [**été**   arrêté   par   la   police] est

          the.student been   arrested   by   the   police is

          un   étranger.

          a   foreigner

          '(int.) The student (who has been) arrested by the police is a foreigner.'

(118) b. *L'étudiant   [**été**   arrivé   en   retard]   est

          the.student been   arrived   in   lateness   is

          un   étranger

          a   foreigner

          '(int.) The student who arrived late is a foreigner.'

These data suggest that French passive participle RRCs are too small to license past/perfect participles (as in English). In contrast, French present participle RRCs *are* large enough to license past/perfect participles and passive participles, as in (117). Therefore, as with the high adverb examples, French present participle RRCs pattern with English absolute RRCs rather than English present participle RRCs. This suggests that past/perfect participles are licensed by a head lower than the one licensing present participles in French.

A third argument for a difference in structural size between French present and passive/stative participle RRCs comes from clitics. Present participle RRCs can appear with

clitics, as in (119), whilst passive/stative participle RRCs cannot, as in (120) (Siloni, 1995: 470).

(119) a. L'étudiant   [**y** arrivant]   est   mon   frère.
          the.student there arriving   is   my   brother
          'The student arriving there is my brother.'

      b. L'étudiant   [**en** achetant   toujours]   est   mon   frère.
          the.student of.it   buying   always   is   my   brother
          'The student always buying some is my brother.'

      c. L'étudiant   [**le** faisant le   mieux]   est   mon   frère.
          the.student it   doing the best   is   my   brother
          'The student doing it the best is my brother.'

(120) a. *L'étudiant   [**y** arrivé]   est   mon   frère.
          the.student   there arrived   is   my   brother
          '(int.) The student who arrived there is my brother.'

      b. *L'étudiant   [**en** rentré]   est   mon   frère.
          the.student   from.it returned is   my   brother
          '(int.) The student returned from there is my brother.'

Note that clitics precede the finite verb/auxiliary in finite contexts.

(121) a. J'**y** suis   arrivé.
          I.there am   arrived
          'I arrived there.'

      b. Vous **en** avez   acheté.
          you   of.it   have   bought
          'You bought some.'

      c. L'étudiant   **l**'a   fait   le   mieux.
          the.student it.has done   the   best
          'The student did it the best.'

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These data suggest that present participle RRCs in French are very large structures, even approaching the size of finite clauses. Once again, in this respect, French present participle RRCs are structurally more akin to English absolute RRCs than to English present participle RRCs, i.e. French present participles RRCs are more like (122a) than (122b).

(122) a. all properties [having been built before 1900]
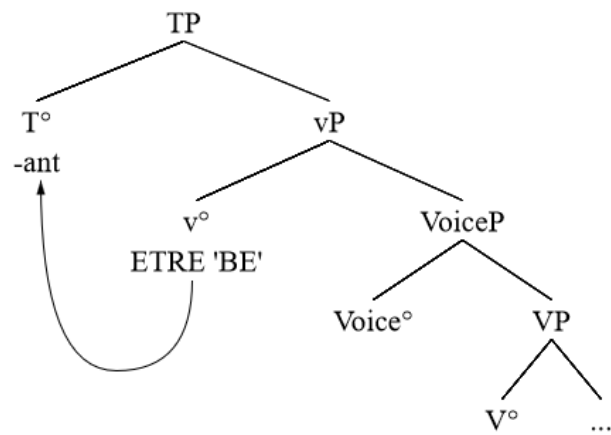
  b. the man [sitting on the bench]

6.2 Discussion

We have presented a range of evidence for a structural size difference between French present participle RRCs and French passive participle RRCs, where the former are larger than the latter. Furthermore, we have highlighted a number of similarities between French present participle RRCs and English absolute RRCs on the one hand, and French passive participle RRCs and English passive participle RRCs on the other.

The evidence from negation, auxiliary restrictions and clitics suggests that French present participle RRCs have T-domains. We posit the following schematic structures:

(123) le journal [ayant été lu]

  the newspaper having been read
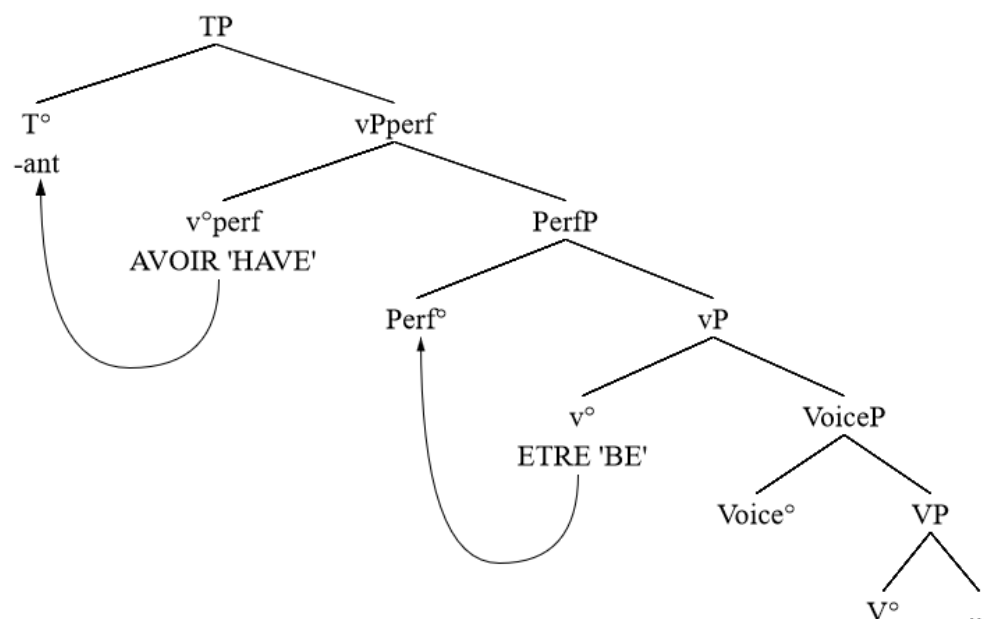
(124) les   filles   [s'étant   arrêtées]

the   girls   being   stopped

```
                    TP
                  /    \
               T°        vP
              -ant      /   \
                |      v°     VoiceP
                |   ETRE 'BE'  /    \
                |_____/  Voice°   VP
                                     /  \
                                   V°    ...
```

(125) les   étudiants   [manifestant   hier]

the   students   demonstrating   yesterday

```
                  TP
                /    \
             T°        vP
            -ant      /   \
              |     v°     VP
              |           /  \
              |         V°    ...
              |_____/
```
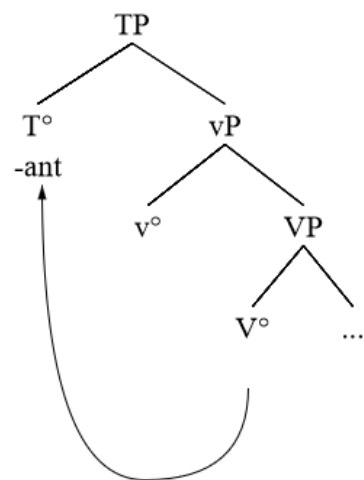
(126) les   étudiants   [ayant manifesté   hier]

      the   students   having demonstrated   yesterday
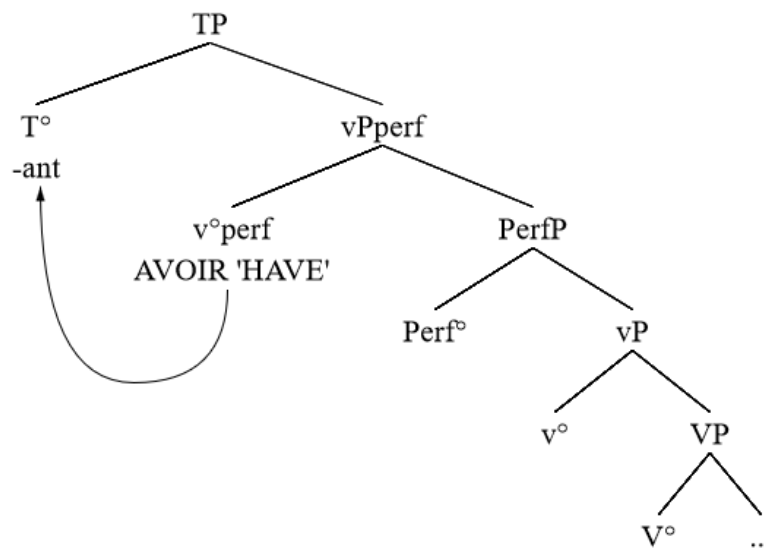
In (123), (124) and (126), we assume that the lexical verb is in an Agree relation (not shown) with a higher inflectional head (Voice° in (123) and (124) and Perf° in (126)) but does not raise, or at least does not raise very high. Pollock (1989: 417) shows that past/perfect participles of lexical verbs can follow or precede VP-initial adverbs like *à peine* 'hardly' and *presque* 'almost', with both options being equally natural.

(127) a.   Pierre a   presque   **mis**   fin   au   conflit.

           Pierre has   almost   put   end   to.the conflict

           'Pierre has almost put an end to the conflict.'

     b.   Pierre a **mis** presque fin au conflit.

(128) a.   Pierre a   à peine   **vu**   Marie.

           Pierre has   hardly   seen Marie

           'Pierre has hardly seen Marie.'

     b.   Pierre a **vu** à peine Marie.

Pollock (1989) analyses this as involving short or low movement of the lexical verb to Agr.

We observe that the same applies to past/perfect participles of auxiliaries, which may either follow or precede low adverbs, as in (129). In fact, they may follow or precede high adverbs as well, as in (130) (Louise Raynaud, p.c.).

(129) a. Le livre a **été** {très mal/ partiellement} lu.
          the book has been very badly partially read
          'The book has been very badly/partially read.'

      b. Le livre a {très mal/partiellement} **été** lu.

(130) a. L'étudiant a **été** probablement arrêté.
          the.student has been probably arrested
          'The student has probably been arrested.'

      b. L'étudiant a probablement **été** arrêté.

We leave the issue of exactly how to capture these differences to future research.

In (125), however, the lexical verb is in an Agree relation with T and obligatorily raises there. More generally in French, when T agrees with a verb or auxiliary, that element raises to T (Pollock, 1989). Recall, however, that finite auxiliaries/verbs obligatorily precede high adverbs, whilst the present participle only preferentially precedes them. The present participle may following high adverbs though the result is marked (exactly the same pattern was observed for English absolute RRCs in Section 5.2). This suggests that there is a T-like head available to present participles but not to finite auxiliaries/verbs in French, call it T_{PTCP} (participial T), which is lower than finite T and evaluative and modal adverbs. This head is also available to *having* in English absolute RRCs. Nonetheless, there is still a non-finite T higher than evaluative and modal adverbs that French present participles (and English *having*) can also occupy.

French passive participle RRCs do not permit sentential negation, perfect/past participles or clitics, thus suggesting that they lack a T-domain and structure above and including Perf°, just as in English passive participle RRCs. We thus posit virtually the same structures for French passive participle RRCs as for their English counterparts. Furthermore,

like their English counterparts, French passive participle RRCs permit high adverbs suggesting that such adverbs can be licensed within the v-domain (see Section 4.2).

6.3   Summary

We have argued that French present participle RRCs are TPs and are analogous to English absolute RRCs rather than English present/passive/stative participle RRCs. French passive participle RRCs are smaller than $Asp_{PERF}P$, analogous to English present/passive/stative participle RRCs.

7   Relativisation in RRCs

7.1   The subject restriction

We have already seen that RRCs are only able to relativise subjects or, more accurately, to relativise those elements that would ordinarily become grammatical subjects in finite clausal contexts. This can be illustrated using ditransitives where there is an asymmetry in English in terms of which internal arguments can become the subject of a passive.

In the prepositional dative construction (PDC), the theme argument can be the subject of a passive, but the recipient argument cannot, as in (131). As (132) shows, RRCs exhibit parallel behaviour: the relativised element can correspond to the theme argument but not to the recipient argument.

(131)   John handed a book to Mary.

  a. A book was handed to Mary.

  b. *Mary was handed a book to.

  c. *To Mary was handed a book.

(132)   a. the book [handed to Mary]

  b. *the woman [handed a book to]

In a double object construction (DOC), the recipient argument can be the subject of a passive, but the theme cannot, as in (133). As (134) shows, in RRC contexts, the relativised element can correspond to a recipient argument, but not to a theme argument.

(133)   John handed Mary a book.

     a.   Mary was handed a book.

     b.   *A book was handed Mary.[33]

(134)   a.   the woman [handed a book]

     b.   *the book [handed Mary]

These data clearly show that, if an element is to be relativised by an RRC, that element must be the one which would typically serve as the grammatical subject in full finite clausal contexts. Elements that cannot be the grammatical subject in full finite clausal contexts cannot be relativised by an RRC.

We saw in Sections 3 and 5 that RRCs can be split into two structural types. On the one hand, we have absolute RRCs, which contain $Asp_{PERF}P$ and may be as large as a TP. On the other hand, we have present, passive and stative participle RRCs, which are constructed on the first phase. This latter type of RRC is too small to license the past/perfect participle (since it lacks the Asp_{PERF} head), but it can license present, passive and stative participles. Present participle RRCs can relativise the external argument of transitives and unergatives and the internal argument of passives and unaccusatives. Stative participles are plausibly too small to project external arguments (see Embick, 2004; Marvin, 2002, 2003), so the predicates in stative participle RRCs will look unaccusative or passive and can only relativise internal arguments. Passive participle RRCs can relativise the internal argument of passives. They are unable to relativise the internal argument of unaccusatives because passives of unaccusatives are unavailable in English generally. They are also unable to relativise the external argument of the passivised predicate either because passives do not project a genuine external argument at all (see Alexiadou, 2001; Lundquist, 2013; Williams, 1985) or, if they do (see M. Baker, Johnson, & Roberts, 1989; Manzini, 1983; Roeper, 1987), because the external argument in a passive can never become the grammatical subject in full clausal contexts.

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[33] There is dialectal variation here (see Biggs, 2014a, 2014b; Haddican & Holmberg, 2012; Haddican, 2010). We predict that whatever can become the grammatical subject of a passive in a given dialect is co-extensive with what can be relativised by an RRC containing a passive participle.

We have thus seen that the size of the RRC determines the types of participle that are licensed, and that the type of participle determines what counts as the grammatical subject and hence what can be relativised in RRCs. We now turn to the question of how relativisation is achieved in RRCs.

7.2   Previous analyses of RRCs

A number of different proposals have been put forward in the past 50 years or so at least, differing in the extent to which RRCs are analysed as being similar, different or parallel to their clausal counterparts. We briefly go through some of the major families of approaches, as well as some more recent specific proposals.

An early generative analysis of RRCs treats them as clausal RCs which are reduced by a deletion rule (C. L. Baker, 1978; Jacobs & Rosenbaum, 1968). The deletion rule has come to be known as *whiz*-deletion, named after the deleted sequence of *wh*-relative pronoun and *is*.

(135)   a.   The man who is sitting on the bench is John.

         b.   The man ~~who is~~ sitting on the bench is John.   (*whiz*-deletion)

According to *whiz*-deletion accounts, RRCs are effectively clausal RCs.

There are various conceptual and empirical problems with this sort of approach, for example, the *whiz*-deletion rule does not target a constituent, and this approach cannot account for the interpretive differences of present/progressive participles in full clausal RCs vs. RRCs (Section 4.1).

A second approach to RRCs treats them as small clauses with a PRO subject with relativisation being achieved via control (Burzio, 1986; Chomsky, 1981; Stowell, 1981).

(136)   The man [PRO sitting on the bench] is John.

According to this approach, the structures of RRCs and full clausal RCs are radically different. The small clause is not reduced from a full clause as in the *whiz*-deletion account; the clause simply lacks the higher parts of the clausal structure (as has been argued here).

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Furthermore, whilst relativisation in full clausal RCs involves A'-movement (Chomsky, 1977), relativisation in RRCs involves control.

A similar sort of analysis is proposed by Bhatt (1999). Bhatt proposes that the RRC is a participial phrase (PrtP) with a PRO subject. A PrtP with a PRO subject is unsaturated. The RRC predicate must thus be saturated and it achieves saturation via Direct Predication. Since Direct Predication is a local relation, relativisation is only possible for unsaturated arguments that are also capable of becoming the highest argument in the RRC predicate.

A third approach treats RRCs as involving less structure than full clausal RCs (similar to the small clause approach)[34] but proposes that relativisation is achieved via A'-movement (parallel to full clausal RCs) (Kayne, 1994; Krause, 2001; Siloni, 1995, 1997).

(137)   The man [Op$_i$ t$_i$ sitting on the bench] is John.

The three families of approaches mentioned so far each treat RRCs in a uniform way. However, there are other proposals which argue that different types of RRC require different types of relativisation.

Doron & Reintges (D&R) (2007) distinguish three broad types of participial modifier: clausal, phrasal and lexical. These types differ in structural size but all of them lack a C-domain. D&R argue that relativisation/modification in clausal RRCs is achieved via A'-movement, whilst relativisation/modification in phrasal and lexical RRCs is achieved via direct modification (phrasal and lexical modifiers being semantic properties). Crucially, D&R propose that subject RRCs are uniformly phrasal RRCs, whilst non-subject RRCs (not found in English) must be clausal RRCs. Therefore, as far as English is concerned, relativisation in RRCs is achieved via direct modification (D&R are not more explicit).

Cecchetto & Donati (C&D) (2015) also argue that different types of RRC require different types of relativisation. However, unlike D&R, C&D claim that this holds within English. C&D propose that 'past' participle RRCs (what we have been calling passive participle RRCs) are derived via head raising, as in (138a), whilst present participle RRCs

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[34] For Kayne (1994), both clausal and reduced RCs involve a C-domain but the two differ in what the C head takes as its complement.

have PRO subjects that are co-indexed with the RC head (base-generated outside of the RRC), as in (138b).

(138) a.   the cake [eaten by the guests t$_{cake}$]
       b.   the man [PRO sitting on the bench]

C&D claim that the absence of relative pronouns in RRCs indicates that there is no D head on the RRC-internal representation of the RC head. In other words, the RC head is base-generated as an N. This is possible if the RRC predicate does not assign Case, hence RRCs with an –ed/-en participle are restricted to passives and unaccusatives which do not assign Case to their internal arguments. This N head moves and relabels the structure, relabelling being generally applied to relativisation in C&D's approach. C&D claim that present participle RRCs require a different analysis, namely one where the RC head is base-generated in its surface position and is co-indexed with PRO in the RRC.

However, it is unclear how C&D would deal with present participle RRCs containing a passive participle, as in (139).

(139)   the cake [being eaten by the guests]

On C&D's analysis, the passive would be able to generate an N argument (the RC head) which moves for relativisation, but then (139) would be an example of a present participle RRC formed via head-raising and not with PRO. We therefore take their distinction to be analytically unmotivated.

Finally, Iatridou et al. (2001, 2003) claim that only participles that take auxiliary BE can be used in RRCs, whilst those taking auxiliary HAVE cannot. Iatridou et al. propose that participles taking auxiliary BE are nominal (independently supported by the observation that they can take nominal agreement) and that nominal modifiers must themselves be nominal. In RRCs, there is a nominal head (labelled X) and the participle moves to this position to become nominal. In contexts with auxiliary HAVE, this X head incorporates into auxiliary BE spelling out as auxiliary HAVE (see Kayne, 1993). Consequently, in contexts with auxiliary HAVE, the participle cannot become nominal and so cannot serve as a nominal modifier. Iatridou et al. are not explicit about how relativisation is achieved in RRCs (for clausal RCs, they suggest movement and reprojection, driven by the need to create a nominal modifier

for a nominal RC head (see also Bhatt, 1999; Cecchetto & Donati, 2015; Donati & Cecchetto, 2011; Donati, 2006)). The structure of the two types of participle is illustrated in (140) (Iatridou et al., 2003: 186).[35]
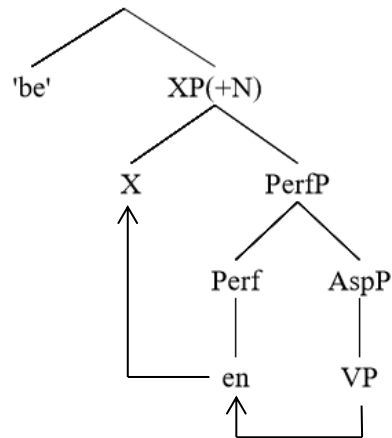
(140) a.   BE + participle   b.   HAVE + participle
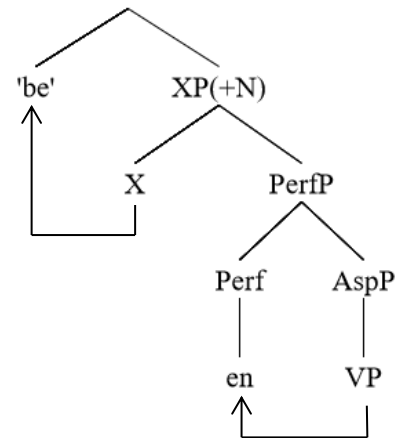
However, Iatridou et al.'s analysis is puzzling over and above positing two distinct mechanisms for becoming nominal (either through reprojection as in clausal RCs, or through incorporation with X as in participles with auxiliary BE). On their account, RRCs must be XPs (where X is the nominal head). RRCs cannot be PerfPs since this is not nominal and so cannot serve as a nominal modifier. However, we have seen evidence above that the participle in RRCs is not necessarily the highest element in the structure. We saw that adverbs like *probably* and *fortunately* are able to appear in RRCs to the left of the participle. If the participle in RRCs were nominal, we would expect such elements to be adjectival rather than adverbial, especially given the standard assumption that a clausal projection cannot be nominalised then re-verbalised (see Borsley & Kornfilt, 2000; Panagiotidis, 2014).

This suggests that, even if the RRC is nominalised, this has nothing to do with the categorial status of the participle itself since nominalisation would have to occur after the participle has been derived and integrated into clausal structure.[36] In other words, although

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[35] Bjorkman (2011) also argues against an incorporation analysis of auxiliary selection and against Iatridou et al.'s claim that only participles taking auxiliary BE can show (nominal) agreement.

[36] Lundquist (2008, 2013) argues that participles are adjectival.

RRCs contain participles, the categorial status of RRCs is not determined by them. Recall as well that although the participles themselves may vary in structural size thereby accounting for differences in interpretation (see Embick, 2004; Marvin, 2002, 2003), the RRCs containing them are larger than just the participle.

Siloni (1995) provides a number of empirical arguments against the control analysis of RRCs. She proposes that the relativised argument is projected inside the RRC but that it is a variable bound by an operator rather than a PRO. Siloni's arguments are based on French data, but the arguments hold for English as well (we use examples either translated or adapted from Siloni (1995)).

RRCs can contain object anaphors and floated quantifiers suggesting that the relativised argument is syntactically present inside the RRC (Siloni, 1995: 473).

(141) a.   the man$_i$ [always examining himself$_i$ in the mirror]

       b.   the man$_i$ [always examining him$_{*i/j}$ in the mirror]

(142)   the men [all watching television]

In (141a), the anaphor can be co-referent with the RC head, whilst in (141b), the pronominal cannot be co-referent with the RC head (a Condition B effect). As (142) shows, floated quantifiers are also allowed in RRCs. These data suggest that there is a representation of the relativised subject inside the RRC.

However, Siloni argues that this RRC-internal representation is not PRO and that the RRC is not akin to a control clause. She observes that, whilst extraction out of control clauses is acceptable (144a), extraction out of RRCs is not (144c) (just as extraction out of full clausal RCs is not (144b)) (Siloni, 1995: 473-476).[37]

(143) a.   John is the only one to talk regularly to the old people.

       b.   John is the only one that talks regularly to the old people.

       c.   John is the only one talking regularly to the old people.

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[37] Siloni (1995) claims the same for Italian.

(144)   a.   ?Who is John the only one to talk to regularly?

        b.   *Who is John the only one that talks to regularly?

        c.   *Who is John the only one talking to regularly?

Siloni (1995: 475, fn 19) points out that Burzio (1981) reaches the opposite conclusion based on the following judgements, i.e. Burzio concludes that RRCs pattern with control clauses, not full clausal RCs:

(145)   a.   the girl that John was the last one to see

        b.   *the girl that John was the last one who saw

        c.   the girl that John was the last one seen with

The crucial judgement is (145c), which Burzio claims to be acceptable and which Siloni would expect to be judged like (145b). As Siloni points out, judgements seem to vary considerably, but extraction of a PP rather than a DP, and extraction of a DP from a present participle RRC are strongly degraded (Siloni, 1995: 475, fn 19).

(146)   a.   ??With whom was John the last one seen?

        b.   ?*Who was John the last one discussing this matter with?

        A further argument against the PRO analysis comes from reconstruction effects. It is possible to reconstruct the RC head into the RRC suggesting that the RC head has an RRC-internal representation.

(147)   a.   The strings [being pulled] would certainly get Bill the job.

        b.   The strings [being claimed to have been pulled] would certainly get Bill the job.

It is also possible for an idiom chunk to be licensed simultaneously in the matrix clause and within the RRC.

(148)   Mary actually pulled the strings [claimed to have been pulled by John].

If the relativised element were a PRO RRC-internally, we would not expect reconstruction effects of this sort. We thus conclude that the control/PRO analysis is incorrect for RRCs.

7.3 Analysis

Based on these observations, we propose that a movement analysis of relativisation in RRCs is more promising. But what kind of movement is involved?

One could posit A'-movement (Kayne, 1994; Krause, 2001; Siloni, 1995) but then we would need an account of why only subjects can be relativised. Such an account might come from Case licensing (see Krause, 2001; Siloni, 1995). We saw that RRCs can only relativise those elements that would have been grammatical subjects in full clausal contexts. Since RRCs lack the canonical subject position SpecTP (the position associated with nominative case), RRCs effectively relativise a non-Case-licensed element (and in doing so, seem to avoid problems with Case-licensing). Therefore, in principle, relativisation in RRCs might be able to target other arguments. However, in practice, if any other argument were relativised, the subject would remain without Case and would not be licensed through relativisation. The derivation would thus crash.

On this account, we might predict that, if there is no argument that is *required* to undergo A-movement, i.e. if there is no argument in need of Case, it will be possible to A'-extract an argument for relativisation in RRCs. In this respect, consider the following examples:

(149)   a.   It was claimed that John read the book.

   b.   That John read the book was claimed.

The *that*-clause can be the subject of a passive, as in (149b), or it can remain in-situ with the subject position being filled by *it*, as in (149a). (149a) suggests that the clause is not *required* to undergo A-movement for Case-licensing. If RRCs can in principle target any argument, we might expect that we can relativise *book* in (149a) using an RRC since then we would have relativisation without leaving any elements unlicensed. However, this is not possible as (150) shows.

(150)   a.   *the book [being claimed that John read]

   b.   *the book [claimed that John read]

This suggests that A'-movement is not responsible for relativisation in RRCs. Furthermore, A'-movement is able to license parasitic gaps, but parasitic gaps are not possible in RRCs.

(151)   *the document [filed by John [without reading]]

This supports the conclusion that RRCs do not involve A'-movement.

Alternatively, one could posit (intermediate) A-movement. This would immediately capture the subject restriction without needing to resort to special licensing mechanisms for (or A'-movement of) non-Case-licensed elements.

A second property of A-movement is that it is able to license novel interpretations of depictives (Pylkkänen, 2008; Van Urk, 2015a). Depictives can generally be associated with subjects and objects, but not with indirect objects or obliques (Van Urk, 2015a: 48).

(152)   a. Sam_i hugged Ted_k $drunk_{i/k}$.

   b. Sam_i gave Ted_k coffee $drunk_{i/*k}$.

   c. Sam_i danced with Ted_k $drunk_{i/*k}$.

Pylkkänen (2008) observes that A-movement of an indirect object or oblique argument allows a depictive to be associated with that nominal (Van Urk, 2015a: 48).

(153)   a. Ted_k was danced with $drunk_k$.

   b. Ted_k was given coffee $drunk_k$.

   c. Ted_k seems to have been given coffee $drunk_k$.

In contrast, A'-movement has no such effect.

(154)   a. Who_k did Sam_i hug $drunk_{i/k}$?

   b. $^?Who_k$ did Sam_i give coffee $drunk_{i/*k}$?[38]

   c. Who_k did Sam_i dance with $drunk_{i/*k}$?

As (155) shows, RRCs pattern with A-movement, rather than A'-movement.

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[38] Recall that A'-extraction of the recipient in a DOC is often degraded (Holmberg et al., 2015; Hornstein & Weinberg, 1981) (see Chapter 4, Section 3.3.2).

(155) a.   the man$_k$ [danced with drunk$_k$]

       b.   the man$_k$ [given coffee drunk$_k$]

       c.   the man$_k$ [seeming to have been given coffee drunk$_k$]

This strongly suggests that A-movement is taking place inside the RRC.

These considerations strongly suggest that the movement involved in relativisation in RRCs is A-movement rather than A'-movement. This in turn suggests that relativisation is not specifically tied to A'-properties. Van Urk (2015a, 2015b) argues that A'- and A-movement both create derived predicates but that the type of abstraction is different in the two cases. Specifically, A'-movement involves abstraction over choice functions, whilst A-movement involves abstraction over individuals. If relativisation requires abstraction in general to create a derived property, there is in principle no reason why it would not be able to use A'-movement, A-movement or both in order to do so. Depending on the structures available in a given language, that language may instantiate any one of these options. Cross-linguistically we might therefore expect to find languages where relativisation is achieved through A'-movement only, A-movement only, or both.[39] Furthermore, given that we identified a close formal similarity between relativisation and topicalisation in full clausal RCs in terms of positions targeted (see Chapters 3 and 4), the question also arises whether the movement in RRCs also targets a topic-like position in the clause-medial left periphery. These are questions for future research.

8   Summary

We have argued that English RRCs come in a variety of sizes. Present, passive and stative participle RRCs are constructed from the first phase, which may vary in size depending on which projections are present in the derivation. At its largest it may contain Asp$_{PROG}$, as in present participle RRCs, but never Asp$_{PERF}$. Absolute RRCs, however, do contain Asp$_{PERF}$ and arguably some form of T head. We argued that the structural size of these RRCs determines which auxiliaries and participles are possible, and that this in turn determines whether external and/or internal arguments can be relativised. Furthermore, we saw that structural

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[39] By *both*, we mean a language like English where some RCs are derived using A'-movement and others are derived using A-movement. In some languages, RCs may simultaneously exhibit A'- and A-properties due to a composite A'/A-probe (see Van Urk & Richards, 2015; Van Urk, 2015a, 2015b).

size determines the number of aspectual options available to predicates in RRCs which affects inference generation and hence the range of interpretations available to the present/progressive participle in RRC contexts vs. full clausal contexts. Evidence from the acceptability of high adverbs in RRCs also suggested that RRCs have a left periphery which is strikingly similar (though not identical) to the left periphery of full clausal RCs. We showed that French passive participle RRCs are analogous to their English counterparts in terms of size, but that French present participle RRCs are more akin to English absolute RRCs. We also suggested that differences in the properties exhibited by RRCs in various languages reflect variation in the structural size of RRCs more than anything else. Finally, we argued that relativisation in RRCs is achieved via A-movement.

Chapter 7

Conclusion and future prospects

1   Summary of the thesis and its main findings

In Part I (Chapter 2), we argued that the Matching Analysis provides the most accurate and comprehensive analysis of English RCs. In a departure from most (though not all) of the literature, we argued that the Matching Analysis *is* able to capture reconstruction effects, and so reconstruction effects do not provide a way of teasing the Matching and Head Raising Analyses apart. In fact, we observed that the empirical landscape of reconstruction and anti-reconstruction effects is far more complicated than the current literature and current analyses tend to recognise. We thus advocated an approach to (anti-)reconstruction allowing scattered deletion at LF.

In Part II (Chapters 3 to 5), we examined clausal RCs. In Chapter 3, we argued that there is systematic variation in the structural size of different types of clausal RC. We also uncovered a restriction on argument (focus) fronting in finite *wh-* and *that*-RCs, namely the focus argument and relative pronoun/operator must be categorially distinct, i.e. they cannot both be DPs. We observed that categorial distinctness effects are also found in infinitival *wh*-RCs (between the RC head and the relative pronoun) and between topics and foci in non-RC contexts. We used these facts to probe the structure of the English C-domain and concluded that there is a close formal similarity between topicalisation and relativisation.

In Chapter 4, we focussed on subject-object asymmetries, in particular the anti-*that*-trace of short subject RCs and the seemingly opposite *that*-trace effect of English. We proposed that the systematic size difference between clauses with and without *that*, combined with a notion of anti-locality, is key to determining whether subject extraction is permitted or not. We then considered whether anti-locality and structural size play a role in the subject-object asymmetries found in two other A'-constructions in English, namely topicalisation and *wh*-questions. We concluded that anti-locality plays a role in topicalisation, but not in *wh*-questions. This lent further support to the suggestion that topicalisation and relativisation are formally similar. Finally, we considered some of the

insights that our analyses from Chapters 3 and 4 provide for cross-linguistic variation by comparing English with Italian, Welsh and Malagasy.

In Chapter 5, we identified a hitherto undiscussed construction from English, which we argued involved control into an infinitival RC. This control relation showed the structural hallmarks of Obligatory Control, but interpretively the control relation was clearly non-obligatory. We argued that Logophoric Control was responsible for this hybrid nature and showed that this analysis requires infinitival RCs to lack a phase boundary in their C-domain, a conclusion supported by the presence of categorial distinctness effects seen in Chapter 3.

In Part III (Chapter 6), we examined reduced RCs (RRCs). We showed that the upper boundary of first-phase RRCs (present, passive and stative RRCs) in English is located between Asp_{PROG} and Asp_{PERF} such that Asp_{PROG} is contained in RRCs whilst Asp_{PERF} is not. This boundary is also implicated in various other phenomena in English. Certain problems involving the interpretation of the present/progressive participle and high adverbs in RRCs vs. in full clauses were observed and accounted for. Absolute RRCs in English were shown to be considerably bigger than the other types of RRC in English. We then presented an analysis of RRCs in French. We showed that passive participle RRCs in French are of an analogous structural size to passive participle RRCs in English. French present participle RRCs, however, were shown to be analogous to English absolute RRCs. Finally, we proposed that relativisation in RRCs is achieved by A-movement.

2   Future prospects

At various points, we have shown how paying close attention to the structural size of different RCs offers new insights and perspectives on the nature of cross-linguistic variation (see especially Chapter 4, Section 7, on Italian, Welsh and Malagasy, and Chapter 6, Section 6, on French). We have also seen that structural size may (directly or indirectly) affect extraction (see Chapters 4 and 6). This thesis focussed on subject extraction, but it raises the issue of whether the link between size and extraction might be more general.

Bošković (2014: 39), citing Şener (2006), notes that, in Turkish, extraction from a PP is sensitive to the structural size of the PP, as in the following examples:

(1)   a.   *Biz   [NP Pelin-in   arkadaş-ı]ᵢ   dün   [PP tᵢ   **için**]

            we.NOM   Pelin-GEN   friend-POSS   yesterday   for

            para   topla-dı-k.

            money collect-PAST-1PL

            'Yesterday, we collected money for Pelin's friend.'

       b.   Ben   araba-nınᵢ   dün   [PP tᵢ   **önün-de**]

            I.NOM car-GEN   yesterday   in.front.of-3SG.POSS.LOC

            dur-du-m.

            stand-PAST-1SG

            'Yesterday, I stood in front of the car (not behind it).'

Extraction from the PP in (1a) is banned. However, when the PP is more complex (i.e. has richer structure), as in (1b), extraction is permitted. Bošković (2014) suggests that P-stranding languages generally have richer PP-structure than non-P-stranding languages. As Bošković notes, this is a departure from Abels (2003) where the difference between P-stranding and non-P-stranding languages is hypothesised to lie in whether P is phasal or not respectively. As we saw in Chapter 4, the relation between size and extraction in English does not seem to be as straightforward as Bošković suggests for Turkish, but the existence of the relation itself is highly suggestive. A more detailed study of the effect of structural size on extraction is required to properly evaluate this hypothesis.

    If correct, this hypothesis has clear implications for Keenan & Comrie's (1977) Noun Phrase Accessibility Hierarchy (AH) and its associated effects. Cross-linguistically, RC formation is constrained. Keenan & Comrie (1977: 66) propose the AH, a hierarchy of grammatical functions.

(2)   Accessibility Hierarchy

       SU > DO > IO > OBL > GEN > OCOMP

       (SU = subject; DO = direct object; IO = indirect object; OBL = oblique; GEN = genitive; OCOMP = object of comparison)

On the basis of the AH, they identify three constraints on RC-formation (omitting the Primary Relativization Constraint for simplicity) (Keenan & Comrie, 1977: 67).

(3)   Constraints

    (i)   A language must be able to relativise subjects.

    (ii)   Any RC-forming strategy must apply to a continuous segment of the AH.

    (iii)   Strategies that apply at one point of the AH may in principle cease to apply at any lower point.

The AH and its constraints have proved to be quite robust, but an understanding of how these phenomena can be captured formally remains an outstanding problem. First, there is the issue of how the different systems described by (2) and (3) are formally encoded, e.g. as features on functional heads following the so-called Borer-Chomsky Conjecture. Second, there is the issue of why certain strategies cease at particular points on the AH (this potentially bears directly on the relation between size and extractability). Third, the AH is typically discussed with respect to RCs, but what about other A'-constructions? We have seen that in English, relativisation and topicalisation pattern very closely together, perhaps with topicalisation feeding relativisation (see Chapter 4, Section 7.3, on Malagasy), and we know that relativisation and questions may use different strategies, for example, in Mandarin, where questions are *wh*-in-situ but RCs are externally-headed. Evidence from *partial* syntactic ergativity in Mayan, i.e. languages where some (but not all) A'-constructions exhibit a restriction on the A'-extraction of transitive ergative subjects, also suggests that there is variation in how languages formally group A'-constructions (see Douglas & Sheehan, 2016).

Feature geometries (see, e.g., Abels, 2012b; Déchaine & Wiltschko, 2002; Harley & Ritter, 2002) offer a way of formally capturing the similarities and differences between the various types of A'-construction. A challenge for future research would be to identify the possible A'-feature geometries and model their variation.

We have thus seen that there are at least two avenues of research stemming from this dissertation that could be pursued in the study of cross-linguistic variation in A'-constructions: (i) the structural size of the constituent from which extraction takes place, and (ii) the extent to which different A'-constructions pattern similarly/differently. In terms of modelling this variation, (i) seems to require a flexible cartographic approach, i.e. structures/languages may contain more or less of the cartographic hierarchies relative to

others, whilst (ii) seems to require a flexible feature geometric approach. Recent conceptual advances in parametric theory can potentially unify these two strands. Biberauer & Roberts (2015) propose that various formal hierarchies, including the cartographic and feature-geometric hierarchies, may be manifestations of a single, emergent formal hierarchy that arises from an interaction of Chomsky's (2005) Three Factors of language design. The Three Factors are UG (reconceptualised as being maximally reduced), the PLD (Primary Linguistic Data), and general cognitive principles of efficiency, economy and data handling, etc. The idea is that acquirers will only posit a new formal feature if they notice a systematic syntactic pattern in the PLD. Once a formal feature is posited, it is generalised. Further exposure to the PLD may lead to identification of further systematic syntactic patterns and so to the postulation of further formal features. This process is recursive leading to hierarchic parametric structures, i.e. parameter hierarchies (M. C. Baker, 2001; Biberauer & Roberts, 2015). The process stops when no further divisions are required to capture patterns in the PLD. Therefore, in the emergentist approach, parameters hierarchies directly model the learning path, whilst at the same time defining points of cross-linguistic variation. The typological and acquisition literatures on RCs are vast, providing rich grounds for testing the emergentist approach to parametric variation.

The hierarchies that emerge may be larger or smaller depending on what patterns are discernible in the PLD of a given language. In principle, the dynamicity inherent in such a process can generate a great deal of surface variation through the recursion of quite a simple procedure, an idea familiar from fractals. This dissertation hopes to have shown that structural size is an interesting and important point of variation in the domain of RCs and A'-constructions more generally, and to provide a springboard for future research into such issues.

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