

# Aspects of Control

MA Thesis

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## Summary

This thesis is essentially structured around two papers on the control module: the first (chapter two), based on van Urk (submitted), presents a reanalysis of *obligatory control* (OC), while the second (chapter three) develops a theory of *adjunct control*. Although these analyses are compatible with each other, they can be considered independently. The rest of this thesis (chapter four) is concerned with some remaining issues within this framework, specifically the properties of PRO.

The foundation of this thesis is a reanalysis of obligatory control. Chapter two argues that OC phenomena collapse into two different constructions. Specifically, OC is derived through both movement, or *θ-movement*, and through *PRO-control*. In support of this, it is observed that OC effects consistently uncover two types of OC complements, which can be differentiated from each other reliably. These two types of OC have properties naturally associated with *θ-movement* and *PRO-control* and, as such, a dual-route approach naturally accommodates a great deal of empirical complexity. Finally, there is independent evidence for the existence of both strategies.

Chapter three examines the locality problem posed by adjunct control. The obligatory nature of control into infinitival adjuncts presents a problem for any theory that aims to derive this property from the locality of configurations, because adjuncts are generally taken to be islands (e.g. Ross 1967; Huang 1982). I propose a representational analysis of adjunction, drawing on analyses of the CSC (e.g. Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000), which is able to accommodate local control into adjuncts and, at the same time, maintain the ban on other forms of extraction. Although couched in terms of theory of OC in chapter two, the proposal presented is compatible with other ways of deriving OC.

Chapter four presents a theory of PRO. I argue that the absence of person agreement in infinitival clauses is crucial in order to explain what drives control and the distribution of PRO. I propose a theory of case, in which case is morphologically defined over person agreement and thematic relations, which explains why lexical arguments need to raise out of non-finite clauses. This proposal is also able to derive the distribution of PRO, if we assume that PRO lacks person features. I also offer an account of the temporal structure of infinitival complements which derives the distribution of partial control and sheds light on the correlation between tense and control in finite OC.

## 1 Introduction

This thesis is concerned with the study of the control module. The control module is the aspect of the grammar that determines the identification of subject gaps such as those in (1a-d). The relation between the subject gap and the argument it is coreferential with is referred to as *control*.

### (1) Subject gaps the control module is concerned with:

- a. Calvin expected [\_\_ to be betrayed at the next G.R.O.S.S. meeting].
- b. Hobbes thought that [\_\_ racing down that hill] sounded a little dangerous.
- c. Calvin pretended he was eating brains [\_\_ to disgust Susie].
- d. [\_\_ Defeating evil aliens] is all in a day's work for Spaceman Spiff.

Determining what rules govern the identification of these gaps has been one of the main goals of the generative enterprise since its early days (e.g. Rosenbaum 1967; Postal 1970). As such, there is a large literature on the analysis of various aspects of control (e.g. Rosenbaum 1967; Postal 1970; Bowers 1973; Chomsky and Lasnik 1977; Chomsky 1980, 1981; Wehrli 1980, 1981; Bresnan 1982; Koster 1984; Manzini 1986; Martin 1996; Hornstein 1999, 2001, 2003; Landau 2000, 2004, 2006, 2008; Boeckx and Hornstein 2006a, 2006b; Sigurðsson 2008; Bobaljik and Landau 2009; Boeckx et al. 2010). This thesis will adopt a syntactic perspective on control, as in much of the generative literature (though see Bresnan 1982, Culicover and Jackendoff 2006, and Stiebels 2007 among others).

One consistent finding in the literature on control is that control gaps should be distinguished from a superficially similar class of subject gaps, which are described as *raising* constructions. Gaps of this type are given in (2a-c).

### (2) Examples of raising:

- a. Calvin seemed [\_\_ to be making good headway on his trek to the Yukon].
- b. Hobbes appeared [\_\_ to have reservations about jumping on the sled].
- c. Susie believed Calvin [\_\_ to be quite disgusting].

What makes the gaps different is that the argument that is identified with the subject gap appears to be sensitive only to the selectional restrictions of the infinitival verb. Control verbs, in contrast, impose restrictions on the arguments they take. The control verb *want*, for instance, is only compatible with an animate subject (3a). Raising verbs, on the other hand, are compatible with whatever argument the lower verb is compatible with. They even allow idiomatic expressions, such as *to make headway*, to be preserved across them (3b-c). This is impossible with control verbs (3d).

### (3) Raising verbs do not impose selectional restrictions:

- a. \*The sled wanted to go down the hill.
- b. Hobbes made headway on the maths homework.

- c. Headway seemed to have been made on the maths homework.
- d. \*Headway wanted to have been made on the maths homework.

As such, it is generally assumed that the raising argument occupies the subject gap position at some level of syntactic structure, or at least that some equivalence relation connects these position. Unlike for control, this conclusion is relatively uncontroversial.

The control gaps that most closely resemble raising gaps are often referred to as *obligatory control* (OC). OC is often the main focus of work on control. This concerns gaps of the type in (4a-d).

(4) **Examples of obligatory control:**

- a. Hobbes noticed that Calvin<sub>i</sub> had forgotten [\_\_<sub>i</sub> to prepare a tuna sandwich].
- b. Moe's victim<sub>i</sub> hoped [\_\_<sub>i</sub> to get revenge some day].
- c. Susie asked Calvin<sub>i</sub> [\_\_<sub>i</sub> to stop being disgusting].
- d. Stupendous Man<sub>i</sub> managed [\_\_<sub>i</sub> to secure another moral victory].

An interesting characteristic of these cases, that happens to be shared with raising gaps, is that the subject gap must be identified with an argument of the verb that selects for the infinitival clause. The subject gap in (4a), for instance, is obligatorily coreferential with the subject of *forgot*, *Calvin*. It cannot be identified with the subject of the matrix verb, *Hobbes*. Similarly, the antecedent of the subject gap in (4b) must be the subject, *Moe's victim*, and cannot be the argument internal to the subject, *Moe*. Control is also not optional in these cases. It is impossible for the subject gap to have an arbitrary reading.

A key focus of inquiry has been to determine what type of syntactic operation connects the argument of the control verb with the subject gap and, in this way, allows a nominal to function as an argument of multiple verbs. Intuitively, it seems that some metric of equivalence is the simplest option, as in raising. A number of operations of this type are logically possible. We could imagine, for instance, that the relevant argument occupies both positions through some mechanism of dislocation, but is pronounced in only one (5a-b). This solution has, in fact, been pursued in much work on obligatory control (e.g. Rosenbaum 1967; Bowers 1973, 2008; O'Neil 1995; Hornstein 1999, 2001).

(5) **Controlling argument occupies multiple positions:**

- a. Calvin claimed [*Calvin* to have done his homework].
- b. Hobbes hoped [*Hobbes* to eat a tuna sandwich].

A second option is that the subject gap is actually an empty position and that some interpretive rule that goes beyond the ordinary rules of argument selection connects the argument to the infinitival verb. This is the solution pursued in Wehrli (1980) and Manzini and Roussou (2000), for instance.

Because control involves two independent argument positions, unlike raising, there is, however, another type of configuration that would derive obligatory control. It could be the

case that the subject gap is occupied by a null argument, which must always be identified with another argument. This is in fact assumed by much work on control (e.g. Chomsky and Lasnik 1977; Chomsky 1980, 1981; Koster 1984; Manzini 1986; Landau 2000, 2004, 2006, 2008). The null argument that serves as the subject of the infinitival clause is referred to as PRO, yielding the representation in (6a-b).

(6) **Controlling argument occupies multiple positions:**

- a. Calvin<sub>i</sub> claimed [PRO<sub>i</sub> to have done his homework].
- b. Hobbes<sub>i</sub> hoped [PRO<sub>i</sub> to eat a tuna sandwich].

Prima facie, this type of solution might seem to complicate the grammar more than the other options discussed so far, since it requires the introduction of a new type of element, an obligatorily null and anaphoric argument. There are some advantages to this type of account, however. First of all, it allows us to maintain a one-to-one mapping between argument positions and nominals. In addition, there are some environments in which the subject gap can denote a superset of the higher argument (7a-b), as first noted by Wilkinson (1971).

(7) **Subject gap may denote a superset of the higher argument:**

- a. Hobbes<sub>i</sub> thought that Calvin<sub>j</sub> hoped [PRO<sub>i+j</sub> to race down the hill together].
- b. Susie<sub>i</sub> counted on Calvin<sub>j</sub> wanting [PRO<sub>i+j</sub> to play house together].

Since this type of construction is difficult to derive using a straightforward metric of equivalence, there is then some empirical motivation for the idea of a null coreferential subject. In chapter two, I will look at this issue in more detail and argue that, actually, two types of OC can be differentiated consistently, one that has the character of dislocation and one that appears to involve a PRO.

Control can also target a subject gap in an adjunct clause, a type of clause that is optional and appears to not be selected for by a verb, as in (8a-c). This is commonly referred to as *adjunct control*.

(8) **Examples of adjunct control:**

- a. Calvin pretended to be eating brains [in order \_\_\_ to disgust Susie].
- b. Calvin accused Hobbes of treachery, [only \_\_\_ to be forced to retract it].
- c. Hobbes doubted Calvin for a moment [before \_\_\_ hopping on the sled].

In many ways, adjunct control resembles obligatory control. A problem, however, is that adjuncts do not generally behave like a local domain for syntactic operations, as noted by Ross (1967). *Wh*-chains, for example, typically cannot span adjunct boundaries. Problematically, the operations that are assumed to underlie obligatory control are of a type that is also taken to be sensitive to locality. Chapter three focuses on this tension and presents an analysis of adjunction that accommodates this.

There are also environments in which the subject gap can be left uncontrolled and the

identification of the subject gap appears to be governed mainly by pragmatic factors (Williams 1980; Landau 2000) (9a-c). These cases are referred to as *non-obligatory control* (NOC).

(9) **Examples of non-obligatory control:**

- a. It is dangerous [<sub>arb</sub> to race down hills].
- b. Susie felt that Calvin<sub>i</sub> should recognise that [<sub>i/arb</sub> copying answers] is basically cheating.
- c. Calvin<sub>i</sub> felt that Susie should recognise that [<sub>i/arb</sub> copying answers] requires some ingenuity.

In all of these cases, the subject gap can be uncontrolled and receive an arbitrary reading, unlike in obligatory control. Although the subject gap can be controlled, this control relation is sensitive to pragmatic factors, such as the plausibility of the reading, as illustrated by the minimal pair in (9b-c). The fact that structural factors and issues of locality appear to not influence these readings have caused many authors to conclude that non-obligatory control involves a null argument in the infinitival subject position. This assumption is relatively uncontroversial, especially in the generative literature, and is embraced even by proponents of a dislocation or movement analysis of obligatory control (e.g Hornstein 1999, 2001). I will not examine the mechanisms by which the referent of NOC PRO is determined in this thesis, but I will present a theory of PRO that is able to derive the distribution of PRO in chapter four. This chapter also critically investigates the proposal that NOC PRO is actually *pro*, the null pronoun found in many languages (Hornstein 1999; Boeckx and Hornstein 2007).

Other issues that this thesis touches upon are the interaction between inherent case and OC (section 2.2), the differences between OC into non-finite clauses and finite clauses (section 2.4), in languages such as Greek and Romanian, and the temporal semantics of OC complements (section 4.3).



## 2 A Movement and PRO Approach to Obligatory Control\*

In this chapter, I present a new theory of obligatory control. As noted, most contemporary approaches to control analyse OC as a variant of raising or as a variant of non-obligatory control.<sup>1</sup> Here, I pursue a third option, that obligatory control is where the distribution of movement and PRO overlaps. In support of this, it is shown that two types of obligatory control complements can be differentiated reliably. The first has properties strongly reminiscent of movement: the relevant positions are non-distinct and can share a single case. The second class instead resembles non-obligatory control: the lower position bears an independent case and can denote a superset of the higher position. These types of OC can be distinguished reliably, by manipulating the embedded context in a predictable fashion.

This account of OC provides the basis for the theory of control developed in this thesis. Most immediately, it provides the impetus for a re-evaluation of all aspects of control, because its basic assumptions are incompatible with existing accounts of phenomena such as adjunct control or NOC (e.g. Hornstein 1999, 2001; Landau 2004, 2006). In addition, however, adopting a movement and PRO account of OC will be shown to unlock new generalisations about control that make the task of deriving its properties considerably easier. The argument made in section 2.4, for instance, paves the way for a new analysis of the licensing of PRO (see chapter 4). In this way, this chapter forms a natural starting point for a reanalysis of the control module.

The main innovation of a movement and PRO account is that it recognises two ways of establishing OC instead of one. An implicit assumption in much generative work so far has been that, at least in terms of the properties of the silent lower position, OC is uniform. As such, most contemporary theories assume that OC is either like NOC, involving the control of a PRO, or like raising and thus movement-derived. The former has been most prominent in generative work, especially in the G&B era, and is exemplified by accounts such as those in Chomsky (1973, 1980, 1981), Chomsky and Lasnik (1977, 1993) and Landau (2000, 2004, 2006, 2008). The latter is represented by works such as Bowers (1973, 2008), Wehrli (1980, 1981), O'Neil (1995), and Hornstein (1999, 2001).<sup>2</sup>

What has not widely been recognised, however, is that there are significant empirical obstacles to both approaches. A problem for the first approach to obligatory control is that there are a number of contexts in which OC phenomena resemble raising more than NOC. For instance, both in raising and OC, the lower copy of a movement chain can, in some languages, be spelled out instead of the higher copy (e.g. Polinsky and Potsdam 2002, 2006; Potsdam and Polinsky, to appear). Treating all instances OC like raising, however, ignores the

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\* This chapter is an edited version of van Urk (submitted), which was written primarily during a stay at MIT in the winter of 2009. Many of the ideas in this chapter have been presented in talks at Utrecht University, Harvard University, MIT and Rutgers University. My thanks to the audiences of these talks for their comments and questions.

1 A third way of deriving control that is also often recognised, though not generally only for a small subset of control cases, is restructuring, in which the lower subject position is assumed to be absent (e.g. Wurmbrand 2001; Cinque 2006). I will discuss how this relates to the current account throughout this piece.

2 There are also a number of approaches in which all three operations are technically distinct, in that they make use of different machinery (e.g. Rosenbaum 1967; Manzini and Roussou 2000).

contexts in which OC and NOC share properties absent in raising. As in NOC, for example, the lower infinitival subject can denote a superset of the higher argument (e.g. Wilkinson 1971; Williams 1980; Landau 2000).

Instead, I argue here that the category of OC phenomena really collapses two structurally different constructions, movement-derived OC and control of a PRO. A variety of OC effects reliably identify two types of OC. There is consistent variation in case, in the acceptability of superset readings and in the acceptability of inherent case on the lower position, for example. In addition, the way these properties pattern strongly suggests that the underlying structures have the properties of movement and PRO. I will refer to movement-derived OC as *θ-movement*,<sup>3</sup> while I use the term *PRO-control* to signify the binding of an in situ PRO. The majority of OC verbs are shown to allow both of these, although some only allow movement.<sup>4</sup> Note also that, on independent grounds, there is convincing evidence for the existence of both PRO-control and *θ-movement*. From the availability of partial control readings, and the fact that these are possible in NOC, but not in raising, it follows logically that some instances of OC have a distinct subject in the lower position. Similarly, the existence of backward control in a number of languages necessitates a *θ-movement* analysis.

In this model, as long as an argument is active (i.e. not all of its features are valued), there are no restrictions on the number and type of operations it may enter into. For instance, arguments may accrue multiple thematic roles, if there is no intervening licensing position. As a result, movement is possible from any type of deficient position. I assume also that infinitival verbs project an external argument position, which may be occupied by the null nominal PRO. PRO is taken to be special in that it is somehow licensed in what it is otherwise a deficient position (see chapter 4 for an explicit proposal along these lines). It follows from this that movement and control of PRO are both available to derive obligatory control.

The empirical basis of this model rests on the observation that there are two types of OC complements that have the properties of *θ-movement* and PRO-control, respectively. An overview of these characteristics that will be argued to belong to *θ-movement* and PRO-control is given in Table 1. Note that these are all properties that are naturally associated with the relevant constructions.<sup>5</sup>

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3 Noam Chomsky (p.c.) points out that a movement analysis of OC does not necessitate the assumption that movement into a *θ*-position is licit. I can see several ways in which such an account could be formulated. One option is to see movement-derivations of OC as a more lexical process, in which multiple thematic roles are assigned in the lower position. Another option is to view thematic roles as featural and allow an ECM-like derivation in which the higher verb assigns its external *θ*-role long-distance. It is difficult to see what empirical fact would distinguish these theories from one in which movement into a *θ*-position is possible. I adopt a *θ-movement* analysis here, however, involving movement into a thematic position, because this allows a straightforward account of the interaction of inherent case and movement, as discussed in section 3.3.

4 This asymmetry actually follows from the assumptions outlined in this paragraph. If movement is possible from any deficient position, it should be available with every OC verb. PRO, however, may impose licensing conditions, because remains in the OC complement. As such, we might expect PRO to be restricted to some OC environments.

5 Some authors have assumed that PRO can pick up case through transmission (e.g. Þráinsson 1979; San Martín 2004; Landau 2004, 2006, 2008; Sigurðsson 2008). This assumption, however, is motivated only by the attested case patterns (see, for instance, section one). A priori, without any knowledge of the empirical

**Table 1:** Properties of  $\theta$ -movement and PRO-control

$\theta$ -movement	PRO-control
<ul style="list-style-type: none"> <li>- Only one case is necessary.</li> <li>- One argument occupies both argument positions.</li> <li>- One argument carries multiple thematic roles.</li> <li>- The lower copy can be spelled out instead of the highest copy.</li> <li>- OC is possible into any type of deficient position.</li> </ul>	<ul style="list-style-type: none"> <li>- Each position has its own case.</li> <li>- The higher and the lower position are occupied by independent arguments.</li> <li>- The higher and the lower position have independent <math>\theta</math>-roles.</li> <li>- PRO is limited to non-finite positions.</li> </ul>

As noted, this paper demonstrates that these types of obligatory control can be differentiated consistently. A number of methods achieve this. First, embedding a case-sensitive secondary predicate, participle or floating quantifier allows the two different case patterns to be brought to light.<sup>6</sup> Second, inducing a superset reading of the lower position, the effect known as *partial control*, diagnoses the presence of PRO. Third, it is argued that movement from an inherent case position to a  $\theta$ -position is ungrammatical, on the basis of data from Icelandic (e.g. Eythórsson and Barðdal 2005; Sigurðsson 2008; Bobaljik and Landau 2009). As a result, embedding a verb that assigns inherent case to its subject also serves to filter out PRO-control. Finally, on the basis of data from NOC, it is claimed that PRO is incompatible with subject-verb agreement. Finite complement clauses may then serve to isolate the effects of  $\theta$ -movement. This is also shown to shed some light on the availability of backward control. Taken together, this is evidence not only that there are two types of OC, but that these specifically have the properties of movement and PRO.

## 2.1 On Case-sharing and Case Independence

In infinitival OC clauses, the pattern of case brings out two types of complements.<sup>7</sup> In the first type, which I refer to as *case-sharing*, the higher and the lower position carry the same case, as in raising. A second type is characterised by *case independence*. In these constructions, the lower position has a case that is distinct from that of the higher position, just as in NOC. A priori, these are the properties we would then associate with  $\theta$ -movement and PRO-control. Since  $\theta$ -movement should not differ from raising in terms of case (though see section 2.2), we expect case-sharing. Similarly, we expect PRO-control to pattern with NOC and, as such, we

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picture, we would expect only the opposite, namely that PRO is like any other argument and acquires case independently. This is the simplest possible model and, therefore, the null hypothesis.

6 Actually, this diagnostic is limited in an important way, in that it only obtains in non-finite clauses. As such, it is not really the case that case independence is exclusively a property of PRO-control *in all contexts*, as discussed in footnote 23.

7 I define infinitival clauses here as clauses that lack subject-verb agreement in languages that otherwise make use of agreement (see chapter 4).

expect case independence. Although many authors have assumed that PRO can acquire case from its antecedent (e.g. San Martín 2004; Landau 2004, 2006, 2008; Sigurðsson 2008), this requires a special mechanism and is motivated only by the attested case patterns. The null hypothesis is that PRO is like any other argument and checks case independently.

The pattern of case assignment in infinitival OC clauses emerged in early work on case concord in Ancient Greek, Icelandic and Russian (Andrews 1971, 1976; Comrie 1974). Case concord refers to a situation in which a secondary predicate, participle or floating quantifier agrees in case with an argument. In Russian, for instance, the form of the secondary predicate *odin* ‘alone’ varies along with the case of its antecedent (1a-b).

(1) **Secondary elements agree in case:**

- a. Taras prišël odin.  
 Taras.NOM came alone.NOM  
 ‘Taras came alone.’
- b. Ja našel ego odnogo.  
 I.NOM found him.ACC alone.ACC  
 ‘I found him alone.’  
 (Landau 2008: 882)

By embedding such a predicate in an OC clause, the case of the lower position can be diagnosed, because it will agree with the secondary element in case. This has been used productively to examine the behaviour of case in OC.

The first type of complement that this work uncovered is one in which one case is shared between the lower position and the higher position (e.g. Andrews 1971, 1976; Comrie 1974). Case-sharing is widely attested and has since been observed also in a number of other languages which use infinitival clauses in OC, such as Lithuanian (Timberlake 1988), Polish (Franks 1995; Przepiórkowski and Rosen 2004), Czech (Franks 1995; Przepiórkowski and Rosen 2004), Slovene (Franks 1995), Latin (Cecchetto and Oniga 2004) and Italian (Cecchetto and Oniga 2004). Some examples are given in (2a-g), with the higher argument and the relevant secondary predicate, participle or floating quantifier indicated in bold.

(2) **Case-sharing is possible in OC:**

- a. Ona proposila ego ne ezdit' tuda odnogo.  
 she.NOM ask.PAST **he.ACC** not go.INF there **alone.ACC**  
 ‘She asked him not to go there alone.’  
 (Russian; Landau 2008: 886)
- b. Marie naučila Honzu chodit domů střízlivého.  
 Marie.NOM teach.PAST **Honza.ACC** go.INF home **sober.ACC**  
 ‘Marie taught Honza to come home sober.’  
 (Czech; Przepiórkowski and Rosen 2004: 38)
- c. General je poslal stotnika delat bolnega.  
 general AUX.3SG send.PAST **captain.ACC** work.INF **sick.ACC**

- ‘The general sent the captain to work sick.’  
(Slovene)
- d. Ólafi fannst gaman að vera fyrstum.  
**Olaf.DAT** found fun to be.INF **first.DAT**  
‘Olaf found it fun to be number one.’  
(Icelandic; Sigurðsson 2008: 415)
- e. ku:rou edeonto ho:s prothumotatou genesthai.  
**Cyrus.GEN** beg.PAST.3PL as **most.devoted.GEN** be.INF  
‘They begged Cyrus to be as devoted to them as possible.’  
(Ancient Greek; Andrews 1971: 130)
- f. Zakistrijonas man liepè būti stropesniam.  
deacon.NOM **me.DAT** tell.PAST be **more.diligent.DAT**  
‘The deacon ordered me to be more diligent.’  
(Lithuanian; Timberlake 1988: 191)
- g. Pięć kobiet bało się być niespokojnych.  
five.ACC **girls.GEN** feared be.INF **uneasy.GEN**  
‘Five girls were afraid to be uneasy.’  
(Polish; Przepiórkowski and Rosen 2004: 36)

In all of these examples, the case on the agreeing element in the lower clause appears to originate in the higher clause. In (2a-c), it is structural nominative or accusative that appears to be transmitted downward. In (2d-g), the same happens with a quirky case. We can conclude then that the higher position can, at least in some instances, determine the case of the lower position. We can derive this if these are instances of  $\theta$ -movement. Under this analysis, the OC argument is merged in the lower clause and then raises into the finite clause to check case.<sup>8</sup>

That movement indeed creates this pattern can be confirmed by looking at raising (see Hudson 1998, 2003, Przepiórkowski 2004 and Przepiórkowski and Rosen 2004 also for this argument). As the examples in (3a-e) illustrate, raising always produces case-sharing in these languages.

(3) **Raising produces case-sharing:**

- a. Ég tel strákana hafa verið kitlaða.  
I.NOM believe **boys.ACC** have.INF been **tickled.ACC**  
‘I believe the boys to have been tickled.’  
(Icelandic; Bobaljik and Landau 2009: 115)
- b. ape:ngelthe: Philippos hu:mi:n He:raion teikhos poliorko:s.  
was.reported **Philip.NOM** by.you Herian wall **besieging.NOM**

<sup>8</sup> There a number of theories that can be employed to explain how case ends up on the secondary predicate (e.g. Frampton and Gutmann 2000; Matushansky 2008). The point of this section is that adopting a dual-route account of OC means that whatever account of case concord that suffices for monoclausal environments will suffice for OC. No special assumptions are necessary, such as PRO's special status for case concord in a PRO-only theory, unlike in single-route theories.

- ‘Philip was reported by you to be besieging the Herian wall.’  
(Ancient Greek; Andrews 1971: 135)
- c. Pięć kobiet wydawało się być niespokojnych.  
five.ACC **girls**.GEN seemed be.INF **uneasy**.GEN  
‘Five girls seemed to be uneasy.’  
(Polish; Przepiórkowski and Rosen 2004: 36)
- d. Pět poslanců se zdálo být nespokojených.  
five.NOM **MPs**.GEN seem.PAST be.INF **dissatisfied**.GEN  
‘Five MPs seemed to be dissatisfied.’  
(Czech; Przepiórkowski and Rosen 2004: 37)
- e. Jai reikai būti pasiruošusiai.  
**her**.DAT must be **prepared**.DAT  
‘It is necessary for her to be prepared.’  
(Lithuanian; Timberlake 1988: 190)

In (3a-e), case on the lower position is again determined by the higher position, regardless of whether the higher argument bears structural or lexical case. If case-sharing OC complements are then derived by  $\theta$ -movement, the observed similarity is straightforwardly explained.

Another way of deriving the case-sharing pattern and the similarity between OC and raising in this respect would be to assume that a subset of OC cases is derived by means of restructuring instead of through  $\theta$ -movement. Indeed, there a number of OC contexts that appear to require a restructuring analysis on independent grounds (e.g. Wurmbrand 2001; Cinque 2006). A significant problem, however, is that case-sharing is possible with almost all types of OC verbs. Restructuring effects, such as clitic climbing, the German long passive, in contrast, are typically only available with a specific class of verbs. As such, there is no notion of restructuring of which the distribution overlaps with the distribution of case-sharing. It would then be necessary to assume a new type of restructuring, broader in its distribution and distinct from other forms of restructuring. It is unclear to me exactly how this could be done.

There is a consistent class of exceptions to the case-sharing pattern. In these OC constructions, the lower position is associated with an independent case, distinct from that of the higher position. This case independence pattern has also been a consistent finding (4a-f) (e.g. Andrews 1971, 1976; Comrie 1974; Þráinsson 1979; Timberlake 1988; Franks 1995; Przepiórkowski 2004; Przepiórkowski and Rosen 2004). Recall that in the simplest possible model, this is the pattern that PRO creates.

(4) **Case independence is possible in OC:**

- a. Bræðurnir æsktu þess að vera báðum boðið.  
**brothers**.NOM wish.PAST it to be.INF **both**.DAT invited  
‘The brothers wished to both be invited.’  
(Icelandic; Sigurðsson 2008: 410)
- b. Bræðrunum líkaði illa að vera ekki báðir kosnir.  
**brothers**.DAT like.PAST ill to be.INF not **both**.NOM elected

- ‘The brother disliked not being both elected.’  
(Icelandic; Sigurðsson 2008: 410)
- c. Ona    proposila ego    ne ezdit' tuda odnomu.  
she.NOM ask.PAST   **he.ACC** not go.INF there **alone.DAT**  
‘She asked him not to go there alone.’  
(Russian; Landau 2008: 886)
- d. Sumpherei   autois   philous    einai.  
advantageous **them.DAT** **friends.ACC** be.INF  
‘It is advantageous to them to be friends.’  
(Ancient Greek; Andrews 1971: 148)
- e. General je       ukazal   stotniku    iti    na zabavo pijan  
general   AUX.3SG order.PAST **captain.DAT** go.INF to party **drunk.NOM**  
‘The general ordered the captain to go the party drunk.’  
(Slovene)
- f. Marie    nařídila   Honzovi   přijit   střizlivý.  
Marie.NOM order.PAST **Honza.DAT** come.INF **sober.NOM**  
‘Marie ordered Honza to come sober.’  
(Czech; Przepiórkowski and Rosen 2004: 38)

Case independence manifests itself in two ways. In (4a), case on the lower position is lexical. In (4b-f), case on the lower position appears to be structural. In both cases, what is important is that the relevant case is distinct from that of the higher position. This type of OC complement is then different in an important sense from the one in (2a-g), in which the two positions share a case. This pattern is that of finite clauses, in which every argument position is associated with an independent case and what appears to be a structural case alternates with lexical cases. This difference is accounted for in a straightforward manner if case independence configurations are instances of PRO-control.

That the apparently structural case in these clauses is not the result of a failure of case assignment is evidenced by a number of facts. In Russian, the secondary predicate *odin* ‘alone’ is found only in an agreeing form and in a dative form in OC. This dative does not have the distribution of instrumental case, which can in non-agreeing configurations. As such, the most straightforward explanation of these facts is that the lower position carries dative case. For Icelandic, Sigurðsson (2008) and Bobaljik and Landau (2009) have argued extensively that the nominative is not a default. It is widely available – in fact, preferred in many contexts – and otherwise agrees fully in  $\phi$ -features. In addition, the nominative is never possible when the antecedent occupies an inherent case position. Finally, in all of these languages, raising *only* produces case-sharing. If any of these independent cases are simply default options that arise because of a lack of case in infinitival subject positions, they should show up also in at least some raising complements. I conclude then that the case on the secondary predicate or floating quantifier in (4a-f) is indeed the case of the lower subject.

In support of this, we find that the same pattern appears in non-obligatory control. This confirms that case independence is what a PRO analysis should lead us to expect. Some

examples from Russian, Icelandic, Czech, and Slovene are given below (5a-d). Note that we again find dative in Russian and nominative in Icelandic, Czech and Slovene.

(5) **NOC produces case independence:**

- a. Ivan      dumaet čto pojtí domoj odnomu važno.  
 Ivan.NOM thinks that go.INF home **alone.DAT** important  
 ‘Ivan thinks that it is important to go home alone.’  
 (Russian; Landau 2008: 885)
- b. Að vera ríkur er ágætt.  
 for be.INF **rich.NOM** be.3SG nice  
 ‘To be rich is nice.’  
 (Icelandic; Sigurðsson 2008: 416)
- c. Být opilý znamená být hloupý.  
 be.INF **drunk.NOM** means be.INF **stupid.NOM**  
 ‘To be drunk means to be stupid.’  
 (Czech; Przepiórkowski and Rosen 2004: 38)
- d. Iti na delo pijan je neprofesionalno.  
 go.INF to work **drunk.NOM** AUX.3SG unprofessional  
 ‘To go to work drunk is unprofessional.’  
 (Slovene)

Some instances of obligatory control then pattern with non-obligatory control, in that both are characterised by case independence. I conclude that these constructions are derived in the same way. If case independence constructions in OC involve a PRO, the similarity with non-obligatory control is derived.

In this way, diagnosing the case of the lower position in infinitival control clauses brings out two different types of OC, one in which case is shared between the two positions and one in which it is not. The first of these is identical to raising, while the second behaves exactly like non-obligatory control. The simplest account of these facts is then one in which  $\theta$ -movement underlies case-sharing and PRO-control underlies case independence.<sup>9</sup> Variation in case in OC is then straightforwardly explained, allowing a significant amount of empirical complexity to be derived. In addition, case can then help us distinguish between  $\theta$ -movement and PRO-control complements.

This approach avoids some of the conceptual problems that single-route accounts of OC run into. In a movement-only analysis, for instance, some special mechanisms are necessary to account for the asymmetry between OC and raising. Specifically, the fact that case independence is possible in obligatory control is problematic, because it is not attested in raising in the same languages. As such, some account of this disparity is necessary. Boeckx, Hornstein and Nunes (2010), for instance, postulate two morphological mechanisms to deal

<sup>9</sup> In recent work on OC phenomena in HPSG, Hudson (1998, 2003) and Przepiórkowski (2004; Przepiórkowski and Rosen 2004) have independently argued for a similar analysis, although, in this theory, subject control is exclusively derived through structure-sharing, the HPSG counterpart of movement. This cannot be correct, considering (6a,c), but the proposal is in the same spirit.



with Icelandic case data, one in which case can be copied onto an unvalued secondary predicate and one which assigns nominative case as a default. These then interact with locality differences between OC and raising (Boeckx, Hornstein and Nunes 2010: 125, fn. 9).

A PRO-only analysis similarly requires a number of special assumptions, because of the prevalence of case-sharing configurations. The existence of these force a departure from the simplest possible model and require the assumption that PRO can check case against its antecedent. A mechanism of transmission is then necessary which not only allows PRO to acquire case through multiple routes, but also explains why there are no apparent restrictions on case transmission. Lexical or inherent cases, for example, are shared with the lower position in the same way that structural cases are (6a-c).

(6) **Quirky cases undergo case-sharing:**

- a. Ji patarė jam būti pasiruošusiam.  
she.NOM advise **he.DAT** be **prepared.DAT**  
'She advised him to be prepared.'  
(Lithuanian; Timberlake 1988: 191)
- b. Ólafi fannst gaman að vera fyrstum.  
**Olaf.DAT** found fun to be.INF **first.DAT**  
'Olaf found it fun to be number one.'  
(Icelandic; Sigurðsson 2008: 415)
- c. ku:rou edeonto ho:s prothumotatou genesthai.  
**Cyrus.GEN** beg.PAST.3PL AS **most.devoted.GEN** be.INF  
'They begged Cyrus to be as devoted to them as possible.'  
(Ancient Greek; Andrews 1971: 130)

If case transmission is structurally conditioned, then we might have expected to find such restrictions. Quirky case is, after all, tied to specific  $\theta$ -roles or positions. PRO does not fulfil either requirement (*cf.* Martin 1996). Some specific assumptions are then necessary to make a transmission mechanism pick out the right configurations. Attempts at this type of account can be found in Landau (2007, 2008) and Matushansky (2008).<sup>10</sup>

10 What might be especially problematic for such a transmission account is the fact that DP-internal cases also participate in case-sharing. In Polish and Czech, for instance, the genitive case that numerals assign to nouns may show up on the secondary predicate (ia-b).

(i) **DP-internal cases may undergo case-sharing:**

- a. Pět poslanců se bálo být upřímných.  
five.NOM **MPs.GEN** feared be **frank.GEN**  
'Five MPs were afraid to be frank.'  
(Czech; Przepiórkowski and Rosen 2004: 37)
- b. Pięć kobiet bało się być niespokojnych.  
five.ACC **girls.GEN** feared be **uneasy.GEN**  
'Five girls were afraid to be uneasy.'  
(Polish; Przepiórkowski and Rosen 2004: 37)

In these examples, genitive case is shared between the two positions, triggering agreement on the secondary predicate just as in a monoclausal environment. If there is a mechanism of case transmission at work, it can then not exclusively be operating by means of structural case assigners external to the higher argument, because these simply do not carry genitive case in these examples. In the Czech example, we can even see

A dual-route model that allows both  $\theta$ -movement and PRO-control has a significant conceptual advantage over single-route theories in deriving the pattern of case in infinitival clauses. The case data demonstrate that there are two types of OC complements, one that patterns with raising and one that resembles non-obligatory control. This empirical complexity is straightforwardly derived in such a model. In this way, secondary predicates that are sensitive to case allow the properties associated with  $\theta$ -movement and PRO-control to be differentiated. In the rest of this paper, three other ways in which these two constructions can be separated from each other will be discussed. These properties will be shown to correlate predictably with the case differences noted here.

## 2.2 On Partial and Exhaustive Control

In this section, inducing a superset reading of the lower position is shown to differentiate two types of obligatory control. Some OC complements allow a superset, or *partial control*, reading of the lower position (Wilkinson 1971; Williams 1980; Landau 2000). Because, in PRO-control, the higher and the lower position are occupied by distinct nominals, referential differences are not unexpected. In  $\theta$ -movement, however, one element occupies multiple positions and such an effect should not be possible. In support of this, it is observed that partial control is never possible in raising. Not only is this evidence for the existence of PRO-control, whether an OC complement allows partial control is shown to correlate with whether it allows case independence. In this way, there is direct evidence for the idea that OC complements with case-sharing have the properties of  $\theta$ -movement and OC complements with case independence have the properties of PRO-control.

Wilkinson (1971) first noted that a superset reading of the lower position is possible with some OC verbs (see also Williams 1980; Landau 2000). In the examples below, for instance, the subject of the lower clause refers to both Calvin and Hobbes, even though the higher argument only picks out one of these (7a-c).

- (7) **Lower position can denote a superset in OC:**
- a. Calvin denied throwing snowballs at Susie together.
  - b. Hobbes promised to read comics together.
  - c. Calvin expected to trek to the Yukon together.

In (9a), for instance, the understood subject of *to throw snowballs at Susie together* is Calvin and Hobbes. Nevertheless, the higher argument only refers to Calvin. The interpretation of the lower position is clearly constrained by the identity of the higher argument, but only insofar that the former should at least include the latter. Landau (2000), calling these instances of *partial control*, points out that these are actually instances of obligatory control.<sup>11</sup>

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this directly, because the numeral shows that structural case is active. Even a case percolation mechanism, along the lines of Matushansky (2008), has problems dealing with this pattern, because the lower clause is not contained in the phrase to which the numeral assigns case. As such, some non-trivial machinery is necessary to derive the right patterns.

<sup>11</sup> Wilkinson (1971) is the first to make this observation, noting that partial control readings can be

That is, they behave like OC in all the relevant tests.

This interpretive asymmetry suggests that the elements occupying these positions are formally distinct at some level. I conclude from this that these constructions are established by PRO-control, because  $\theta$ -movement or restructuring should only give rise to indistinctness. Indeed, superset readings are trivially also possible in non-obligatory control (8a-b).

(8) **Lower position can denote a superset in NOC:**

- a. Hobbes felt that throwing snowballs at Susie together was gratifying.
- b. Calvin thought that trekking to the Yukon together was a great idea.

That partial control is not a property of movement is illustrated by raising and monoclausal sentences, in which partial control is ungrammatical (9a-d).

(9) **Lower position cannot denote a superset in raising:**

- a. \*Calvin seemed to trek to the Yukon together.
- b. \*Spaceman Spiff appeared to land on an alien planet together.
- c. \*Hobbes read comics together.
- d. \*Susie played house together.

Note, however, that some OC verbs do behave like raising verbs, as observed by Landau (2000). In these cases, the lower position cannot denote a superset of the higher position (10a-c).<sup>12</sup>

(10) **Lower position cannot denote a superset in some OC cases:**

- a. \*Calvin dared to throw water balloons together.
- b. \*Hobbes managed to read comics together.
- c. \*Calvin continued to trek to the Yukon together.

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differentiated from arbitrary readings of PRO. Williams (1980), however, classifies partial control as non-obligatory control.

12 Bowers (2008) argues that the contrast between (9a-c) and (12a-c) is not a reliable one. He uses examples like (iia-b).

(ii) **Apparent cases of partial control with exhaustive control verbs:**

- a. The union organiser didn't dare to gather during the strike.
- b. The chair managed to meet at six. (Bowers 2008: 139)

Although it is true that these sentences are not sharply ungrammatical for some (though many speakers do appear to reject both (iia-b) and (iiia-b)), Bowers's examples exclusively use collective verbs like *gather* and *meet*. As Bowers notes, these do not always reliably enforce semantic plurality, because the same type of variation is found in (iiia-b).

(iii) **Apparent cases of partial control in monoclausal sentences:**

- a. Supported by the rank and file, the organiser gathered every single day during the strike.
- b. It's weird – this minister gathers on Monday instead of Sunday! (Bowers 2008: 140)

As such, I only use partial control readings created by *together* here, because these appear to more reliably enforce the relevant distinction. Finally, Landau's (2008) survey of native speakers of Russian illustrates that partial control contrasts can be reliable across OC constructions. Bowers's examples are then mostly testament to interspeaker variability in obtaining partial control readings, particularly in the absence of secondary triggers, such as case in Russian.

Landau (2000) refers to these cases as *exhaustive control*, because the higher argument appears to exhaustively determine the reference of the lower argument. This can be explained if these OC constructions are instances of  $\theta$ -movement. The verb classes that do not permit partial control are then special only in that they only allow  $\theta$ -movement (see fn. 3). Similar contrasts have been documented in other languages, including German (Landau 2000; Wurmbrand 2002), Italian (Landau 2000; Cinque 2006), Brazilian Portuguese (Rodrigues 2007) and Russian (Landau 2008). Minimal pairs from some of these languages, and also from Slovene and Dutch, are given below (11-14).<sup>13</sup>

(11) **Exhaustive and partial control contrasts:**

- a. Hans erwog sich gemeinsam zu bewerben.  
 Hans contemplate.PAST SE together to apply.INF  
 ‘Hans contemplated applying together.’
- b. \*Der Beamte hat ihm empfohlen sich gemeinsam zu bewerben.  
 The clerk has him recommend SE together to apply.INF  
 ‘The clerk recommended applying together to him.’  
 (German; Wurmbrand 2002: 5-6)

- (12) a. Predsedatel' predpočel sobrat'sja vsem v šest'.  
 chair.NOM prefer.PAST gather.INF all.DAT at six  
 ‘The chair preferred to all gather at six.’
- b. \*Predsedatel' predpočel sobrat'sja vse v šest'.  
 chair.NOM prefer.PAST gather.INF all.NOM at six  
 ‘The chair preferred to all gather at six.’  
 (Russian; Landau 2008: 908)

- (13) a. Calvin je želel družno metati kepe.  
 Calvin.NOM AUX wanted in.company throw.INF snowballs  
 ‘Calvin wanted to throw snowballs together.’
- b. \*Calvin je uspel družno metati kepe.  
 Calvin.NOM AUX managed in.company throw.INF snowballs  
 ‘(lit.) Calvin managed to throw snowballs together.’

- (14) a. Calvin beloofde samen sneeuwballen te gooien.  
 Calvin promise.PAST together snowballs to throw.INF  
 ‘Calvin promised to throw snowballs together.’
- b. \*Het lukte Calvin om samen sneeuwballen te gooien.  
 It succeeded Calvin C.INF together snowballs to throw.INF  
 ‘(lit.) Calvin succeeded in throwing snowballs together.’

In these pairs, the (a) sentences all allow partial control, while it is ungrammatical in the (b) sentences. Partial control is then more evidence that some OC constructions behave like raising, while others pattern with NOC. This is straightforwardly explained if partial control

<sup>13</sup> Note that not all speakers accept partial control readings. As such, some speakers may reject the (a) examples in (11-14).

is taken to be a property of PRO.<sup>14</sup> Note also that the existence of partial control constitutes independent evidence for a PRO-control construction.

Under this account, partial control should then serve to isolate PRO effects. If a partial control reading is enforced, properties uniquely associated with movement should disappear. Case independence, as a property of PRO, should be brought out by partial control. Case-sharing, as a property of  $\theta$ -movement, should be ungrammatical in a partial control context, however. Finally, exhaustive control environments should only show case-sharing.

We can put these predictions to the test by looking at partial control in a language like Russian, in which case can be diagnosed using case concord phenomena. Landau (2008) observes that partial control in Russian is only grammatical in case independence configurations. He points out, without a partial control reading, case-sharing is possible - in fact, preferred for many speakers (an issue I will leave unaddressed here). In object control, case-sharing is similarly widely attested (15a-b). Floating quantifiers are used here to diagnose the cases of the lower position. Note that, in order to control for the influence of scrambling, the floating quantifier *vse* ‘all’ is scoped under embedded negation.<sup>15</sup>

(15) **Case-sharing is possible in subject and object control:**

- a. My predpočli ne prixodit' vse / ??vsem v šest'.  
 we.NOM prefer.PAST not come.INF all.NOM / all.DAT at six  
 ‘We prefer to not all come at six.’ not > all
- b. Ona poprosila ix ne prixodit' vse / vsem v šest'.  
 she ask.PAST them.ACC not come.INF all.ACC / all.DAT at six  
 ‘She asked them to not all come at six.’ not > all

If both case independence and partial control signal PRO-control, inducing partial control reading should affect these preferences. Indeed, when a partial control reading is induced, the pattern is reversed and case independence is the only option in both constructions, as observed by Landau (2008) (16a-b).

(16) **In partial control, case-sharing is impossible:**

- a. Ona predpočla ne sobirat'sja \*vse / vsem v šest'.  
 she.NOM ask.PAST not gather.INF all.NOM / all.DAT at six  
 ‘She preferred to not all gather at six.’ not > all
- b. Ona poprosila predsedatelja ne sobirat'sja \*vsex / vsem v šest'.  
 she ask.PAST chair.ACC not gather.INF all.ACC / all.DAT at six

14 Admittedly, explaining why PRO should allow partial control is not necessarily straightforward. It must be considered an LF effect, since Rodrigues’s (2007) discussion of Brazilian Portuguese shows that partial control does not affect the featural content of the lower position. However, we can at least understand why some OC complements pattern with raising and the subjects of monoclausal sentences. One option is to say that, at LF, PRO’s set of referents can be expanded because it does not enter the derivation with a prespecified reference. We could speculate then that PRO is different from other anaphors in that these interact with reflexive predicates (*cf.* Reinhart and Reuland 1993; Reuland 2001), which impose identity restrictions.

15 My thanks to David Pesetsky (p.c.) for suggesting this.

‘She asked the chair to all gather at six.’ not > all

Similarly, in object control, optionality disappears under partial control, leaving only the independent case option. Partial control and case independence then indeed correlate, as predicted.

This asymmetry clearly argues in favour of a connection between partial control and case independence. Taking partial control as a property of PRO, we can conclude from this that case-sharing constructions do not have a PRO underlyingly. Rather, the correlations described above argue for a  $\theta$ -movement derivation of case-sharing.<sup>16</sup>

In accordance with this, we should find that OC verbs that do not allow partial control do not allow case independence. As noted, in object control in Russian, both case-sharing and case independence are possible, as (17a) also shows. When an exhaustive control verb that does not allow partial control, such as *zastavit* ‘force,’ is used (17b), however, this optionality disappears (17c).

(17) **Case independence not an option for exhaustive control verbs:**

- a. Ja poprosil ix tuda sročno ?vsex / vsem ujexat'.  
I.NOM ask.PAST them.ACC there urgently all.ACC / all.DAT travel.to.INF  
‘I asked them to all travel there urgently.’
- b. \*Ja zastavil otca tuda vsex / vsem ujexat'.  
I.NOM force.PAST father.ACC there all.ACC / all.DAT travel.INF  
‘(lit.) I forced the father to all travel there.’
- c. Ja zastavil ix tuda vsex / \*vsem ujexat'.  
I.NOM force.PAST them.ACC there all.ACC / all.DAT travel.to.INF  
‘I forced them to all travel there.’

Taken together, these facts are evidence not only that there are two ways to derive OC, but also that these specifically have the properties of  $\theta$ -movement and PRO-control. This offers a straightforward account of the connection between case independence and partial control, on the one hand, and between case-sharing and exhaustive control, on the other. These are simply natural properties of both configurations.

A PRO-only account of these facts, on the other hand, has to explain why PRO does not allow partial control readings in some contexts. It needs recourse to a special mechanism that is sensitive to the referential properties of PRO. Landau’s (2000, 2006, 2008) theory of partial control, for instance, has to make a number of specific stipulations about the way semantic plurality is encoded, particularly in relation to tense.<sup>17</sup> In addition, a PRO-only

16 Note that a restructuring account would again make the same predictions. Indeed, Cinque (2006) proposes for Italian that exhaustive control is derived by means of restructuring. The same objections apply, however. Although exhaustive control may indeed be limited to a specific class of verbs, case-sharing obtains much more widely. As such, there is no one-to-one correspondence between the distribution restructuring effects and the contexts for which I postulate  $\theta$ -movement here.

17 A problem internal to this account is that not all internally tensed complements allow partial control. In Russian, for example, a non-simultaneous reading is possible with case-sharing (iv).

(iv) **Case-sharing complements are tensed, yet do not allow partial control:**

analysis needs a special mechanism to account for the connection between partial control and case independence (e.g. Landau 2008), because this correlation does not follow from any a priori property of PRO.

It is even more difficult to see how these data could be explained in a movement-only account of OC phenomena. There are a number of proposals in the literature that attempt to derive partial control in the framework of the Movement Theory of Control (e.g. Barrie and Pittman 2004; Rodrigues 2007; Snarska 2008; Witkos and Snarska 2008), but these suffer from the problem that partial control needs to be limited to certain movement environments. Rodrigues (2007), for instance, proposes a null associative morpheme, which can be stranded in movement. Although this derives partial control readings, it does not explain why these are absent in raising or in monoclausal sentences.<sup>18</sup> In general, a problem with this kind of approach is that there are no independently attested effects in which a trace of movement can be interpreted as a superset. Finally, a movement approach has no reason to expect partial control to correlate with any other OC property. As such, an account of this relationship is also necessary.

In this way, the OC account proposed here has a significant advantage over other accounts. Nothing needs to be said beyond the observation that partial control is a property of PRO. The correlations between partial control and case independence, on the one hand, and exhaustive control and case-sharing, on the other, then follow straightforwardly. This is a significant argument in favour of the idea that different structures underlie OC phenomena and that these specifically have the properties of  $\theta$ -movement and PRO-control.

### 2.3 On the Expression of Inherent Case in OC

There is one other important diagnostic for PRO, alongside partial control. In this section, I argue that embedding a verb that assigns inherent case to its subject is only possible in the PRO-control variant of OC. It is claimed that the lower OC position cannot be quirky in  $\theta$ -movement, on the basis of two facts from Icelandic. First, embedding a quirky case verb results in case preservation in raising, but never in obligatory control. Second, with some OC

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Včera ona reshila sobrat'sja vse / ?vsem zavtra v šest'.  
 yesterday she.NOM decided gather.INF all.NOM / all.DAT tomorrow at six  
 'Yesterday, she asked them to all gather at six tomorrow.'

As I discussed in section two, case-sharing configurations do not tolerate partial control. As such, it cannot be the case that it is only internal tense that gives rise to partial control, contra Landau's (2000, 2006, 2008) assumptions.

18 Rodrigues (2007: 222) appeals to the idea that modality may license partial control, following Wurmbrand (2007), pointing to sentences like (va). However, it is not clear that this is a robust effect and not due to the interference discussed in Bowers (2008) (see fn. 9), as (vb) illustrates.

(v) **Effect of modality on partial control:**

- a. I can try to meet tomorrow.
- b. \*I can try to sing a song together tomorrow.

In addition, her proposal does not explain why superset readings are out in simple sentences or in raising. As Abusch (2004) notes, there are tense contrasts in raising also, along the lines documented for OC by Wurmbrand (2007). As such, we cannot claim that embedded modality is unique to OC. Finally, not all internally tensed environments allow partial control, casting doubt on the claim that it is this difference that gives rise to partial control (see fn. 12).

verbs, embedding a verb that assigns inherent case to its subject gives rise to ungrammaticality. We can account for these facts if a  $\theta$ -movement derivation is blocked in these configurations.

I offer an account of the ungrammaticality of  $\theta$ -movement in these configurations in terms of an LF condition on the interpretation of inherent case. As a result, inherent case on the lower position serves as a diagnostic for PRO-control. In accordance with this, the ability to embed a quirky verb is shown to correlate with the ability to have a partial control reading. In this way, it is a diagnostic for the presence of PRO and further evidence for the fact that there are two structurally different types of obligatory control.

Before going into these correlations, it is important to establish why inherent case should serve as a diagnostic for PRO, as claimed here. To understand this, it is first necessary to go back to a classic observation about case preservation in Icelandic OC. In Icelandic, there is one context in which case concord in OC is dissimilar from raising in an interesting way, as noted by, among others, Þráinsson (1979), Sigurðsson (2008) and Bobaljik and Landau (2009). In raising, inherent case on the lower position is preserved (18). Crucially, this inherent case resists overwriting by the nominative case that is ordinarily assigned to the finite subject.

(18) **Inherent case is preserved in raising:**

Mönnunum virðist báðum hafa verið hjálpað.  
 boys.DAT seem both.DAT have been helped.DFT  
 ‘The boys both seem to have been helped.’  
 (Sigurðsson 2008: 419)

If OC phenomena and raising are, at least in some instances, derived in the same way, we would expect this case preservation to be possible in OC also. However, case preservation is ungrammatical in obligatory control (19a-d).

(19) **Inherent case is not preserved in OC:**

- a. Ólafur hafði ekki gaman af að leiðast einum í veislunni.  
 Ólaf.NOM have.PAST not pleasure of C be.bored alone.DAT in party.the
- b. \*Ólafi hafði ekki gaman af að leiðast einum í veislunni.  
 Ólaf.DAT have.PAST not pleasure of C be.bored alone.DAT in party.the  
 ‘Ólaf did not find it pleasurable to be bored alone at the party.’  
 (Sigurðsson 2008: 412)
- c. Ég vonaðist til að verða vitjað aleins á morgun.  
 I.NOM hope.PAST for C become.INF visit.PART all.alone.GEN at morning
- d. \*Mín vonaðist til að verða vitjað aleins á morgun.  
 I.GEN hope.PAST for C become.INF visit.PART all.alone.GEN at morning  
 ‘I hope to be visited all alone in the morning.’

Instead, the higher position can only bear nominative case (19a,c), in contrast with (18).



Crucially, however, as the floating quantifier *báðum* shows, dative case is nonetheless expressed in the lower position. This has been taken as evidence for a PRO-only account over a movement-only account of OC effects (e.g. Sigurðsson 2008; Bobaljik and Landau 2009). Because nominative case cannot overwrite inherent case, as in (18), if the relevant quirky case is indeed expressed, it should be preserved under movement.

At first glance, this is problematic for any OC account that allows a  $\theta$ -movement derivation. Within a theory that allows both a movement and a PRO derivation, however, there is another possibility. If the  $\theta$ -movement derivation is for some reason unavailable in these configurations, however, we expect the same empirical picture. In support of this idea, it turns out that there are other contexts in which inherent case cannot be expressed on the lower position (e.g. Þráinsson 1979; Eythórsson and Barðdal 2005; Sigurðsson 2008). Eythórsson and Barðdal (2005) observe, for instance, that quirky case verbs embedded under the OC verb *reyna* ‘try’ are ungrammatical (20a-b). Similar considerations apply to *byrja* ‘begin’ (20c-d).

(20) **Inherent case on lower position can cause ungrammaticality in OC:**

- a. \*Ég reyndi að falla þessar konur í geð.  
I.NOM try.PAST C fall.INF these women.NOM in liking  
‘I tried to like these women.’  
(Eythórsson and Barðdal 2005: 851)
- b. \*Ég reyndi að verða vitjað aleins á morgun.  
I.NOM try.PAST C become.INF visit.PART all.alone.GEN at morning  
‘I tried to be visited alone in the morning.’
- c. \*Ég byrja að vera hjálpað.  
I.NOM begin.1SG C be.INF help.PART.DFLT  
‘I began to be helped.’
- d. \*Ég byrjaði að verða vitjað aleins á morgun.  
I.NOM begin.PAST C become.INF visit.PART all.alone.GEN at morning  
‘I began to be visited all alone in the morning.’

From the perspective of a PRO analysis, this is unexpected, since these constructions should underlyingly be the same as (19a,c). If  $\theta$ -movement is illicit when the lower position bears inherent case, however, we can explain the ungrammaticality in (20a-d) and (19b,d) by saying that these are all movement-derived. This is the account that I adopt here. The question that arises then is why  $\theta$ -movement should be unavailable in this type of configuration.<sup>19</sup>

One aspect of a movement derivation that might play a role is the fact that it involves movement into a  $\theta$ -position. Icelandic quirky case is typically analysed as inherent and tied to specific  $\theta$ -roles (e.g. Jónsson 1996; Woolford 2006), so movement into a new thematic position could somehow disturb its interpretation. Specifically,  $\theta$ -movement is different from

19 This is one area in which a restructuring analysis of case-sharing might be at an advantage, because we can imagine a relatively straightforward account of why case preservation should be unavailable. Since the lower subject position is absent, the relevant inherent case cannot be expressed. However, we then do need to explain why case preservation *is* possible in Spanish restructuring (25a-b) (Gonzalez 1990).



v in subject control and v to T. Like v, Appl is assumed to function as a phase head when it hosts an argument position, but is defective when it does not.

Suppose then that inherent case is only interpretable in an A-position if it is in the same spell-out domain as its associated thematic position. This would predict that a  $\theta$ -movement derivation is unavailable in the OC case in (22). Specifically, I propose the interface condition in (23).

- (23) **Interpretability Condition on Inherent Case:** Inherent case in an A-position can only be interpreted at LF if the associated  $\theta$ -role is interpreted on the same Spell-Out cycle.

This should be conceived of as a condition on A-positions or, alternately, it could be assumed that interpretation of case occurs when an argument is fully licensed (at least for the purposes of A-movement). On this scenario, the condition in (25) can just apply generally.

Note that, once this restriction is allowed for, the locality condition in (25) is not such an unnatural condition on inherent case. In a phase-based theory, the assumption that thematic roles are configurational (i.e. determined only on the basis of the syntactic positions an argument occupies) entails that information about thematic roles has to be read off narrow syntax. The most natural place for this to happen is at the end of a spell-out domain. Suppose then that, at the end of each phase, the thematic information that is present in the spell-out domain is interpreted at LF. Assuming then that the interpretation of inherent case is dependent on the interpretation of the associated  $\theta$ -role, the locality condition in (23) is derived. This can also explain the failure of case preservation in obligatory control, given that failure to express inherent case leads to ungrammaticality.

In this account, the raising derivation in (21) is grammatical, because the highest A-position is in the same phase as the lower thematic position. This means that the lower thematic role is read off narrow syntax, and therefore accessible, in the same cycle in which the associated inherent case is interpreted. In the OC derivation in (22), however, the lower thematic role is interpreted in the first phase, headed by the higher v. The associated inherent case is not expressed until the next phase, at which point it is divorced from information about the relevant  $\theta$ -role. The interpretation of inherent case is then blocked. The expression of a structural nominative is also not possible, however, because this case can never overwrite an inherent case. As such, the derivation crashes.<sup>21</sup>

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- (vii) First phase:  
 $[_{VP} [_{DP} D\{NOM\}] v [_{VP} V [_{AppIP} Appl [_{TP} [_{DP} D\{DAT\}] T [_{VP} v [_{VP} V [_{DP} D\{DAT\}]]]]]]]]]$   
 **$\theta$ -movement (object control):**  
 \*Jón bað honum að leiðast ekki einum.  
 First phase:  
 $[_{AppIP} [_{DP} D\{DAT\}] Appl [_{CP} C [_{TP} [_{DP} D\{DAT\}] T [_{VP} [_{DP} D\{DAT\}] v [_{VP} V]]]]]]]$   
 Second phase:  
 $[_{VP} [_{DP} D\{NOM\}] v [_{VP} V [_{AppIP} [_{DP} D\{DAT\}] Appl [_{CP} C [_{TP} [_{DP} D\{DAT\}] T \dots ]]]]]]$

21 An alternative approach could be to say that assignment of a thematic role undoes the assignment of inherent case, following Boeckx, Hornstein, and Nunes (2010). In this account,  $\theta$ -role assignment entails stripping the relevant argument of any inherent case it might have. We could then assume that failure to express inherent case gives rise to ungrammaticality, creating an illicit derivation. Note, however, that this approach

This approach crucially predicts that the reverse situation, in which inherent case is associated with the higher thematic position, is grammatical. In this configuration, the highest A-position and the relevant thematic position are in the same spell-out domain. As such, a  $\theta$ -movement derivation should not be blocked and case-sharing should be possible. This is indeed true, as (6a-c), repeated here as (24a-c), illustrate.

(24) **Case-sharing possible when inherent case is in higher position:**

- a. Ji patarė jam būti pasiruošusiam.  
 she.NOM advise he.DAT be prepared.DAT  
 ‘She advised him to be prepared.’  
 (Lithuanian; Timberlake 1988: 191)
- b. Ólafi fannst gaman að vera fyrstum.  
 Olaf.DAT found fun C be.INF first.DAT  
 ‘Olaf found it fun to be number one.’  
 (Icelandic; Sigurðsson 2008: 415)
- c. ku:rou edeonto ho:s prothumotatou genesthai.  
 Cyrus.GEN beg.PAST.3PL AS most.devoted.GEN be.INF  
 ‘They begged Cyrus to be as devoted to them as possible.’  
 (Ancient Greek; Andrews 1971: 130)

Another consequence of this account is that case preservation is in principle possible in obligatory control, given the right locality conditions. An apparent construction of this kind is found in some variants of Spanish (Gonzalez 1990; Bošković 1994). The dative case that the verb *gustar* ‘like’ assigns to its subject can be preserved when embedded under the OC verb *querer* ‘want’ (25a-b).

(25) **Inherent case preserved in Spanish OC with *querer*:**

- a. A Polly le gusta el gato.  
 Polly.DAT CL like.3SG the cat  
 ‘Polly likes the cat.’
- b. A Polly quería gustarle el gato.  
 Polly.DAT want.PAST like.INF.CL the cat  
 ‘Polly wanted to like the cat.’

These are nonetheless OC constructions, as (26a) illustrates. One interesting fact, however, is that *querer* is a restructuring verb, as evidenced, for instance, by the fact that long-distance clitic climbing is possible (26b).

(26) **Multiple thematic roles and restructuring with *querer*:**

- a. \*El agua quería correr.  
 the water want.PAST flow.INF

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incorrectly predicts that the Spanish example in (28b) is ungrammatical.

- ‘(lit.) The water wanted to flow.’
- b. Lo quería comprar.  
 CL want.PAST buy.INF  
 ‘She wants to buy it.’

Restructuring is generally taken to indicate that the argument positions of the lower clause are in a more local position with the regard to the higher verb. Suppose we adopt the analysis of restructuring in Cinque (2006), for instance, in which restructuring constructions are monoclausal and the restructuring verbs is directly inserted in a left-peripheral position. Under this analysis, we can derive the availability of case preservation, despite the apparent existence of multiple thematic positions. This follows from the fact that all the relevant A-positions remain in the same spell-out domain.

If correct, this analysis entails that embedding a quirky verb is another way in which the presence of PRO can be diagnosed. This predicts then that partial control is possible exactly in those environments where inherent case is available on the lower position. Conversely, partial control should be blocked where inherent case is. We can return to the Icelandic data to examine this. Recall that *vonast* ‘hope’ is an example of a verb that allows inherent case in its complement, where *reyna* ‘try’ and *byrja* ‘begin’ do not. Partial control can be induced using the secondary predicate *saman* ‘together.’ As the examples in (27a-b) show, only semantic plurality is necessary to license it.

(27) ***Saman* is licensed by semantic plurality:**

- a. Fjölskyldan hafi borðað saman.  
 family.NOM.DET have.3SG eat.PART together  
 ‘The family has eaten together.’
- b. \*Hann borðaði saman.  
 He.NOM eat.PAST.3SG together  
 ‘(lit.) He ate together.’

Embedding *saman* in the relevant non-finite complements yields the relevant contrasts. As expected, although partial control is acceptable with *vonast* ‘hope’ (28a),<sup>22</sup> it is ungrammatical with *reyna* and *byrja* (28b-c).

(28) **Partial control correlates with the possibility of inherent case:**

- a. Ég hélt að hann vonaðist til að borða saman.  
 I.NOM think.PAST C he.NOM hope.PAST for C eat.INF together  
 ‘I thought that he hoped to eat together.’
- b. ??Ég hélt að hann reyndi að borða saman.  
 I.NOM think.PAST C he.NOM try.PAST C eat.INF together

22 Not all Icelandic speakers accept partial control. Halldór Sigurðsson (p.c.), for instance, rejects partial control across the board. For those that do allow the reading, however, the contrast in (31a-c) obtains, just as in their English counterparts.

- ‘(lit.) I thought that he tried to eat together.’
- c. ??Ég hélt að hann byrjaði að borða saman.  
 I.NOM think.PAST C he.NOM begin.PAST C eat.INF together  
 ‘(lit.) I thought that he began to eat together.’

If the ability to host a partial control reading correlates with the ability to embed a quirky subject, as I argue here, then this pattern is straightforwardly explained. Both rely on the presence of PRO. In this way, a previously unexplained fact about quirky case in obligatory control is derived from independently motivated assumptions about the way in which OC phenomena are established. In addition, the inherent case data once again demonstrate that there are two types of OC complements, which respond differently to the same syntactic environment.

In a single-route OC account, however, these data are less straightforward. Just like the approach developed here, some mechanism is necessary to account for the contrasts in the grammaticality of inherent case in both theories. In addition, however, the correlation between inherent case and partial control needs to be explained. As a result, some special mechanism is necessary to derive it. This is true both of a PRO-only and of a movement-only account of OC phenomena. Finally, a movement-only theory requires a special mechanism to explain the failure of case preservation in OC, as in Boeckx, Hornstein, and Nunes (2010). The present theory then has a significant empirical advantage over both OC accounts.

## 2.4 On OC and Subject-Verb Agreement

In this section, subject-verb agreement on the embedded verb is argued to be a diagnostic for  $\theta$ -movement, because PRO is not licit in agreeing positions. In support of this, OC complements with subject-verb agreement are shown to only display those properties that are compatible with movement.<sup>23</sup> Non-obligatory control, for instance, is absent in clauses with subject-verb agreement, but raising is attested. Finally, in some instances, the lower copy of the movement-chain can be spelled out instead of the higher one.

It is first necessary to motivate the claim that PRO is not licensed in positions with subject-verb agreement. Evidence for this comes from the fact that NOC always uses a specialised non-agreeing form. Romanian and Persian, for instance, which use agreeing

23 On the basis of section 2.1, we might also expect to only find case-sharing. However, it turns out that finite OC does not show any evidence of case-sharing. This is perhaps not so surprising once we realise that subject-verb agreement is commonly held responsible for case assignment (e.g. Chomsky 2000, 2001). Finite OC would then involve multiple case positions. I assume then that finite OC always involves a multiple case chain. In support of this, we find that inherent case is not restricted as in infinitival OC and can be expressed in the complements of exhaustive control verbs (Alboiu 2007). This might also be what is ultimately responsible for the backward control phenomenon discussed in this section, if case is held responsible for spelling out an argument. Indeed, backward control configurations appear to always involve a multiple case chain. What forces movement in these cases has to then be linked to some other factor. One generalisation about these cases is that finite OC complement cannot have internal tense, as many have noted (e.g. Iatridou 1988; Varlokosta 1993; Landau 2004). If this absence of tense corresponds to some failure in licensing, unrelated to case and thematic roles, this could be held responsible for the fact that coreference is obligatory in these constructions. See section 4.3 for an explicit proposal along these lines.

subjunctive verbs in OC otherwise, only employ a non-agreeing infinitive for non-obligatory control (29a-b).

(29) **NOC employs non-agreeing verbs:**

- a. A fi om e lucru mare.  
to be man is thing big  
'Being decent is a precious thing.'  
(Romanian; Alboiu 2003: 10)
- b. Kâr kard-an dar in sharâyet xeyli saxt-e.  
work do-INF in this conditions very difficult-is  
'Doing work in these conditions is very difficult.'  
(Persian; Karimi, to appear: 8)

In addition, in some languages, such as Greek and Romanian, null subjects in agreeing positions only allow a referential reading (30a-b). In Greek subjunctives, for instance, an arbitrary reading is only possible using the overt impersonal pronoun *kanis* 'one' (Roussou 2009). Third person singular *pro* only allows a referential reading (30a). The Romanian subjunctive behaves in the same way (30b).

(30) **Agreeing clauses do not take arbitrary readings:**

- a. Ine efkolo na fi*i*.  
is easy SUBJ leave.3SG  
'It is easy for him/her to leave.'  
(Greek; Roussou 2009: 1830)
- b. E usor sa plece.  
is easy SUBJ leave.3SG  
'It is easy for him/her to leave.'  
(Romanian)

There is thus reason to think that PRO is banned from positions with subject-verb agreement. This would make sense of the above empirical facts straightforwardly. If true, subject-verb agreement should then serve to bring out only  $\theta$ -movement derivations.

OC into clauses with subject-verb agreement is indeed found in a number of languages. This may involve subjunctive clauses or, sometimes, inflected infinitives. I will refer to this as *finite obligatory control*, or *finite OC* here. Examples of finite OC, in which the higher argument agrees with both the higher and the lower verb, are given below (31a-d).

(31) **Finite OC with co-indexed agreement:**

- a. O Janis prospa*θ*ise na katalavi.  
the Janis tried.3SG SUBJ understand.3SG  
'Janis tried to understand.'  
(Greek; Krapova 2001: 105)

- b. Ivan može da spečeli pari.  
Ivan can.3SG SUBJ make.3SG money  
'Ivan can make money.'  
(Bulgarian; Krapova 2001: 107)
- c. aræš mi-tun-e ke bi-ad  
Arash DUR-can-3SG C SUBJ-come-3SG  
'Arash can come.'  
(Persian; Ghomeshi 2001: 12)
- d. Victor încarceră să cinte.  
Victor try.3SG SUBJ sing.3SG  
'Victor tried to sing.'  
(Romanian; Alboiu 2007: 190)

In these examples, only coreference is grammatical. The lower subject must be co-indexed with a higher argument, even though the lower clause can host an independent subject when embedded under different verbs. In addition, only a sloppy reading of the lower position is possible under ellipsis, indicating that these are indeed instances of obligatory control. In section 4.3, I discuss why OC must be established into these finite clauses, drawing on the correlation between tense and OC (Iatridou 1988; Varlokosta 1993; Landau 2004).

In support of the idea that these may be treated as instances of movement, we find that raising out of agreeing positions is also attested, although it is less prevalent.<sup>24</sup> As in finite obligatory control, agreement on both verbs must be co-indexed (32a-d).

**(32) Raising out of agreeing clauses is attested:**

- a. Epiritidhes stamatisa na perno ta farmaka.  
on.purpose stop.PAST.1SG SUBJ take.1SG the medicine  
'I stopped taking medicine on purpose.'  
(Greek; Alexiadou and Anagnostopoulou 2002: 24)
- b. Lui Mihai pare să-i placă școala.  
Mihai.DAT seem.PAST.3SG SUBJ-CL.3SG.DAT like.3SG school.NOM  
'Mihai seems to like school.'  
(Romanian; Alboiu 2007: 201)
- c. axe-r p̄jəsmə-r a-txə-new ø-fežə-Ɂ-ex  
3PL-ABS letter-ABS 3PL.ERG-write-INF 3.ABS-begin-PAST-3PL.ABS  
'They began to write the letter.'  
(Adyghe; Potsdam and Polinsky 2009: 7)
- d. kid ziya b-išr-a y-oq-si.  
girl.II.ABS cow.III.ABS III.feed.INF II.begin.PAST.EVID  
'The girl began to feed the cow.'

<sup>24</sup> In Persian, for instance, although finite OC is attested, raising is not (Karimi, to appear). Instead, raising verbs are subjectless and take a finite complement with an in situ subject. Presumably, this relates to tense properties of the raising complement in Persian, in the same way that tense determines variation in finite OC (see fn. 17).



(Tsez; Polinsky and Potsdam 2002: 249)

In this way, OC and raising resemble each other, in that they apply in the same domains. Analysing these constructions as movement provides a straightforward account of this similarity.

Partial control is essentially undetectable in finite OC complements. An important characteristic of finite OC is that partial control verbs display a different behaviour than exhaustive control verbs, as observed by San Martin (2004) and Landau (2004). In fact, the relevant verbs do not establish an obligatory control relationship at all. In these constructions, the reference of the lower position is instead unrestricted (33a-d).

(33) **Partial control verbs take free reference in finite OC:**

- a.  $\Theta_{elo}$  na  $er\theta_i$ .  
want.1SG SUBJ come.3SG  
'I want him to come.'  
(Greek; Krapova 2001: 105)
- b.  $Ivan_i$  iska da  $ec_{ij}$  sledva.  
Ivan want.3SG SUBJ study.3SG  
'Ivan wants to go to college.'  
(Bulgarian; Krapova 2001: 107)
- c.  $pro_i$  mi-xa-m ke  $ec_{ij}$  bi-ad.  
DUR-want-1SG C SUBJ-come-3SG  
'I want (him/her) to come.'  
(Persian; Ghomeshi 2001: 14)
- d.  $pro_i$  vrea să  $ec_{ij}$  plece.  
want.3SG SUBJ leave.3SG  
'She/he wants (for him/her/them) to leave.'  
(Romanian; Alboiu 2007: 193)

In a sense, this aspect of obligatory control resembles non-obligatory control, in that, in both environments, we find free reference instead of OC. We could explain this if PRO differs from lexical arguments in that it does not need – and, in fact, cannot receive – whatever subject-verb agreement contributes to licensing. This would predict the alternation between PRO and free reference. I take up this possibility in chapter 4, in which I provide a theory of PRO that is based on this intuition.

A more tangible advantage of this account is that it may shed light on the phenomenon of *backward control*. An observation about OC that has received a more central place in recent work is the fact that the lower copy of an OC chain can sometimes be spelled out (Polinsky and Potsdam 2002, 2006; Potsdam 2006, 2009). Not only does this suggest that an argument may occupy two thematic positions at the same time, but it is also a way in which obligatory control resembles raising. There is evidence also of a backward raising construction, in Adyghe (Potsdam and Polinsky 2009). On its own, backward control then

already constitutes an argument for the idea that  $\theta$ -movement is possible.

What is interesting now about backward control is that it is found in exactly the type of OC complements described above, for which I proposed a movement analysis on independent grounds, in which only exhaustive control verbs establish OC. This pattern is found in OC complements with subject-verb agreement, as noted, but also in languages without agreement, such as Japanese and Malagasy. In this way, backward control is an argument for a movement analysis of these constructions.

Backward control has been documented in a variety of languages, including Malagasy (Potsdam 2006, 2009), Tsez (Polinsky and Potsdam 2002), Telugu (Haddad 2007) and Omani Arabic (Al-Balushi 2008). Although the status of the data is less clear,<sup>25</sup> there is some indication that there is a similar construction in Greek and Romanian (Alboiu 2007; Alexiadou et al., to appear). In these languages, the DP that is understood as an argument of both the higher clause and the lower clause can be spelled out in the lower clause (34a-d). The relevant argument is indicated in bold throughout.

(34) **Finite OC subject can be spelled out in the lower clause:**

- a. [kid-bā ziya b-išr-a] y-iči-s.  
 girl.II.ERG cow.III.ABS III.feed.INF II.CONTINUE.PAST.EVID  
 ‘The girl continued to feed the cow.’  
 (Tsez; Polinsky and Potsdam 2002: 247)
- b. naneren’ i Mery [hofafa- **ko** ny trano].  
 force.CT Mary sweep- I.NOM the house  
 ‘Mary forced me to sweep the house.’  
 (Malagasy; Potsdam 2006: 330)
- c. [**Ram-e** kam-tu kor-i] gusi gol.  
 Ram-NOM work do-CNP away went  
 ‘Having done the work, Ram left.’  
 (Telugu; Haddad 2007: 82)
- d. tgarra? [ʔinnu-h yi-msik **Talal** l-Guul].  
 dare.PAST.3SM that-3SM PRES-hold.3SM.SUBJ Talal.NOM the-snake.ACC  
 ‘Talal dared to hold the snake.’  
 (Omani Arabic; Al-Balushi 2008: 11)

A representative example is the case of Tsez, in (34a), documented in Polinsky and Potsdam (2002). In this language, the ergative subject of the lower clause is spelled out with some OC verbs (35a-b).

(35) **Lower ergative subject can be spelled out in Tsez:**

- a. [kid-bā ziya b-išr-a] y-oq-si.

25 Specifically, some of the key judgements are not very robust across speakers, making it difficult to rule out a scrambling analysis. Anna Roussou (p.c.) reports not getting the Principle C contrasts that are key to Alexiadou et al.’s (to appear) argumentation, for instance.

girl.II.ERG COW.III.ABS III.feed.INF II.begin.PAST.EVID

‘The girl began to feed the cow.’

- b. [kid-bā ziya b-išr-a] y-iči-s.

girl.II.ERG COW.III.ABS III.feed.INF II.continue.PAST.EVID

‘The girl continued to feed the cow.’

(Polinsky and Potsdam 2002: 247)

This ergative-marked argument is understood as the thematic subject of both clauses. In addition, as the verbal prefixes indicate, the ergative argument agrees with the higher verb. This is striking, because agreement in Tsez otherwise tracks absolutive arguments exclusively. To account for this, Polinsky and Potsdam propose that there is an absolutive-marked copy of the ergative argument in the higher clause. In support of this Polinsky and Potsdam show that, for the purposes of scrambling and clitic positioning, the ergative subject is treated as a member of the lower clause. Despite this, it behaves as if it is in the higher clause for the purposes of licensing depictives, reflexives and agreement on the higher verb. This pattern makes sense if there are two copies of the OC nominal, one in both clauses.

Another representative example is an alternation found in Malagasy (Potsdam 2006, 2009). In Malagasy object control, the OC argument can be spelled out in two positions (36a-b).

(36) **Malagasy OC argument can be spelled out in both clauses:**

- a. naneren’ i Mery ahy [hofafana ny trano].  
force.CT Mary I.ACC sweep the house
- b. naneren’ i Mery [hofafa- ko ny trano].  
force.CT Mary sweep- I.NOM the house  
‘Mary forced me to sweep the house.’  
(Potsdam 2006: 330)

Potsdam (2006, 2009) presents a number of facts in support of this analysis. Floating quantifiers can be stranded in the higher clause, even when the relevant argument is in the lower clause. In addition, Malagasy is not an object *pro*-drop language, so an analysis along these lines is implausible.

In support of the idea that this is a movement-related effect, there is a similar construction in raising, *backward raising*. A construction like this has been observed in Adyghe (Potsdam and Polinsky 2009). Adyghe, like Tsez, makes use of inflected infinitives and is a finite OC language. In this construction, the raising nominal can surface both with the absolutive case of the higher position and with the ergative case of the lower position (37a-b).

(37) **Raising argument in Adyghe can have case of both clauses:**

- a. axe-me pjəsmə-r a-txə-new ø-feža-ʁ-ex  
3PL-ERG letter-ABS 3PL.ERG-write-INF 3.ABS-begin-PAST-3PL.ABS

- ‘They began to write the letter.’
- b.    axe-r    pjəsmə-r a-txə-new    ø-feža-ɤ-ex  
       3PL-ABS letter-ABS 3PL.ERG-WRITE-INF 3.ABS-begin-PAST-3PL.ABS  
 ‘They began to write the letter.’  
 (Potsdam and Polinsky 2009: 7)

What is striking about this alternation is that the raising argument shows absolutive agreement with the higher verb regardless of what form it is in. To explain this, Potsdam and Polinsky (2009) propose that (37a) has the same underlying structure as backward control in Tsez. In other words, there is an absolutive copy of the same argument in the higher clause and the ergative-marked argument in (37a) is in the embedded clause. That these are indeed raising verbs is evidenced by the fact that idiomatic readings are preserved (38).

(38) **Idioms are preserved in Adyghe raising:**

- ə-pe            h<sub>w</sub>əzə-r    qərexjə-new ø-feža-ɤ  
 3SG.POSS-nose smoke-ABS blow-INF        3.ABS-begin-PAST  
 ‘(lit.) Smoke began to blow out of his/her nose.’  
 ‘She/he began to be furious.’  
 (Potsdam and Polinsky 2009: 10)

Potsdam and Polinsky (to appear) also show that these structures are biclausal, in that the clauses allow independent negation and event modification.

Facts from NPI licensing then indicate that the ergative argument is indeed in the lower clause, while the absolutive argument is in the higher clause. An NPI subject has to be licensed by negation on the verb in its clause. As the examples in (39a-b) show, the ergative argument is only licensed by negation on the lower verb. Conversely, the absolutive subject is only licensed by negation on the higher verb.

(39) **NPI data tracks case:**

- a.    \*zeč’erjə / zeč’emjə kjətajə-bze-r            a-mə-še-new  
       all.ABS / all.ERG Chinese-language-ABS 3PL.ERG-NEG-know-INF  
       qəčēč’ə-ɤ-ex  
       happen-PAST-PL
- b.    zeč’erjə / \*zeč’emjə kjətajə-bze-r            a-še-new            qəčēč’ə-ɤ-ep  
       all.ABS / all.ERG Chinese-language-ABS 3PL.ERG-know-INF happen-PAST-NEG  
 ‘Nobody happened to know Chinese.’  
 (Potsdam and Polinsky 2009: 17)

Data from scope readings nonetheless show that there is a copy of the raising subject in the higher clause in both constructions. Similar facts from reflexive-binding support this conclusion. In this way, Adyghe shows that backward raising is also possible.

The backward control and raising data are important in a few ways.<sup>26</sup> First, they present an argument for the idea that a nominal can occupy two thematic positions at the same time – strongly suggesting that  $\theta$ -movement is at least a possibility in natural languages. In addition, these data constitute independent evidence for a  $\theta$ -movement analysis of finite OC. Backward control is only found in languages that have this pattern of obligatory control (i.e. only exhaustive control verbs establish OC). In this way, subject-verb agreement serves as a diagnostic for the presence of  $\theta$ -movement. In the approach to obligatory control developed here, the properties associated with finite OC can then be captured straightforwardly.

Backward control is also a significant argument against a restructuring analysis of the movement effects documented in this chapter. When it comes to infinitival OC, the predictions made by a restructuring account are similar to that of a  $\theta$ -movement one. Case-sharing and exhaustive control are the properties we would expect of a restructuring construction also. A restructuring analysis is, however, clearly incompatible with backward control. It would be necessary to assume that backward control is derived by different means than control in infinitival clauses. In addition, it has to explain why movement into a thematic position is possible in finite OC, but not in infinitival OC. In contrast, a  $\theta$ -movement account can straightforwardly be extended to cover these cases.

For a movement-only approach to OC phenomena, these data are also straightforward, since no PRO effects are predicted anywhere. Backward control is similarly not problematic. A PRO theory has difficulty dealing with the existence of backward control effects, however, because an argument is assumed not to be able to occupy two thematic positions. It then has the non-trivial task of accounting for the fact that this appears to be possible. As such, it has to postulate some special mechanism to explain backward control and why it should be found in a consistent class of environments.

## Final Remarks

This chapter has argued for a new account of OC phenomena, in which both movement and PRO underlie obligatory control. In this model, obligatory control is the area in which the distribution of raising and NOC overlaps. In support of this, it is observed that: a) there are two structurally different types of OC and b) these have the properties of movement and PRO, respectively. The consistent pattern of case independence alongside case-sharing, the availability of partial control alongside exhaustive control and the correlations between these properties are in this way derived from relatively natural assumptions about the characteristics of movement and PRO. Similarly, the correlation between inherent case on the

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26 There are a number of good reasons to take the backward control data seriously. As Polinsky and Potsdam (2006) note, the instances of backward control across languages seem to behave as a coherent class across languages. The verbs that allow backward control are similar. Specifically, they belong to the verb classes that only allow exhaustive control in English and other languages. An analysis using a higher *pro* might be entertained (e.g. McCormack and Smith 2004), disregarding, for the moment, that this should incur a Principle C violation and that not all of these languages are *pro*-drop languages, but it has no reason to expect these constructions to have a consistent character. In addition, backward control obtains only in a particular type of complement, finite OC complements.

lower position and partial control, the absence of PRO effects in finite OC and the existence of backward control can be accommodated within this account. Competing OC theories need to assume a range of special mechanisms to capture these facts. In addition, although a novel account of the failure of case preservation in OC is necessary, this is true of other OC accounts also.

Although a dual-route account of OC phenomena appears to introduce some optionality in the grammar, the use of multiple strategies to establish one relation is nothing new. Antecedency and movement strategies are found alongside each other in most  $\bar{A}$ -movement processes, such as *wh*-movement and relativisation (see, for instance, McCloskey 2001 and den Dikken 2009 on *wh*-extraction in Irish and Hungarian, respectively and Adger and Ramchand 2005 on Welsh). In addition, natural language routinely employs multiple constructions to derive the same relation. Dutch, for instance, has three different possessive constructions that can be used with animate possessors.<sup>27</sup>

Both  $\theta$ -movement and PRO-control derive from mechanisms that are independently necessary in the grammar. The unique nature of non-obligatory control, and perhaps the existence of PRO as matrix subject of autonomous impersonals (e.g. McCloskey 2007), calls for a unique null argument (see section 4.1). Similarly, we know from raising constructions that cross-clausal A-movement is an option in natural languages. There is even evidence that raising may move through multiple case positions (e.g. Polinsky and Potsdam 2002; Potsdam and Polinsky 2009). The range of environments in which they are found may be defined differently, but the basic operations behind NOC and raising must then be maintained in any model of OC. What this theory does is simply to exploit this fact fully.

Adopting this account has consequences beyond the study of OC, however. Its conclusions are incompatible with many aspects of existing approaches to control and, as such, new accounts of phenomena such as adjunct control and NOC are necessary. In chapter 3 and 4, I address this issue. In chapter 3, the locality problem posed by adjunct control is addressed. It is demonstrated that adjunct control behaves essentially like OC, in that the properties of both  $\theta$ -movement and PRO-control can be found. This calls for the surprising conclusion that adjuncts are transparent for A-movement and binding, but not for  $\bar{A}$ -movement. I develop a detailed account of this asymmetry. In chapter 4, I investigate PRO and propose an account of its properties.

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27 These are: a topic plus possessive construction (viiiia), a genitive (viiiib), and a prepositional possessive (viiiic). When an animate possessor is used, there appears to be no real semantic difference between these options. Only the prepositional possessive is compatible with an inanimate possessor, however.

(viii) **Three possessives in Dutch:**

- a. Calvin zijn handschoenen  
Calvin he.POSS hand.shoes
- b. Calvins handschoenen  
Calvin.POSS hand.shoes
- c. de handschoenen van Calvin  
the hand.shoes of Calvin  
'Calvin's gloves'

### 3 Adjunction and Control

This chapter examines control into adjuncts and how it should be analysed in light of the distinction between OC and NOC, an issue that arises in any theory of control. Despite the fact that adjuncts otherwise appear to be islands for other local relationships (e.g. Ross 1967; Huang 1982; Chomsky 1986), adjunct control has much in common with obligatory control (e.g. Huettner 1989; Williams 1992; Whelpton 1995; Hornstein 2001). This is a problem because the obligatory nature of OC is usually derived from locality (e.g. Hornstein 1999; Landau 2000). Although there have been a number of attempts to accommodate adjunct control in Government and Binding theory (e.g. Williams 1980; Manzini 1983; Jones 1985; Huettner 1989), not much attention has been devoted to the issue in the minimalist literature (though see Whelpton 1995 and Hornstein 2001).<sup>1</sup> In this chapter, I propose a theory of the island status of adjuncts that derives OC into adjuncts. In this theory, only operations of a certain type, of which control is one, are possible across adjuncts. Though couched in terms of the framework developed in this thesis, the analysis is compatible with other ways of deriving control (e.g. Hornstein 1999; Landau 2000, 2004, 2006).

Specifically, I suggest that syntactic structures are evaluated for wellformedness with and without reference to adjuncts. Following representational analyses of the Coordinate Structure Constraint (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002), it is proposed that constraints on representations must be satisfied with and without reference to adjuncts. As a result, syntactic structures must be well-formed independently of their adjuncts, although adjuncts need not be. Syntactic operations across adjuncts are then necessarily *parasitic*, in that they cannot be responsible for the licensing of arguments or the wellformedness of operator chains in the clause the adjunct attaches to, or the *attachment clause* as I will refer to it, and therefore must apply to independently licensed constituents. In the domain of  $\bar{A}$ -movement, this is exemplified by the parasitic gap construction, which requires an operator-variable chain in the attachment clause. Control is also always a relation of this type: both PRO-control and  $\theta$ -movement involve an independently licensed argument in the attachment clause.

An important feature of this analysis is that it is essentially neutral with regards to how control should be analysed and can be considered independently of the theory of obligatory control developed in chapter two. Because the availability of movement from adjuncts is explicitly tied to the availability of  $\theta$ -movement, this proposal is compatible with theories of control that reject  $\theta$ -movement (e.g. Landau 2000, 2004, 2006, 2008; Sigurðsson 2008). Similarly, the present analysis is compatible with theories that reject PRO-control (e.g.

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<sup>1</sup> I will not discuss these proposals here. In the Government and Binding literature, because the island status of adjuncts was commonly tied to the CED (following Huang 1982), the fact that adjunct control is obligatory in nature was not particularly problematic. In minimalist theory, however, the internal structure of the adjunct is typically presumed to be invisible (e.g. Uriagereka 1999; Stepanov 2007). Hornstein (2001) argues that adjunct control is derived by means of sideward movement. However, this approach explicitly rejects the possibility of PRO-control and the theoretical status of sideward movement is controversial. In addition, it predicts anti c-command facts in adjunct control, contrary to fact. As discussed in section 3.1, the permissibility of parasitic gaps is actually negatively correlated with the permissibility of object control into adjuncts.

Hornstein 1999; Manzini and Roussou 2000).

The chapter is organised as follows. Section 3.1 is a brief survey of the various types of adjunct control and the nature of control into these, based primarily on Huettner (1989). This data shows that adjunct control behaves like OC in most contexts. On the basis of this, I conclude that adjuncts cannot be absolute boundaries for syntactic operations. In section 3.2, a family of analyses of the Coordinate Structure Constraint is introduced (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002). Section 3.3 argues that this type of analysis can be extended to adjunction and be used to derive the ungrammaticality of  $\bar{A}$ -movement from adjuncts. Specifically, it is proposed that syntactic structures are evaluated for wellformedness both with and without reference to adjuncts. This proposal predicts that syntactic operations across an adjunct boundary have to be parasitic. Parasitic gaps as well as the operations that underlie obligatory control are operations of this kind. In this way, the analysis of adjunct control can be subsumed under the analysis of complement control. Finally, in section 3.4, the absence of expletive-raising of adjuncts is discussed and a number of ways of ruling out these cases are outlined. I also propose a way in which apparent cases of non-parasitic extraction from adjunct and coordinate structure islands can be treated.

### 3.1 The Nature of Adjunct Control

This section presents a brief overview of the different types of control adjuncts, drawing mainly on Huettner (1989), and proceeds to investigate their behaviour with respect to obligatory control. It is shown that adjunct control largely behaves like obligatory control, except when there is no suitable local controller present. I argue that, given the theory of the OC/NOC distinction in Landau (2000), these facts are evidence that the adjunct is not an island for control.

Two methodological notes are necessary before proceeding. I will use the term *attachment clause* in this thesis to refer to the clause an adjunct is attached to. Also, I will focus mainly on adjuncts in English, for ease of exposition, though other languages are discussed where relevant.

There are at least two different classes of adjuncts into which control can be established that should be distinguished from each other for present purposes. The first class only allows subject control and has some properties which indicate a high point of attachment. The second class in principle permits object control and seems to have a low point of attachment. I will refer to these as *subject-oriented adjuncts* and *object-oriented adjuncts*, respectively. These two classes basically correspond to Huettner's (1989) *TP-level adjuncts* and *VP-level adjuncts*.

English object-oriented adjuncts are all infinitival in nature and, drawing on Huettner (1989) and earlier work on purpose clauses (e.g. Faraci 1974; Bach 1982; Jones 1985), we can distinguish at least five different types: *purpose clauses* (1a),<sup>2</sup> *result clauses* (1b), *goal*

2 Faraci (1974) proposes that purpose clauses with subject gaps should be distinguished from purpose clauses with both a subject and an object gap, referring to the latter as *objective clauses*. Some examples of objective clauses are given in (ia-b).

(i) **Objective clause contain both a subject gap and an object gap:**



*clauses (1c), exchange clauses (1d) and stimulus clauses (1e).*

(1) **Types of object-oriented adjuncts:**

- a. Sue built the extra room [to hold her sewing supplies].
  - b. John awoke [to find the fire had gone out].
  - c. Sam came along [to look after the children].
  - d. They gave Sue ten dollars [to pose with a cobra].
  - e. Mary blushed [to recall Tom's importunities].
- (Huettner 1989: ix)

Although they look quite similar, these adjuncts are distinguishable from each other on semantic grounds. Purpose clauses, for instance, specify the function of an argument, whereas stimulus clauses describe the event that provides the stimulus for the reaction in the higher clause. In syntactic terms, they do behave similarly, as Huettner demonstrates. What primarily sets these apart from other control adjuncts is that they allow non-subjects to be controllers and must always precede subject-oriented clauses, both properties that indicate a relatively low point of attachment (Faraci 1974; Bach 1982; Huettner 1989).<sup>3</sup> This point of attachment is typically identified as VP (e.g. Faraci 1974; Bach 1982; Huettner 1989; Whelpton 1995), in order to allow the object to c-command the subject gap in the adjunct.<sup>4</sup> I adopt this assumption here. A final noteworthy fact is that, as Huettner (1989) points out, object-oriented adjuncts all resist preposing (2a-e).

(2) **Object-oriented adjuncts cannot be preposed:**

- a. \*To bark at my in-laws, I bought a dog.
  - b. \*To be ninety-three, my grandmother lived.
  - c. \*To win, Sam plays.
  - d. \*To stand on her head, I gave Mary ten dollars
  - e. \*To see what a fool Sam was making of himself, Susan blushed.
- (Huettner 1989: 15, 30, 41, 47, 55)

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- a. Calvin grabbed a comic to read.
  - b. Hobbes spotted a hill to race down.

I will neglect these differences here and treat these clauses as purpose clauses also, since they largely behave the same syntactically.

- 3 Another fact that indicates a low point of attachment is that object-oriented adjuncts do not allow parasitic gaps. Although the examples are somewhat difficult to construct, purpose clauses and exchange clauses show that parasitic gaps out of these types of adjuncts are ill-formed (iia-b).

(ii) **Purpose clauses and exchange clauses do not permit parasitic gaps:**

- a. \*Who<sub>i</sub> did you give <sub>t<sub>i</sub></sub> a book<sub>j</sub> to read <sub>t<sub>j</sub></sub> to <sub>t<sub>i</sub></sub>?
- b. \*What did you offer her <sub>t<sub>i</sub></sub> to fetch <sub>t<sub>i</sub></sub>?

We can derive this if we assume that the adjunct is c-commanded by the base position of the object, since (iia-b) would then violate the anti c-command condition on parasitic gaps.

- 4 Note that it is necessary to assume that adjunction extends the c-command domain (contra Chomsky 2004), in order to allow the object to c-command the adjunct. I assume that adjunction creates a multiplanar structure (see section 3.3 for more detail) and, in this way, does not affect structural relations, allowing both the complement and the specifier of the head the adjunct attaches to to c-command the adjunct.

Instead, object-oriented adjuncts appear to have a relatively fixed position. I will return to this fact later in this section and in section 3.3.

Object-oriented adjuncts are typically contrasted with subject-oriented adjuncts (e.g. Faraci 1974; Bach 1982; Jones 1985; Huettner 1989). Huettner discusses two of these: *rationale clauses* (3a), and *outcome clauses* (3b), also referred to as *telic clauses* by Whelpton (1995, 1999). I will group these with the class of gerunds here. We can then also distinguish *temporal gerunds* (3c), *nontemporal gerunds* (3d) and *bare gerunds* (3e).

**(3) Types of subject-oriented adjuncts:**

- a. I gave Scruffy a biscuit [in order to keep him quiet].
- b. Mary escaped, [only to be recaptured].  
(Huettner 1989: ix)
- c. Calvin braced himself [before/while/after/on racing down the hill].
- d. Calvin burped [despite/without eating his broccoli].
- e. Calvin was slumped in the chair, [watching TV].

Huettner (1989) points out that rationale clauses and outcome clauses, unlike object-oriented adjuncts, never allow object controllers and must always follow object-oriented adjuncts. English gerundive adjuncts also behave in this way. Object control is marginal (4a-c).

**(4) Objects cannot control into gerunds:**

- a. ??Calvin<sub>i</sub> sent Susie away after finding out for him<sub>i</sub> whether his mother was looking for him.
- b. ??Calvin<sub>i</sub> sent Susie away despite finding out for him<sub>i</sub> whether his mother was looking for him.
- c. \*Calvin approached Susie<sub>i</sub>, *ec*<sub>i</sub> having grabbed her lunch.

In addition, like rationale clauses and outcome clauses, gerundive adjuncts must follow object-oriented adjuncts (5a-c).<sup>5</sup>

**(5) Gerundive adjuncts must follow object-oriented adjuncts:**

- a. \*Calvin built a fort [before going inside] [to hold his arsenal].
- b. \*Hobbes smiled [without regretting his actions] [to recall jumping Calvin].
- c. \*Calvin built a fort [singing to himself] [to hold his arsenal].

At the same time, subject-oriented adjuncts can mostly be ordered freely relative to each other (6a-c).

**(6) Subject-oriented adjuncts ordered freely relative to each other:**

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<sup>5</sup> Some of these examples may have a grammatical reading under which the object-oriented adjunct is embedded inside the gerundive adjuncts. Under the intended construal, however, in which both adjuncts modify the matrix clause, the sentences are ungrammatical.

- a. Calvin braced himself in order to soften the blow while racing down the hill.
- b. Calvin burped in order to disgust his parents despite not having eaten the broccoli.
- c. Calvin was slumped in the chair in order to annoy his parents, watching TV.

A notable exception to this is the outcome clause, as Huettner (1989) observes, which must always be final, even relative to other subject-oriented adjuncts (7a-c).

(7) **Outcome clauses must follow other subject-oriented adjuncts:**

- a. \*Calvin burped only to be ignored in order to annoy his parents.
- b. \*Calvin braced himself only to crash into a tree while racing down the hill.
- c. \*Calvin burped only to be ignored by his parents despite not having eaten the broccoli.
- d. \*Calvin was slumped in the chair only to fall out watching TV.

Another property that distinguishes subject-oriented adjuncts documented by Huettner (1989) is that they can be preposed, unlike object-oriented adjuncts (8a-d). A notable exception is again the outcome clause, which resists this (8e).

(8) **Subject-oriented adjuncts, except for the outcome clause, can be preposed:**

- a. Having always been a tiger, Hobbes had excellent knowledge of maths.
- b. Before burping, Calvin pulled a face.
- c. Without finishing his homework, Calvin went to bed.
- d. In order to disgust his parents, Calvin burped.
- e. \*Only to be ignored, Calvin burped.

In this way, the position of the outcome clause appears to be fixed, like that of object-oriented adjuncts. We will see later on that this fact will allow us to explain some of the other properties these adjuncts share.

Finally, unlike object-oriented adjuncts (see fn. 3), subject-oriented adjuncts also all allow parasitic gaps (9a-e).

(8) **Subject-oriented adjunct permit parasitic gaps:**

- a. Who did Calvin call into the room in order to disgust?
- b. What did Hobbes say, only to retract later?
- c. What did Calvin curse while doing?
- d. Who did Hobbes love despite betraying?
- e. Who did Calvin drive crazy trying to help?

Taken together, these properties indicate that subject-oriented adjuncts have a higher point of attachment than object-oriented adjuncts. To derive this, Huettner (1989) proposes that subject-oriented adjuncts are attached at T, as does Whelpton (1995). I will assume the same

here (though see fn. 12).

Having established then roughly the different types of control adjuncts, we can examine the nature of control into them. There are a number of tests that can be used to establish whether control is obligatory or non-obligatory. Obligatory control, unlike non-obligatory control, a) requires a local antecedent, b) requires a c-commanding antecedent,<sup>6</sup> c) only allows a de se interpretation, and d) only allows a sloppy interpretation under ellipsis (e.g. Williams 1980; Hornstein 1999).

First, consider the locality requirement. For both subject-oriented adjuncts and object-oriented adjuncts, when a local argument is available in the attachment clause, it cannot be circumvented in favour of a long-distance control reading (10a-j).<sup>7</sup>

(10) **Local arguments cannot be circumvented for control:**<sup>8</sup>

- a. \*John<sub>i</sub> thought Sue<sub>j</sub> built the extra room [*ec*<sub>i</sub> to stow her sewing supplies for her<sub>j</sub>].
- b. \*Sue<sub>j</sub> saw that John<sub>i</sub> awoke [*ec*<sub>j</sub> to find him<sub>i</sub> in bed].
- c. \*Sam<sub>i</sub> said that his mother<sub>j</sub> came along [*ec*<sub>i</sub> to look after the children for her<sub>j</sub>].
- d. \*Sue<sub>i</sub> thought that they had given her father ten dollars [*ec*<sub>i</sub> to pose with a cobra].
- e. \*Mary<sub>i</sub> noticed that her mother blushed [*ec*<sub>i</sub> to recall Tom's importunities].
- f. \*Calvin<sub>i</sub> thought that Susie protested [in order *ec*<sub>i</sub> to annoy his parents].
- g. \*Calvin<sub>i</sub> thought that Susie fell [only *ec*<sub>i</sub> to see her get up].
- h. \*Calvin<sub>i</sub> saw that Hobbes winced [while *ec*<sub>i</sub> racing down the hill].
- i. \*Calvin<sub>i</sub> thought his parents were annoyed [despite *ec*<sub>i</sub> eating his broccoli].
- j. \*Calvin<sub>i</sub> noticed Hobbes outside, [*ec*<sub>i</sub> watching TV].

A second test is whether the subject gap needs to be c-commanded. As (11a-j) shows, adjunct control requires c-command.<sup>9</sup>

6 It is probably more accurate to say that the antecedent must be an argument of the higher verb, considering that, in some OC constructions, possessors appear to be able to initiate control (iia-b), as Landau (2000) points out.

(iii) **In some cases, possessors may function as the higher argument in OC:**

a. It would help Bill's confidence to plan his itinerary in advance.

b. It would ruin Steve's figure to eat so much ice-cream.

(Landau 2000: 110-111)

However, as Landau argues, this is only possible with nouns that “denote abstract notions that reflect the individuality of the controller, via actions, character traits or social attributes” (Landau 2000: 110), so-called *logophoric extensions* of the possessor, and only in a narrow range of contexts. Outside of these constructions, the c-command requirement is still a valid diagnostic.

7 There appears to be a difference in behaviour between preposed and embedded gerunds, as Williams (1992) also points out, in that preposed gerunds readily allow NOC effects. The same tendency can be observed with rationale clauses. For ease of exposition, I will consider only the non-preposed versions of these adjuncts in these tests. I return to the issue later in this section.

8 Some of these sentences have grammatical readings under which the adjunct clauses just modify the higher clause and not the lower clause. When the adjunct clause modifies the lower clause, however, the lower argument is the only antecedent available for the subject gap.

9 A problem with some of these examples might be that there is a closer suitable controller. To control for this,

(11) **C-command is a requirement for adjunct control:**

- a. \*John flipped the pages of the book<sub>i</sub> [*ec*<sub>i</sub> to be read later].
- b. \*Sue<sub>i</sub>'s boyfriend<sub>j</sub> awoke [*ec*<sub>i</sub> to find him<sub>j</sub> grumpy].
- c. \*Sam<sub>i</sub>'s mother<sub>j</sub> came along [*ec*<sub>i</sub> to look after the children for her<sub>j</sub>].
- d. \*They had given Sue<sub>i</sub>'s father ten dollars [*ec*<sub>i</sub> to pose with a cobra].
- e. \*Mary<sub>i</sub>'s father blushed [*ec*<sub>i</sub> to recall Tom's importunities].
- f. \*Calvin<sub>i</sub>'s sled crashed [in order *ec*<sub>i</sub> to annoy his<sub>i</sub> father].
- g. \*Calvin<sub>i</sub>'s sled<sub>j</sub> narrowly missed the tree, [only *ec*<sub>i</sub> to fall off anyway].
- h. \*Calvin<sub>i</sub>'s sled hit a bump [while *ec*<sub>i</sub> racing down the hill].
- i. \*Calvin<sub>i</sub>'s food remained largely untouched [despite *ec*<sub>i</sub> eating his broccoli].
- j. \*Calvin<sub>i</sub>'s toys were sprawled across the floor, [*ec*<sub>i</sub> watching TV].

Another test is whether *de se* readings are obligatory. For this test, examples are harder to construct, since the characteristic semantics of some of these adjuncts, particularly of some object-oriented adjuncts, are not compatible with *de se* readings. In purpose clauses, for instance, the higher argument is associated with a sense of function that is difficult to reconcile with beliefs about oneself. When an appropriate context can be constructed, however, adjunct control behaves like obligatory control, in that only *de se* interpretations are possible (12a-h). In all of these examples, the only available interpretation is one in which the unfortunate knows that it is the unfortunate receiving a medal.

(12) **De se readings are obligatory in adjunct control:**

- a. The unfortunate awoke to receive a medal.
- b. The unfortunate worked hard to receive a medal.
- c. The unfortunate blushed to be given a medal.
- d. The unfortunate told a story in order to get a medal.
- e. The unfortunate didn't believe the story, only to get a medal.
- f. The unfortunate expects applause before getting a medal.
- g. The unfortunate expects applause without getting a medal.
- h. The unfortunate expected applause, having received a medal.

A fourth characteristic of OC is that the subject gap only allows a sloppy interpretation under ellipsis. This property appears to hold of adjunct control also (13a-j).

(13) **Adjunct control only permits a sloppy interpretation under ellipsis:**

- a. A snow fort was built to hold Calvin's arsenal and so was a snow castle.
- b. Calvin awoke to find the room messy and Hobbes did too.
- c. Calvin worked hard to finish the homework and Hobbes did too.
- d. Moe was given a nickel to eat a bug and so was Calvin.

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it is possible to use inanimate subjects, as in (11a,f-j). However, this is not possible with all of these adjuncts, since their characteristic semantics impose certain restrictions on the matrix predicate.

- e. Calvin blushed to recall the exchange and Susie did too.
- f. Calvin burped in order to disgust his parents and Susie did too.
- g. Calvin threw a snowball, only to just miss the intended target, and Susie did too.
- h. Calvin braced himself before racing down the hill and Hobbes did too.
- i. Calvin burped without eating his broccoli and Hobbes did too.
- j. Calvin was slumped in the chair, watching TV, and so was Hobbes.

Under all the relevant tests, control into embedded adjuncts then appears to behave like obligatory control.

As a number of authors have pointed out, however (e.g. Manzini 1983; Roeper 1987; Lasnik 1988; Huettner 1989; Landau 2000), in some instances, subject-oriented adjuncts allow the controlling argument to be absent or implicit (14a-d).<sup>10</sup> Notably, however, this is never possible with outcome clauses (14e-f).

(14) **Higher argument can be absent with most subject-oriented adjuncts:**

- a. Having travelled all day, the hotel was a vision indeed.  
(Williams 1992: 300)
- b. In order to watch TV, a comfy chair is ideal.
- c. Mary was foully murdered in order to keep her from talking.
- d. While watching TV, the comfy chair was ideal.
- e. \*The game was rigged, only to lose because of a mistake.
- f. \*Susie was attacked with a snowball, only to miss her.

Much has been made of these kinds of examples. In particular, the acceptability of such examples has been taken as evidence against treating adjunct control as a type of OC (e.g. Landau 2000: 178). While this conclusion appears to be correct for examples like (14a-d), it

<sup>10</sup> Bach (1982) suggests that objective clauses show similar behaviour. He reports the examples in (iva-d) as grammatical.

(iv) **Controlling argument can be absent in control into objective clauses:**

- a. A hole is to dig.
- b. This book is to read to the class.
- c. *War and Peace* was bought to read to the children.
- d. Here's *Bambi* to read to your children.

These examples do not affect the logic of the argument developed here, however, since I will claim that adjunct control is obligatory only when there is a suitable local argument. In these examples, although there is a local argument position, it is reserved for identification with the object gap. As such, there is no controller available locally and NOC can result. More serious is Bach's claim that the subject gap in objective clauses can be non-obligatorily controlled even when there is a local controller present. He cites the examples in (va-b).

(v) **Apparent non-obligatory control of the subject position in an objective clause:**

- a. I brought "The Wind of the Willows" to read to the children.
- b. I brought this miserable Morgon to enjoy with our dinner.

However, these are not cases of non-obligatory control, but rather instances of partial control. Although the null subject of the lower clause may denote referents different from the matrix subject, it must also include the matrix subject. As such, these are not counterexamples to the claim that adjunct control behaves like obligatory control when possible.

is does not invalidate the result that adjunct control behaves like OC in many contexts. In addition, how data about the nature of adjunct control is interpreted depends on our conception of the OC/NOC distinction. Because of the nature of adjunction, the selectional relationship between the verb and the clause with the subject gap is arguably absent or, in any case, severely restricted. As a result, whether we expect uniform behaviour is very much dependent on the theory of OC and NOC assumed. I will assume the theory of the OC/NOC distinction in Landau (2000) here. Landau argues that it is the availability of a local argument position in the attachment clause that determines whether the control relationship is OC or NOC. If an argument position is available locally, then control is obligatory. If there is no such position, then control has the character of NOC. This explains, for example, why an example such as (15a) does not mean *decide* should no longer be considered an OC verb. In fact, in Dutch, passivisation of subject control verbs is quite productive, as in (15b-c), despite the fact that these establish OC otherwise.

(15) **Some OC verbs allow the higher argument to be absent:**

- a. It was decided to build a snow castle.
- b. Calvin probeerde een sneeuwkaasteel te bouwen.  
Calvin try.PAST a snow.castle to build.INF  
'Calvin tried to build a snow castle.'
- c. Er werd de hele middag geprobeerd een sneeuwkaasteel te bouwen.  
there be.PAST the whole afternoon try.PART a snow.castle to build.INF  
'(lit.) It was tried the whole afternoon to build a snow castle.'

Adopting this perspective has serious consequences for how we analyse adjunct control, because adjunct control involves a large variety of attachment clauses. We expect to find OC only when there is a suitable argument position. We can then explain why adjunct control may behave like OC. This simply derives from the availability of a suitably local controller. The surprising conclusion we can then draw is that adjuncts are part of the local domain for control.

What is puzzling from this perspective, however, is the behaviour of rationale clauses and gerunds. Although control into these may have the character of OC (e.g. 10-13), they also allow cases of NOC (14a-d). Strikingly, in these cases, there can be a local argument capable of control, but it can be skipped. In (14c), for instance, *Mary was foully murdered in order to keep her from talking*, the subject of the attachment clause, *Mary*, is in principle available to control the subject gap, since it presumably c-commands the adjunct. As such, the logic outlined above predicts OC. Instead, an NOC reading is available. One option that may seem attractive is to appeal to the idea that there is a syntactically projected implicit argument acting as the local controller. However, as Lasnik (1988) points out, NOC is possible in these cases even when the implicit argument of the passive is made overt with a *by*-phrase (16).

(16) **NOC still possible when implicit argument is overt:**

- The ship was sunk by a torpedo to prove a point.

(Lasnik 1988: 10)

Something more than needs to be said. Another option might be to say that rationale clauses and gerunds can be attached higher than T, preventing local control by the subject. Although this is a plausible assumption to make of fronted adjuncts, this cannot be the whole story, since rationale clauses and gerunds, when not fronted, must precede outcome clauses, which do not allow NOC. If the attachment site were the crucial factor that gives rise to these NOC interpretations, the outcome clause should allow NOC also. Instead, it strongly resists these readings (14e-f). Rather, suppose that rationale clauses and gerunds differ in that they can be merged late, in the sense of Lebeaux (1988), Fox and Nissenbaum (1999), and Fox (2002). Late Merge is non-cyclic and applies to an element internal to a constituent that has been already constructed. If control is established derivationally, by  $\theta$ -movement or by a probe-goal relationship with a PRO, then adjoining an adjunct late would block obligatory control, even if a local controller is available. Instead, Late Merge creates a NOC context. The key question then is why this is possible with rationale clauses and gerunds, but not with object-oriented adjuncts and outcome clauses. In section 3.3, I will present an analysis of this, in which I argue that only adjuncts that can be preposed can undergo Late Merge and, therefore, support NOC readings. In any case, a Late Merge analysis of NOC into rationale clauses and gerunds (e.g. 14a-d) allows us to subsume the analysis of adjunct control under the analysis of complement control. Both establish OC when possible and allow NOC in a clearly defined set of environments.

Although these conclusions fit the empirical picture, they present a problem for our conception of locality. If the proposal that the obligatory nature of OC reduces to considerations to locality, as is generally assumed (e.g. Hornstein 1999; Manzini and Roussou 2000; Landau 2000; Sigurðsson 2008), is to be taken seriously, the conclusion must then be that adjuncts are part of the local domain for control. In fact, other authors have reached the same conclusion on similar grounds (e.g. Williams 1992; Hornstein 2001). This contradicts long-standing assumptions about adjuncts, however, which are commonly taken to be islands for syntactic operations (e.g. Ross 1967; Huang 1982; Chomsky 1986). In recent proposals, adjuncts are even proposed to be in some sense invisible for elements outside the adjunct (e.g. Uriagereka 1999; Stepanov 2007). The data presented here, however, suggest that adjuncts cannot be absolute islands, in that they must permit at least local control relations.

An additional argument for this conclusion is the fact that inanimate antecedents are permitted in adjunct control. It is generally acknowledged that NOC readings require a human antecedent. This is true also of NOC readings involving adjuncts (e.g. Manzini 1986; Williams 1992). From this perspective, it is interesting that some cases of adjunct control do allow inanimate controllers (17a-c). Purpose clauses, as in (17a), are particularly productive in this respect.

- (17) **Inanimate controllers are possible in adjunct control:**  
a. Calvin built a snow fort<sub>i</sub> [*ec*<sub>i</sub> to hold their arsenal].



- b. The snowball<sub>i</sub> hit Susie [after *ec*<sub>i</sub> flying through the air].
- c. The comic<sub>i</sub> was spectacularly entertaining in its first few pages, [only *ec*<sub>i</sub> to disappoint as it progressed].

If NOC involves only human antecedents, then the fact that inanimate controllers are possible in adjunct control suggests that some very local relationship does underlie it.

A final argument for the locality of adjunct control comes from the fact that case-sharing is possible into adjuncts. As Landau (2008) observes, Russian bare purpose clauses allow case-sharing between the higher position and the lower position (18).

(18) **Case-sharing is possible in adjunct control:**

Ivan vstal pogoovorit' sam s tolpoj.  
**Ivan.NOM** stood.up speak.INF **self.NOM** to crowd  
 'Ivan stood up to speak to the crowd by himself.'  
 (Russian; Landau 2008: 888)

In most theories of control, the availability of case-sharing is derived from locality. In chapter two, I argued that the presence of case-sharing can be derived from the availability of  $\theta$ -movement. Landau (2008) argues that case-sharing instead reflects a local Agree relationship between the case assigner and PRO. In any case, case-sharing implies a local link between the higher position and the lower position.

As such, I conclude that, despite the adjunct boundary, at least part of the adjunct counts as part of the local domain of the higher verb. From the perspective of locality, this creates a serious problem that needs to be addressed in any theory of control.<sup>11</sup> It means that the traditional view of the island status of adjuncts cannot be right. Adjuncts cannot be absolute boundaries for syntactic operations. The rest of this chapter develops an analysis of the island status of adjuncts that derives this and is able to accommodate obligatory control. In order to do this, I will first introduce a family of analyses of the Coordinate Structure Constraint (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000).

### 3.2 A Representational Analysis of the CSC

This section introduces a family of analyses of the Coordinate Structure Constraint, in which the CSC is derived from the idea that conjuncts are evaluated in parallel sentences (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002). In these analyses, it is

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<sup>11</sup> It could be argued that the need to explain the permissibility of OC into adjuncts is somehow less immediate in theories of obligatory control that only employ PRO-control, since binding relations, as in, for instance, resumptive pronoun constructions, can hold across island boundaries. Note first of all that there are a number of differences between the control of a PRO and the binding of an anaphor that receive a natural explanation if PRO is not actually bound using the same mechanisms, as Landau (2000) has argued. In addition, most PRO-control theories explicitly tie the obligatory nature of OC to the availability of a local Agree relation (e.g. Landau 2000; Sigurðsson 2008). A PRO-control theory that allows OC across island boundaries would then need to come up with a new theory of the difference between OC and NOC and would, in this way, simply shift the explanatory burden.

proposed that linguistic structures in a coordination relationship are evaluated for wellformedness separately, in parallel sentences, or *component sentences*, in Goodall's (1987) terminology. This means that, in order for a coordinate structure to be well-formed, both component sentences need to be well-formed. The result of this is that any operator that is shared between multiple component sentences must have a variable in each, explaining why extraction from a coordination must take the form of across-the-board (ATB) extraction.

Ross (1967) first observed that extraction of a conjunct or of an element inside a conjunct from a coordinate structure is ungrammatical (19a-c).

(19) **Extraction of a conjunct or of an element inside a conjunct is ungrammatical:**

- a. \*What did Calvin eat broccoli and?
- b. \*What did Calvin grab the sled and race down?
- c. \*How loudly was Calvin sitting and eating?

To describe these and some additional restrictions on extractions involving conjuncts, Ross formulated the Coordinate Structure Constraint (CSC), as in (20).

(20) **The Coordinate Structure Constraint:**

In a coordinate structure, no conjunct may be moved, nor may any element contained within a conjunct be moved out of that conjunct.

(Ross 1967: 89)

An important exception to the CSC is ATB extraction. In ATB extraction, an element is moved out of all conjuncts in a coordination at the same time. Unlike extraction from just one conjunct, this type of configuration is grammatical (21a-c).

(21) **ATB extraction from conjuncts is licit:**

- a. Who did Hobbes spot and jump on?
- b. What did Calvin eat and dislike?
- c. What proposition did Calvin postulate and entertain?

One analysis of this pattern assumes that the structure or the evaluation of coordinate structures is *multidimensional* or *multiplanar*, in that it involves parallel sentences with shared material (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002). The assumption of parallel structure can then be tied to conditions on operations that apply to coordinate structures.<sup>12</sup> The idea is that these parallel structures are also evaluated for semantic wellformedness separately (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002). A sentence like *Calvin pulled a face and disgusted his parents* is then interpreted as two separate sentences, specifically (22a-b).

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12 These theories differ in terms of the exact structure of coordination that they assume. Goodall (1987), for example, suggests that coordination is the post-syntactic union of phrase markers. In other theories, coordinate structures are base-generated (Muadz 1991; Moltmann 1992). These differences do not affect the present analysis, however.

(22) **Interpretation of *Calvin pulled a face and disgusted his parents*:**

- a. Calvin pulled a face
- b. Calvin disgusted his parents

Goodall (1987) refers to these parallel sentences as *component sentences*. He argues that, using the notion of component sentences, the CSC can be derived from a representational constraint on vacuous quantification. To see this, consider an example of a sentence ruled out by the CSC, like (19b). This structure has the component sentences in (23a-b).

(23) **Component sentences of (19b):**

- a. \*What did Calvin grab the sled
- b. What did Calvin race down *t*

The component sentence in (23b) is well-formed, because it contains a well-formed  $\bar{A}$ -chain. The sentence in (23a), however, is problematic. It contains a *wh*- operator, but not a variable position. As such, this is an instance of vacuous quantification and we can plausibly assume that the structure in (23a) is ill-formed.

The advantage of this analysis of the CSC is that it also explains why extraction from conjuncts must take the form of ATB extraction. If extraction targets an element in all conjuncts at the same time, all the component sentences will be well-formed. To see this, consider the component sentences for an ATB sentence such as (21b).

(24) **Component sentences of (21b):**

- a. What did Calvin eat *t*
- b. What did Calvin dislike *t*

Both these sentences contain a variable position for the *wh*- operator to bind and, as such, both are well-formed. In this way, this type of analysis explains why extraction from conjunct must take the form of ATB extraction. Note that this analysis is representational in nature, since it focusses on the notion of semantic wellformedness. As a result, it is in principle indifferent to the mechanisms by which the requisite chains are created. As Goodall (1987) points out, this means that the operations by which the necessary operator-variable chain is established do not need to be identical across conjuncts. In support of this, we find that languages that use multiple strategies to create  $\bar{A}$ -chains may mix these in ATB constructions. Paluan, for instance, makes use of a resumptive strategy when objects of prepositions are targeted for extraction, but otherwise employs  $\bar{A}$ -movement. As Goodall (1987) observes, these strategies may be mixed in ATB extraction (25a-b).

(25) **ATB extraction allows mixed strategies across conjuncts:**

- a. akmedengeli a bilas [el lebilzerar a Cisco] me [a Ioseb milngesbereber er  
know.1SG boat c bought Cisco and Ioseb painted P

- ngii].  
 it  
 'I know which boat Cisco bought and Ioseb painted.'
- b. ngngerang [mirruul er ngii a Sie] e [a ʔoʔodal a meʔerar].  
 what made P it Sie and her.sister bought  
 'What did Sie make and her sister buy?'  
 (Goodall 1987: 68)

In (25a), extraction from the first conjunct uses a movement strategy while the second conjunct uses a resumptive pronoun. In (25b), the situation is the reverse. The resumptive pronoun is in the first conjunct. That these strategies can mix makes sense under the analysis described so far, since what counts is the configuration that results.

In this way, the CSC constraint and the admissibility of ATB extraction can be derived from the assumption that coordinate structures are interpreted as parallel sentences and evaluated for semantic wellformedness separately. In the next section, I will show that there are some of the key ingredients of this theory can be used to explain the island status of adjuncts. This theory is not only able to make sense of some of the similarities between coordination and adjunction, but it can also be used to derive the permissibility of OC into adjuncts.

### 3.3 A Representational Analysis of Adjunct Islands

In this section, I propose an analysis of the island status of adjuncts that is able to accommodate obligatory control into adjuncts, based on the theory of the CSC outlined in the previous section. I argue that restrictions on movement from adjuncts can be analysed in much the same way, if syntactic structures are evaluated for wellformedness both with and without reference to adjoined material. This ensures that syntactic structures must be well-formed without their adjuncts, but that the reverse does not hold of adjuncts. As such, operations that cross an adjunct boundary are necessarily parasitic, in that they cannot determine the wellformedness of the attachment clause. As a result, only A-processes and  $\bar{A}$ -processes that are of this type are possible from adjuncts. This serves to rule out straightforward cases of  $\bar{A}$ -movement and A-movement, but allows for a small set of operations, including control and parasitic gaps.

At first glance, there are a number of similarities between adjunction and coordination. In terms of their semantics, both operations can essentially be represented as intersection. Neither operation alters the semantic types of the constituents it applies to. In addition, both mechanisms create islands for  $\bar{A}$ -extraction. Like conjuncts, adjuncts do not appear to permit extraction of an element inside them (26a-c).

#### (26) **Adjuncts block $\bar{A}$ -movement:**

- a. \*Who did Calvin get angry after Hobbes fraternised with?  
 b. \*That is the comic Calvin was doing his homework before he read.

- c. \*Who did Calvin burp after failing to disgust?

On the basis of such examples, and similar restrictions on other operations, such as passivisation or quantifier raising, it is commonly assumed that adjuncts are islands (e.g. Ross 1967; Huang 1982). However, like with coordinate structures, there are types of movement that appear to be possible. Just as extraction from conjuncts is licit if it is ATB, extraction from adjuncts can be grammatical if there is also extraction from the clause the adjunct is attached to, as in the parasitic gap construction (27a-c).

(27) **Movement from adjuncts is possible in parasitic gaps:**

- a. Which comic did Calvin grab before reading?  
b. What food did Calvin pick up in order to pretend to be poisonous?  
c. What did Hobbes say, only to retract later?

In these examples, there can be an  $\bar{A}$ -gap in the adjunct, but only if there is a similar gap in the matrix clause. If there is no such gap in the matrix clause, the sentence is ungrammatical (28a-c).

(28) **Parasitic gaps require  $\bar{A}$ -movement in the higher clause:**

- a. \*Which comic did Calvin grab some food before reading?  
b. \*What food did Calvin pick up his fork in order to pretend to be poisonous?  
c. \*What did Hobbes say that tigers are great, only to retract later?

In this way, parasitic gaps are similar to ATB gaps, as many authors have recognised (e.g. Pesetsky 1982; Huybregts and van Riemsdijk 1985; Williams 1990; Munn 1992, 2001). For both adjuncts and conjuncts, movement is dependent on the application of the same operation in another constituent.

On these grounds, I propose that island effects as a result of adjunction and as a result of coordination should receive the same treatment. Building on the representational treatment of the CSC described in the previous section (e.g. Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000), we can make use of the idea that syntactic structures are evaluated for wellformedness in terms of component sentences. Specifically, I propose that syntactic structures are evaluated with and without reference to adjoined material. This means that adjunct sentences face different requirements than other sentences. Although a sentence must be well-formed without its adjuncts, an adjunct need not be well-formed independently. I will refer to this theory as the representational analysis of adjunction (29).

(29) **Representational analysis of adjunction:**

Syntactic structures are evaluated for wellformedness with and without reference to adjoined material.

The claim that syntactic structures must be well-formed independently, without reference to

adjuncts, allows us to derive the ungrammaticality of straightforward  $\bar{A}$ -extraction from adjuncts, as other analyses of adjunction do (e.g. Huang 1982; Stepanov 2007). Consider, for example, the component sentences it predicts for the ungrammatical example in (26a), *\*Who did Calvin get angry after Hobbes fraternised with?*, given in (30a-b).

(30) **Component structures for (26a):**

- a. \*Who did Calvin get angry
- b. Who did Calvin get angry after Hobbes fraternised with *t*

Because syntactic structures are evaluated without reference to adjoined material, the component sentence in (30a) contains an operator, but no variable position. As a result, just like the component sentence in (23a), it violates the ban on vacuous quantification and the structure is ill-formed. As such, even though the component sentence in (30b) does contain an operator and a variable and is therefore well-formed, the sentence is grammatical.

This restriction is asymmetric, however, since the adjunct is not treated as a component sentence. As a result, extraction from the non-adjoined part of the tree is still licit. To see this, consider the component sentences for a sentence like *What did Calvin do before going to bed?*, given in (31a-b).

(31) **Component structures for *What did Calvin do before going to bed?*:**

- a. What did Calvin do *t*
- b. What did Calvin do *t* before going to bed

The component sentence in (31a) is well-formed, because it contains both an operator and a variable. The same is true of (31b), because it contains the same material. In this way, because the matrix clause is part of both component sentences, extraction from it is in no way dependent on operations in the adjunct.

This analysis of adjunction has significant consequences for the way in which adjuncts are assumed to interact with locality. Since we can rule out  $\bar{A}$ -extraction on independent grounds, we do not need to assume that adjuncts are derivational islands. The island status of adjuncts can be made to follow purely from representational constraints. I will assume then there is no derivational restriction that makes adjuncts inaccessible. In principle, elements inside adjuncts are visible for syntactic operations (*cf.* Uriagereka 1999; Stepanov 2007). The only real condition on operations that cross an adjunct boundary follows from the analysis outlined above, which forces such operations to be *parasitic*, in that they can only apply to a structure that is already well-formed. In other words, the operation requires the application of an operation of roughly the same type in the attachment clause and must piggyback on this operation. The parasitic gap construction is clearly of this type, but the two constructions that are taken to underlie OC in contemporary theories of control, PRO-control and  $\theta$ -movement, also fit this description.

To see this, first consider parasitic gaps. We already observed the parasitic nature of this construction. As the contrastive pairs in (27a-c) and (28a-c) illustrate, parasitic gaps are

only possible if there is also an application of  $\bar{A}$ -movement involving the same chain in the higher clause.<sup>13</sup> We can derive the fact that this configuration is necessary to allow an  $\bar{A}$ -gap in the adjunct from the theory assumed here. Consider, for example, the component sentences of (28c), in (32a-b) below.

(32) **Component sentences for (28c):**

- a. What did Hobbes say *t*
- b. What did Hobbes say *t*, only to retract *t* later

Both component sentences are well-formed, because both (32a) and (32b) contain an operator and an associated variable position. What is then special about parasitic gaps is that an extra variable position has been created for the same operator-variable chain. Note that the analysis of adjunction described so far is indifferent to the question of what operation is assumed to underlie parasitic gaps. It predicts only what kind of configuration should result from it.

In addition to the parasitic gap constructions, there are also A-processes that qualify as parasitic. The first of these is PRO-control. Control of a PRO serves to connect an argument to an additional, lower thematic position. As a result, the current analysis predicts that it can apply across adjuncts. Consider the component sentences for the PRO-control sentence *Calvin burped PRO to disgust his parents*, in (33a-b). For the sake of concreteness, I will assume that A-chains require a thematic position and a case position to be semantically well-formed (*cf.* section 4.2).

(33) **Component structures of *Calvin burped PRO to disgust his parents*:**

- a. Calvin [<sub>VP</sub> [<sub>DP</sub> *t*] burped]
- b. Calvin [<sub>VP</sub> [<sub>DP</sub> *t*] burped] PRO to [<sub>VP</sub> [<sub>DP</sub> *t*] disgust his parents]

In (33a), the A-chain headed by *Calvin* is well-formed, because it includes a thematic position, spec-VP, and a case position, spec-TP. In (33b), the same applies. *Calvin* still occupies both a thematic position and a case position and PRO is also licensed, since the component sentence includes its case position and whatever the higher argument may contribute to its licensing. As such, nothing prevents a local relationship between *Calvin* and PRO. Since the adjunct does not constitute a derivational island, like a phase does,<sup>14</sup> PRO is accessible to the higher argument, like in OC into a complement clause. In this way, a representational analysis of adjunction derives obligatory PRO-control into adjuncts.

The second type of A-process that is parasitic is movement into a thematic position. By definition,  $\theta$ -movement applies to an argument with an independent thematic position. As such, it should be licit across an adjunct. To see this, consider the component structures of a

13 There are additional restrictions on parasitic gaps. Notably, the adjunct must c-command the base position of the gap (e.g. Kayne 1984; Longobardi 1985). We can assume that this condition derives from the mechanism by which a second variable position is created in narrow syntax. See Nissenbaum (2000) for an analysis of parasitic gaps that is compatible with the current proposal (although it is then necessary to assume that all subject-oriented adjuncts can be attached at v).

14 I assume here, as in section 2.2 and in section 4.2, that infinitival C is not a phase head.

sentence like *Calvin burped to t disgust his parents* in (34a-b).

(34) **Component structures of *Calvin burped to t disgust his parents*:**

- a. Calvin [<sub>VP</sub> [<sub>DP</sub> *t*] burped]
- b. Calvin [<sub>VP</sub> [<sub>DP</sub> *t*] burped] to [<sub>VP</sub> [<sub>DP</sub> *t*] disgust his parents]

The component sentence in (34a) is identical to the well-formed (33a). (34b) is also well-formed, because it simply includes (34a) plus an extra thematic position for *Calvin*. As a result, nothing blocks movement from the adjunct. In this way, the fact that control is essentially a parasitic operation, in that it relies on the presence of a licit argument in the higher clause, means that control is possible into adjuncts.

Note that, in order for this analysis to work across control adjuncts, we have to assume that prepositions are not phase heads when they select for infinitival or gerundive clauses. Otherwise, obligatory control would be blocked into temporal and nontemporal gerunds, which are headed by prepositions, contrary to what I concluded in section 3.1. In fact, Richards (2010) proposes on independent grounds that prepositions cannot be phase heads when they select for clausal complements, in an attempt to explain the ungrammaticality of such configurations. Following Chomsky (2000, 2001), Richards ties the phase head property to transitivity. He assumes that heads like P and v are only phasal when they function as case-assigners for an argument. As a result, prepositions that take a clausal complement must be non-phasal. If we adopt these assumptions here, prepositions that head adjuncts can also never be phase heads. As such, we predict that infinitival and gerundive clauses headed by prepositions are just as transparent for syntactic operations as other adjuncts, just as argued in section 3.1.<sup>15</sup>

It is important to observe also that other types of A-movement are ruled out under this analysis. If not parasitic, A-movement from adjuncts gives rise to ungrammaticality, like  $\bar{A}$ -movement. As such, movement from adjuncts cannot feed passivisation or raising, as (35a-b) arguably illustrate.<sup>16</sup>

(35) **Movement from adjuncts cannot feed passivisation or raising:**

- a. \*Calvin seemed in order to disgust his parents.
- b. \*Calvin was slept near.

We can derive the absence of this type of movement from the present analysis. The sentence in (35b), for example, corresponds to the component sentences in (36a-b).

(36) **Component sentences for (35b):**

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<sup>15</sup> Another option would be to argue that prepositions that head adjuncts are actually non-phasal complementisers, similar to what Bennis and Hoekstra (1985) propose for Dutch.

<sup>16</sup> The examples in (33a-b) may not quite illustrate this claim, since we can expect them to be ungrammatical on independent grounds. The preposition *near* in (30b) already assigns case to its complement, which then has no reason to raise to spec-TP. However, the fact that the right kinds of examples are unavailable arguably illustrates the claim that this is not a licit configuration.



- a. \*Calvin was [<sub>VP</sub> slept]
- b. Calvin was [<sub>VP</sub> slept] [<sub>PP</sub> near [<sub>DP</sub> t]].

Although (36b) is arguably well-formed, because *Calvin* occupies both a case position and a  $\theta$ -position, the component sentence in (36a) is ill-formed, because there is no thematic position for *Calvin*. In this way, it is predicted that any type of A-movement that is not parasitic, like control, is ill-formed.<sup>17</sup> As a result, the present analysis derives the acceptability of obligatory control into adjuncts, while, at the same time, explaining why adjuncts otherwise behave like islands.

Although the present analysis then appears to cut the data the right way, there is one asymmetry between coordination and adjunction that it does not account for. As Ross (1967) already noted, extraction of a conjunct from a coordinate structure is illicit (37a). Adjuncts, however, can freely be extracted (37b).

(37) **Conjuncts cannot be extracted, but adjuncts can:**

- a. \*What did Calvin refuse to eat broccoli?
- b. When did Calvin refuse to eat broccoli?

This is a problem for the current analysis, because it predicts that adjuncts are essentially frozen after Merge. Since their traces are invisible in at least one component sentence, this would yield ungrammaticality.

There is some merit to the idea that adjuncts become frozen after being merged, however. In section 3.1, I noted that there is a correlation across control adjuncts between the ability to prepose and the ability to support an NOC reading, which I related to the availability of Late Merge. All the adjuncts that always require OC are fixed in their position. Rationale clauses and gerunds, however, which allow NOC in some contexts, can be preposed freely. Suppose that these two facts are related. Suppose that outcome clauses and object-oriented adjuncts check some feature against a functional head in the attachment

17 Lin (2001, 2002) analyses gapping, as in (via), as a case of non-parasitic extraction out of coordinate structures. She argues that reconstruction save a coordinate structure from being ill-formed, by creating component sentences of the type in (vib-c).

(vi) **Lin's (2001, 2002) analysis of gapping allows reconstruction to save non-parasitic extraction:**

- a. Calvin will read a comic book and Hobbes watch TV.
- b. will [<sub>VP</sub> Calvin read a comic book]
- c. will [<sub>VP</sub> Hobbes watch TV]

If this analysis is correct, we might expect the same possibility to arise with adjuncts. However, because of how adjunction decomposes into component sentences, we actually predict that reconstruction is not unavailable as a saving strategy, as appears to be correct. Consider the configuration in which reconstruction could serve to hide an argument from an A-movement position at LF when it is spelled out in that position (viiia). The component sentences are given in (viiib-c).

(viiia) **Reconstruction cannot save non-parasitic extraction in adjoined structures:**

- a. \*Calvin will Hobbes read a book before watching TV.
- b. will [<sub>VP</sub> Hobbes read a book]
- c. \*will [<sub>VP</sub> Hobbes read a book] [before [<sub>VP</sub> Calvin watching TV]]

On Lin's analysis, (viiib) is well-formed for the same reason that (vic) is. I assume that the component sentence in (viiic) is ill-formed, however, because the case position in spec-TP now cannot be tied to both *Hobbes* and *Calvin*. This is in contrast to (viiic), in which spec-TP can be associated with *Hobbes* at LF.

clause.<sup>18</sup> On a Late Merge account of NOC effects, this prevents these adjuncts from being merged late and, as such, derives the absence of NOC. On the present account, however, this also predicts that object-oriented adjuncts and outcome clauses are fixed in the clause, since adjuncts are assumed to be frozen after being merged. Rationale clauses and gerunds, in contrast, which can undergo Late Merge, are assumed to not need to check features against a functional head and, as such, can be merged at multiple points in the clause. I assume then that preposed adjuncts are base-generated in that position (see also Reuland and Avrutin 2005).<sup>19</sup> In this way, we can derive the correlation between the presence of NOC readings and the grammaticality of preposing.

I will then take the idea that adjuncts become frozen for further operations after being merged to be a welcome consequence of the analysis. In order to allow for apparent cases of adjunct extraction, I propose that  $\bar{A}$ -marked adjuncts can be base-generated in the  $\bar{A}$ -position. In preposing, this means that whatever  $\bar{A}$ -feature forces fronting is satisfied by merging the adjunct in the specifier of CP. The same process then underlies *wh*-movement. Because this puts the adjunct in a specifier position, it also renders it visible for the purposes of semantic evaluation. In this way, adjuncts can also be made visible for successive-cyclic movement, by being merged in an embedded spec-CP. For reasons of space, I will not go into the details of this proposal here. See Hegarty (1992) for an analysis of adjunct extraction that is compatible with these assumptions.

A key feature of the analysis so far is that predicts only what type of configurations are acceptable. It does not necessarily predict any similarities between the strategies employed to achieve those configurations. In fact, there are clear differences between the operations that underlie the configurations discussed above. Parasitic gaps and ATB gaps, for instance, even if similar in many ways (e.g. Lasnik and Stowell 1991; Munn 1992, 2001), differ in one important way. As Postal (1993a) points out, ATB extraction is virtually unrestricted in terms of the types of constituents it can apply to. In contrast, parasitic gaps are only possible with nominal arguments. It is likely then that different strategies underlie them (though see Hornstein and Nunes 2002). This is not a problem under the analysis developed here, since it pertains only to the resulting representations. As such, we might imagine that ATB extraction makes use of coordination-specific strategies, such as structure-sharing (e.g. Johnson 1996; Lin 2001, 2002; Citko 2005; Gračanin Yuksek 2007), that are unavailable in parasitic gap constructions.<sup>20</sup> In a similar vein, PRO-control and  $\theta$ -movement employ

18 That these adjuncts select for certain functional heads is not so strange, considering that object-oriented adjuncts impose quite specific restrictions on the predicate in the attachment clause, as Huettner (1989) documents. In the case of outcome clauses, however, we have to stipulate that they check some unvalued feature, since they are compatible with most types of attachment clauses, with the exception of statives.

19 There is good evidence for the assumption that preposed adjuncts are base-generated in a left-peripheral position. Elements inside preposed adjuncts appear to not be c-commanded by elements lower in the attachment clause. Principle C effects, for instance, are not triggered (viii-a-b).

(viii) **Principle C effects not triggered in preposed adjuncts:**

a. In order to please Calvin<sub>i</sub>, he<sub>i</sub> was given a comic book.

b. Before sending Calvin<sub>i</sub> to bed, he<sub>i</sub> was served broccoli.

20 See Nissenbaum (2000) and Gračanin Yuksek (2007) for analyses of parasitic gaps and structure-sharing, respectively, that are compatible with the present proposal. Note that, in order to make the present proposal compatible with Nissenbaum's (2000) account, it would be necessary to assume that subject-oriented

different operations, even if the resulting configuration is highly similar.

Another advantage of the present theory is that it is in principle neutral with regards to the question of how control should be analysed. Since it is the control configuration itself that is parasitic, the current analysis make roughly the same predictions across different theories of control. Suppose we assume the traditional analysis of control (e.g. Landau 2000, 2004, 2006, 2008; Sigurðsson 2008), for instance, in which movement into a thematic position is taken to be illicit and control is only established through PRO-control. Because the availability of A-movement from adjuncts is explicitly tied to the availability of  $\theta$ -movement – it is only this type of A-movement that is parasitic, we would then only predict PRO-control to be possible. Similarly, if a movement theory of control is adopted, as in Hornstein (1999, 2001), and the existence of PRO is denied, then only movement-derived control is predicted to be possible. As such, although I adopt the movement and PRO approach to OC developed in chapter two, the analysis of the locality of adjunction argued for here is independent of it. The analysis in this chapter is not reliant on any particular theory of control.

In the rest of chapter, I will focus on some problems for the analysis of adjuncts assumed so far. First of all, although control into adjuncts treats the adjunct as part of the local domain, the same is not true of expletive-raising. Expletive-raising is not possible from adjuncts. This is a problem, since there does not appear to be any a priori reason why there should be this asymmetry. I offer an analysis of this in the next section and show that, in fact, expletive-raising from adjuncts is ruled on independent grounds in most theories of expletive-associate chains. Second, there are counterexamples to the idea that adjuncts and coordinate structures are islands for extraction. I explore some of these cases, in light of work by Postal (1993b), and propose a way in which they could be accommodated in the present proposal.

### **3.4 On Expletive-raising and Apparent Extraction from Adjuncts**

There are two empirical phenomena that appear to contradict the claims of the analysis developed here. First of all, there is an empirical problem that arises for any analysis that treats adjunct control as obligatory control. Unlike control, raising behaves as if the adjunct is not part of the local domain. Expletives appear to be unable to move from adjuncts. Second, there are environments in which non-parasitic  $\bar{A}$ -extraction appears to be possible from adjuncts (Truswell 2007). I argue here that the absence of expletive-raising from adjuncts follows from the idea that expletives and associates must be in a one-to-one relationship, an assumption already implicit or explicit in many theories of expletives (e.g. Chomsky 1995; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009). Finally, I discuss some apparent cases of non-parasitic extraction from coordinate structures and from adjuncts (Lakoff 1986; Truswell 2007).

A well-known result about PRO is that it cannot be expletive (Safir 1985; Jaeggli and Safir 1989; Lasnik 1992). Perhaps surprisingly, this also extends to adjuncts. Since it is argued here that movement from adjuncts is in principle possible, we might have predicted that expletive-raising should also be possible. Instead, these cases are clearly ungrammatical

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adjuncts are adjoined at v or at least can optionally be adjoined at v.

(38a-c).

(38) **Expletive-raising from adjuncts is ungrammatical:**


- a. \*There was a snow fort without being a snow castle.
- b. \*It is true that Hobbes likes to annoy Calvin despite being false that Calvin likes to be annoyed.
- c. \*There appeared snow in the winter after appearing snow in the fall.

These examples appear to directly illustrate that there is no possibility for movement from the adjunct. If the adjunct is indeed not an absolute boundary, movement of the expletive should have been possible. At first glance then, control and raising seem to lead to differing conclusions about the locality of adjuncts. The obligatory nature of adjunct control, as argued in section 3.1, strongly suggests that adjuncts are not absolute boundaries for movement. The absence of clear instances of raising, however, points to the opposite conclusion, that adjunct boundaries do block movement.

There is, however, something special about expletive-raising configurations that is absent in most of the other environments expletives occur in. In order to for an expletive to move from an adjunct, it needs to establish an expletive-associates chain with two associates. In (38a), the expletive *there* has two associates, *a snow fort* and *a snow castle*. The same is true of *it* in (38b) and *there* in (38c). These expletives all have multiple associates, one in the higher clause and one in the adjunct. It is this that could underlie the ungrammaticality of (38a-c). In fact, many theories of the properties of expletives explicitly or implicitly assume that expletives and associates stand in a one-to-one relationship (Chomsky 1995, 2000; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009).

Chomsky (1995, 2000), for instance, proposes that expletives and associates are linked by means of an Agree relation. The expletive is merged in spec-TP and initiates a probe-goal relationship with its associate in which a case feature is valued on the associate and agreement features are valued on the expletive.. A standard expletive-associate chain is then established as in (39a). The expletive initiates an Agree relation with the associate, in which the uninterpretable features of both are checked. We can also rule out expletive-raising in this theory. Consider the structure of such an example, in (39b). Although the expletive can check the case feature on *a sled*, it has no reason to check this same feature on *a tiger*, since the uninterpretable features of the expletive will already be checked at this point. As such, the sentence is predicted to be ungrammatical.

(39) **Expletive-associate chains in Chomsky (1995, 2000):**

- a. [TP [DP there {u $\phi$ ,iCase}] is [VP [DP a sled {i $\phi$ ,uCase}] on the hill]]  

- b. [TP [DP there {u $\phi$ ,iCase}] is [VP [DP a sled {i $\phi$ ,uCase}] on the hill]] [without [VP being [DP a tiger {i $\phi$ ,uCase}] eager for adventure]]

Similar predictions are made by the theory of expletives in Bobaljik (2002), which is essentially similar, but makes use of a type of covert movement.

There are also a number of theories in which the expletive and the associate form one constituent (e.g. Basilico 1997; Sabel 2000). In this type of theory, the expletive and associate are merged together and the expletive moves out to spec-TP. If we adopt this kind of perspective on expletive-associate chains, then we also predict that expletives and associates stand in a one-to-one relationship. In a case of expletive-raising, the expletive would then have to move into a complex constituent, violating the c-command condition on movement. To see this, consider the structure of (38a) in such a theory (40).

(40) **(38a) if expletive and associates initially form one constituent:**

There was [<sub>DP</sub> [<sub>DP</sub> *t*] a snow fort] without being [<sub>DP</sub> [<sub>DP</sub> *t*] a snow castle]

In this derivation, the expletive *there* has to move from a position within the complex DP it forms with the lower associate to a position within the complex DP containing the higher associate. Since this movement step violates c-command, this is predicted to be impossible. In this way, this kind of theory derives the restriction on multiple associates.

Another theory that assumes a one-to-one relationship between expletive and associate is advanced in Deal (2009). Deal argues that expletives are merged in spec-vP and serve to carry the case and agreement features of their associates to a higher A-position while allowing the associate to remain in situ for scope reasons. In this way, expletives and associates share case and agreement features. Deal proposes that, in order to motivate the probe-goal relationship between the expletive and the associate, the expletive is featurally dependent on the associate. Although its nature is left unspecified in her analysis, this feature, uF, causes the expletive to probe for its associate and copy its case feature and  $\phi$ -features. This mechanism also ensures that expletives only take one associate, because the feature uF is valued after Agree with the first associate. As such, there is no trigger for Agree with a second associate.

In these theories then, the first application of the operation that connects the expletive with the associate prevents a second application of the same operation. That it is indeed the fact that the expletive has two associates that gives rise to the absence of expletive-raising from adjuncts is arguably illustrated empirically by the fact that raising of referential *it* and of weather expletives is fine (41a-c).

(41) **Raising of referential *it* and weather expletives out of adjuncts:**

- a. It seemed to be false without seeming to be improbable.
- b. It turned out to be true after appearing to be false.
- c. It rained in Utrecht without raining in Amsterdam.

What distinguishes these elements from ordinary expletives is that they do not require an associate. In (41a), *it* is grammatical because it is referential and refers to just one proposition. Weather expletives similarly lack associates. That these are indeed cases of

movement and not control of a PRO can be demonstrated by looking at instances of NOC. NOC illustrates that the animacy restriction on PRO prevents it from taking referential *it* or a weather expletive as its antecedent (42a-c).

(42) **Referential *it* and weather expletives cannot be antecedents for PRO:**

- a. \*It was believed that seeming to be false was probable.
- b. \*It was thought that turning out to be true was to be expected.
- c. \*It was believed that raining in Utrecht was a common occurrence.

There is one counterexample, however, to the idea that expletive and associates stand in a one-to-one relationship, however. In coordinate structures, expletives are able to have associates in separate conjuncts, as (43a-c) illustrate.

(43) **Coordinate structures allow expletives to have multiple associates:**

- a. There will be a snow fort, but no snow castle.
- b. It is true that Hobbes was fraternising with the enemy and true that his loyalty should now be called into question.
- c. There seemed to be no broccoli on the table and no cauliflower on Calvin's plate.

In (43a), the expletive *there* is associated with both *a snow fort* and *a snow castle*. Similarly, the expletives in (43b-c) appear to have associates in each conjunct. This is problematic in theories in which it is the associate that moves (e.g. Chomsky 1995; Bobaljik 2002), since extraction from coordinate structures should take the form of ATB extraction. Instead, these theories would predict movement of two different elements to the same position. However, in the theories in which it is the expletive that moves (Basilico 1997; Sabel 2000; Deal 2009), nothing prevents ATB extraction of two expletives to the same position, as long as the relevant features match.

A second potential problem is the fact that there are some apparent counterexamples to the claim that coordinate structures and adjuncts are islands. Lakoff (1986) points to three different classes of constructions which appear to contradict Ross's (1967) CSC (44a-c).

(44) **Apparent violations of the CSC:**

- a. the stuff which Arthur sneaked in and stole *t*
- b. How many dogs can a person have *t* and still stay sane?
- c. That is the drug which athletes take *t* and become quite strong.  
(Postal 1993b: 53)

There are similar constructions in which non-parasitic movement from an adjunct appears to be grammatical (45a-b).

(45) **Apparent violations of island status of adjuncts:**

- a. What did John drive Mary crazy trying to fix?  
(Truswell 2007: 1355)
- b. What did Calvin get up to do?

I will set aside the cases in (45b-c) here, since Postal (1993b) presents convincing evidence that these are not coordinated structures and focus on (44a) and (45a-b).<sup>21</sup>

Note, first of all, that (44a) and (45a-b) appear to be related. In both constructions, extraction is only possible if there is a tight semantic link between the two events. The events have to either be simultaneous or consecutive (46a-b) and the second verb cannot be stative (46c-d).

**(46) The two events have to be linked semantically:**

- a. \*the stuff which Calvin watched TV yesterday and grabbed today
- b. \*What did Calvin get up yesterday to be able to do today?
- c. \*the stuff which Calvin sneaked in and thought
- d. \*What did Calvin get up to think?

Another similarity between the two is that they involve the intersection of VPs. This kind of extraction is only possible in coordinate structures when VPs are coordinated, as Lakoff (1986) points out (47a-b). Control adjuncts also do not involve material above the VP level.

**(47) Extraction only licit from coordinated VPs:**

- a. \*the cheese which Frank went to the store, his wife bought, they went home, and we gave to Greta
- b. \*the book which Gail will drive there and will borrow  
(Postal 1993b: 58)

Postal (1993b) provides an analysis of the type of extraction in (44a). He points out that the relevant conjuncts behave like selective islands. They do not permit adjunct extraction, for instance (48a). This is true also of non-parasitic extraction from adjuncts (48b).

**(48) Adjunct extraction can never be non-parasitic:**

- a. \*How long did Nora go there, come home and talk to that student?  
(Postal 1993b: 66)
- b. \*How long did Calvin get up to talk to Hobbes?

Both constructions also behave like islands in other respects. Both block parasitic gaps, for example (49a-b), and NPI licensing (49c-d).

**(49) Coordinate structures and adjuncts otherwise still behave like islands:**

- a. \*It was Jane who he hired after jumping in the car, driving 300 miles and

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<sup>21</sup> Neither construction permits iteration, for instance.

visiting.

(Postal 1993b: 69)

- b. \*It was Susie who he ignored to talk to Hobbes after spotting.
- c. \*Nobody believed that Frank went home and drank any beer.  
(Postal 1993b: 70)
- d. \*Nobody got up to get any food.

Postal (1993b) then concludes that these structures are still islands, but that there is something special about the argument extraction in (44a). In the context of a broader study of extraction in English, he proposes that (44a) involves a null resumptive pronoun in the base position of the *wh*- argument. This proposal, however, runs into serious problems. This null pronoun cannot be like other resumptive pronoun, since it cannot span multiple island boundaries. To solve this, Postal (1993b) suggests that this null pronoun must be controlled. However, the relationship that obtains between the antecedent and the gap in these cases does not resemble control. The antecedent cannot be absent (50a) and the antecedent and the gap must be coreferential even if they are not in the same local domain (50b).

(50) **Relation between antecedent and the gap is not reminiscent of control:**

- a. \*It is not believed that Calvin sneaked in and stole.
- b. the tuna sandwich<sub>i</sub> which<sub>i</sub> Calvin thought Hobbes had sneaked in and eaten  $EC_i/*_j$ .

As such, it is unclear what really underlies these cases. We can conclude, however, that the coordinate and adjoined structures involved still otherwise behave like islands. In addition, the relevant extractions are quite restricted. It is important to emphasise finally that the similarities between these counterexamples suggest again that the island status of coordinate and adjoined structures should be analysed in the same way.

In this section, I have shown that the absence of expletive-raising can be derived from the assumption that expletives and associates are in a one-to-one relationship, as in many theories of the properties of expletives (e.g. Chomsky 1995, 2000; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009). This then allows us to make sense of the asymmetry between control and expletive-raising with regards to the locality of adjuncts. Some counterexamples to the claim that adjuncts and coordinate structures are islands have also been discussed. Following Postal (1993b), I argued that the relevant structures are still islands.

## Final Remarks

In this chapter, I have shown that, if we assume that adjuncts are not islands in derivational terms, but merely impose certain constraints on representations, the analysis of adjunct control can be brought in line with the analysis of OC and NOC. Drawing on analyses of the



CSC (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002), I propose that syntactic structures must be well-formed without adjoined material. The result of this is that operations that apply across adjuncts must be parasitic in nature, in that they require an operation of the same type in the higher clause. This explains the availability of parasitic gaps, PRO-control and  $\theta$ -movement out of adjuncts and the configurational similarities between these constructions. Because the availability of movement from adjuncts is tied to the availability of  $\theta$ -movement, this analysis is compatible with other theories of obligatory control (e.g. Hornstein 1999; Landau 2000, 2004, 2006; Sigurðsson 2008). Finally, I examine the ungrammaticality of expletive-raising from adjuncts. I point out that this asymmetry between control and expletive-raising can be derived from the assumption that expletives and associates stand in a one-to-one relationship, an assumption already implicit in a number of theories of expletives (e.g. Chomsky 1995, 2000; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009).

## 4 On PRO and Case

In this chapter, I consider the properties of PRO. I will focus on two key questions: whether PRO is a necessary part of the grammar, and, if so, what restricts its distribution. I argue that PRO and *pro* must be distinguished from each other syntactically and propose a theory of PRO that derives its characteristics. This theory will also shed light on what drives control in the current theory. This is a key problem, since the theory advocated here is incompatible with many contemporary proposals (e.g. Hornstein 2001; Landau 2006).

Specifically, this chapter argues that the distribution of PRO is tied to the absence of agreement (see Sigurðsson 2008 for a similar proposal). The theory of obligatory control developed in chapter two allows for the generalisation that PRO is licit only in contexts in which person agreement is absent, because it analyses OC into clauses with subject-verb agreement as movement. We can then exploit this fact to account for the distribution of PRO. To do this, I propose that PRO is unique in that lacks person features and is illicit in positions with person agreement as a result. In addition, I outline a new theory of case, in which case is a morphological feature defined over two processes: person agreement and  $\theta$ -assignment. As a result, arguments need to both enter into a person agreement relationship with a functional head and receive a thematic role from a functional head in order to carry morphological case. PRO is then argued to be special in that the absence of person features causes it to only require a  $\theta$ -role to have case.

This theory explains why PRO is licit where lexical arguments are not. While lexical arguments require person agreement, PRO requires the absence of person agreement. It is then the absence of person agreement in the infinitival clause that drives control.

In section 4.1, I address the issue of whether PRO is a unique null argument (*cf.* Hornstein 1999; Boeckx and Hornstein 2007). Drawing on Safir (1996), I outline some of the syntactic differences between PRO and *pro* that force the conclusion that these are different elements. Section 4.2 presents a theory of PRO and of case, in which PRO is argued to be unique in that it only requires a thematic role to bear case. This is derived from the assumption that PRO lacks person features. Finally, section 4.3 presents an analysis of the temporal semantics of control complements. This will be used to derive the absence of PRO-control with exhaustive control verbs (see section 2.3).

### 4.1 PRO and *pro*

In recent work, Hornstein (1999) argues that PRO is an undesirable theoretical formative. Instead, he suggests that non-obligatory control can be subsumed by *pro*-drop theory, if NOC PRO is identified with the element *pro*. It is useful to consider this claim in detail, because considering the empirical differences between PRO and *pro* makes it possible to determine what properties, if any, are unique to PRO. This section draws mostly on Safir (1996), but some new data is also provided. Note that, because of the difficulty in talking about PRO and *pro* as distinct elements when the two might be identical underlyingly, the terms PRO and *pro* will be used mostly in a descriptive sense in this section.

At first glance, PRO and *pro* appear to have a number of properties in common. An obvious similarity is that both are null. In addition, both can be referential in some contexts, but have arbitrary reference in others. PRO, for instance, is referential in (1a), but arbitrary in (1b).

(1) **PRO can be both referential and arbitrary:**

- a. Calvin thought that finding Hobbes again was paramount.
- b. Building snowmen is the best part of winter.

The same possibilities arise with *pro*. In most uses, it is referential, as in (2a), but, in some contexts, it can also be arbitrary (2b).

(2) ***pro* can be both referential and arbitrary:**

- a. Vin            mîine.  
       come.3PL tomorrow  
       'They are coming tomorrow.'  
       (Romanian; Alboiu 2003: 9)
- b. mĀarixim                    et ha truma            ŧel-a.  
       appreciate.PRES.MASC.PL ACC the contribution of-FEM.3SG  
       'People appreciate her contribution.'  
       (Hebrew; Shlonsky 2009: 2)

At first consideration then, it might seem desirable to postulate the same underlying element for both, as in Hornstein (1999) and Boeckx and Hornstein (2007). This reduces the conceptual complexity of the grammar. Empirically, however, this approach quickly runs into problems. First of all, the distributions of PRO and *pro* are different.<sup>1</sup> In a significant number of languages, for instance, *pro* is absent, even though PRO is robustly attested. English and Dutch are examples (3a-b).<sup>2</sup>

(3) ***pro* is absent in English and Dutch when PRO is present:**

- a. \*Reads a book.
- b. \*Leest een boek.  
       read.3SG a book  
       '(lit.) Reads a book.'

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1 An account in which PRO and *pro* are manifestations of the same null element but in different contexts need not expect these two elements to have the same distribution. However, there are still striking differences that are not trivial to explain. Across languages, the presence of referential PRO implies the presence of arbitrary PRO and vice versa. The same is not true of *pro* and arbitrary *pro*, however, nor of *pro* and any other null argument type.

2 Eric Reuland (p.c.) points out that there are arguably cases of expletive *pro* in Dutch (i).

(i) **Expletive *pro* in Dutch embedded clauses:**

- Calvin dacht dat (het) duidelijk was dat Calvin niet zou worden gevonden.  
 Calvin thought that it clear was that Hobbes not would become found  
 'Calvin thought that it was clear that Hobbes would not be found.'

There are also differences in the availability of the arbitrary reading. Not all languages that allow arbitrary PRO allow arbitrary *pro*. In Romanian, for instance, both NOC PRO and *pro* are available (4a-b), but arbitrary *pro* is not (4b).

(4) **Romanian allows arbitrary PRO but not arbitrary *pro*:**

- a. A fi om e lucru mare.  
to be man is thing big  
'Being decent is a precious thing.'
- b. Vin mîine.  
come.3PL tomorrow  
'They/(*\*People in general*) are coming tomorrow.'  
(Romanian; Alboiu 2003: 9)

Not only does this suggest that PRO and *pro* are different elements, it is also evidence that arbitrary *pro* and *pro* are different. It suggests that arbitrary *pro* is a null impersonal pronoun, the silent counterpart to elements such as Dutch *men*, French *on* and Icelandic *maður*, where *pro* is just a null pronoun.

Aside from these distributional differences, there are also a number of syntactic differences, as noted by Safir (1996). These will be outlined briefly here. The first difference that Safir points out is that PRO and *pro* differ in whether they can function as resumptive pronouns. This is impossible with PRO, as (5a-b) illustrate for English and Spanish.

(5) **PRO cannot function as a resumptive pronoun:**

- a. *\*That's the guy who we didn't know whether it was possible to swim.*
- b. \*Ese es el tipo que no sabemos si seria posible nadar.  
that be.3SG the guy who NEG know.1PL if be.SUBJ.3SG possible swim.INF  
'(lit.) That's the guy who we didn't know whether it was possible to swim.'  
(Safir 1996: 85)

In contrast, the resumptive reading appears to be available when a *pro* is used (6). Safir notes that, although the example in (6) is not perfect, like its English counterpart, it is clearly better than (5b).

(6) ***pro* can function as a resumptive pronoun:**

- Ese es el tipo que Maria conoce a la mujer con quien se caso.  
that be.3SG the guy who Maria know.3SG P the woman with who.ACC REFL.CL marry.3SG  
'That's the guy who Maria knows the woman who he married.'  
(Safir 1996: 85)

This is evidence that PRO and *pro* are clearly syntactically different, since it is hard to see how the availability of a resumptive reading could be explained by the nature of the clause

the null subject is in.

Another piece of evidence that Safir (1996) highlights is the fact that so-called “linked” interpretations are obligatory for PRO, but not for *pro*. Linked interpretations arise in contexts like (7a-b), in which two infinitives are arguments of the same verb. In these contexts, the subject of the first infinitive must be identical to the subject in the second infinitive, even when this is pragmatically implausible, as in (7b).

(7) **“Linked” interpretations are obligatory with PRO:**

- a. To raise the rent is to irritate the tenants.
- b. To raise the rent means to leave the apartment immediately.

(Safir 1996: 86)

Linked interpretations are not obligatory for *pro*, however. In (8), the linked interpretation is available, but not obligatory.

(8) **“Linked” interpretations are optional with *pro*:**

Para que vengan a arreglar la heladera, es necesario que llamen al  
for that come.3PL to fix.INF the refrigerator is necessary that call.3PL to.the  
tecnico por lo menos tres veces  
technician by the least three times

'In order for someone to come by to fix the refrigerator, it is necessary that someone calls the technician at least three times.'

(Spanish; Safir 1996: 87)

In this way, Safir (1996) provides direct evidence that PRO and *pro* are different syntactic elements.

There is another difference between PRO and *pro* that deserves examination. Although both PRO and *pro* appear to have arbitrary versions, these arbitrary interpretations are different. PRO<sub>arb</sub> shows the same behaviour across languages. Both singular and plural interpretations are always available. This is illustrated for English in (9a-b) and for Dutch in (9c-d).

(9) **PRO can be both singular and plural referentially:**

- a. Hobbes thought that being smooched by a girl did not sound all that bad.
- b. Calvin suspected that fighting each other was the best way to end a good club meeting.
- c. Hobbes vindt dat door een meisje gezoend worden niet slecht  
Hobbes find.3SG that through a girl.DIM PART.smooch become.INF not bad  
klinkt.  
sound.3SG  
'Hobbes thinks that being smooched by a girl does not sound bad.'
- d. Calvin vermoedde dat met elkaar vechten de best manier was

Calvin suspect.PAST that with each.other fight.INF the best way be.3SG.PAST  
om een goede bijeenkomst te beeindigen.  
INF.C a good meeting to end.INF  
'Calvin suspected that fighting each other was the best way to end a good  
meeting.'

Importantly, this variation in interpretation correlates with variation in agreement. In Icelandic, for instance, a secondary predicate agreeing with NOC PRO can show both singular and plural agreement (10).

(10) **PRO triggers both singular and plural agreement:**

Að vera ríkur / ríkir er ágætt.  
to be.INF rich.NOM.SG / rich.NOM.PL be.3SG nice  
'To be rich is nice.'  
(Icelandic; adapted from Sigurðsson 2008: 416)

In contrast, the agreement that arbitrary *pro* triggers is invariant in any particular language. In some languages, like Spanish and Hebrew, it triggers plural agreement (11a-b).

(11) **Arbitrary *pro* triggers only plural agreement in some languages:**

- a. Llaman a la puerta.  
are.calling.3PL at the door  
'People are knocking on the door.'  
(Spanish; Jaeggli 1986: 45)
- b. ma'arixim et ha truma šel-a.  
appreciate.PRES.MASC.PL ACC the contribution of.FEM.3SG  
'People appreciate her contribution.'  
(Hebrew; Shlonsky 2009: 2)

In other languages, like Finnish and Estonian, arbitrary *pro* triggers only singular agreement (12a-b).

(12) **Arbitrary *pro* triggers only singular agreement in some languages:**

- a. Jos ei ole tarpeeksi hieno, ei pääse sisään.  
if NEG be sufficiently fancy.SG NEG get in  
'If one is not sufficiently well-dressed, one will not get in.'  
(Finnish; Kaiser and Viihman 2006: 118)
- b. Kui ei piisavalt esinduslik, siis ei pääse sisse.  
if NEG sufficiently well-dressed.SG then NEG get in  
'If one is not sufficiently well-dressed, one will not get in.'  
(Estonian; Kaiser and Viihman 2006: 118)

It seems then that arbitrary *pro* is subject to lexical variation. It can be formally singular, but also formally plural. This suggests that arbitrary *pro* is of a different nature than PRO, which is not subject to such variation.

We can conclude then that there are real syntactic differences between *pro* and PRO that go beyond the contexts in which the elements surface. Empirically then, we cannot identify NOC PRO with *pro*. A unique null subject is necessary for each environment. Having established this, the rest of the chapter will focus on the properties of PRO.

## 4.2 PRO, Person and Case

The theory of obligatory control developed in chapter two is incompatible with other proposals about the characteristics of PRO (e.g. San Martin 2004; Landau 2006). This is because these theories take the subject position of control clauses to be in some sense reserved for PRO, while the current proposal allows a  $\theta$ -movement derivation also. In addition, because  $\theta$ -movement is assumed to underlie some instances of OC, the range of environments in which OC PRO is found is more limited. Specifically, there are two key differences: 1) PRO always checks case independently and is not found in case-sharing configurations (see section 2.1) and 2) PRO is not found in clauses with subject-verb agreement (see section 2.4). As a result of these assumptions, the behaviour of OC PRO is much more uniform. In other theories, the distribution of PRO is much more complex, both in the ways in which it checks case and in the environments in which it is licit. In the current theory, there are then two interesting differences between PRO and lexical arguments. First of all, the alternation between case-sharing and case independence suggests that PRO differs from lexical arguments in that it acquires case inside the infinitival clause. Second, the absence of PRO-control effects in clauses with subject-verb agreement suggests that PRO, unlike lexical arguments, requires the absence of subject-verb agreement. On the basis, we can offer a tentative generalisation about PRO, that, unlike lexical arguments, it can check case in the absence of subject-verb agreement.

Both aspects of this generalisation are valid also in non-obligatory control. As noted in chapter two, there is no case-sharing in non-obligatory control. Some examples from Russian, Icelandic, Czech, and Slovene are given below (13a-d). Note that the dative in Russian and the nominative in Icelandic, Czech and Slovene are the independent cases in obligatory control.

### (13) NOC produces case independence:

- a. Ivan      *dumaet čto pojtí domoj odnomu važno.*  
 Ivan.NOM thinks    that go.INF home **alone.DAT** important  
 ‘Ivan thinks that it is important to go home alone.’  
 (Russian; Landau 2008: 885)
- b. Að vera ríkur      er      ágætt.  
 for be.INF **rich.NOM** be.3SG nice  
 ‘To be rich is nice.’

- (Icelandic; Sigurðsson 2008: 416)
- c. Být opilý zamená být hloupý.  
 be.INF **drunk.NOM** means be.INF **stupid.NOM**  
 ‘To be drunk means to be stupid.’  
 (Czech; Przepiórkowski and Rosen 2004: 38)
- d. Iti na delo pijan je neprofesionalno.  
 go.INF to work **drunk.NOM** AUX.3SG unprofessional  
 ‘To go to work drunk is unprofessional.’  
 (Slovene)

In addition, across languages, non-obligatory control only obtains with a non-agreeing form of the verb. In Romanian, for example, control verbs select subjunctive clauses with subject-verb agreement (14a). Non-obligatory control, however, is only possible with a non-agreeing infinitival form (14b). Null subjects in subjunctive clauses only take a referential readings (14c).

(14) **Romanian only allows NOC with non-agreeing infinitives:**

- a. Victor încercă să cînte.  
 Victor try.3SG SUBJ sing.3SG  
 ‘Victor tried to sing.’  
 (Romanian; Alboiu 2007: 190)
- b. A fi om e lucru mare.  
 to be man is thing big  
 ‘Being decent is a precious thing.’  
 (Romanian; Alboiu 2003: 10)
- c. E usor sa plece.  
 is easy SUBJ leave.3SG  
 ‘It is easy for him/her to leave.’  
 (Romanian)

A similar situation holds in Persian (Karimi, to appear). Control verbs select clauses with subject-verb agreement (15a). NOC, however, only obtains with an infinitive (15b).

(15) **Persian uses a non-agreeing infinitive for NOC:**

- a. aræš mi-tun-e ke bi-ad.  
 Arash DUR-can-3SG C SUBJ-come-3SG  
 ‘Arash can come.’  
 (Persian; Ghomeshi 2001: 12)
- b. Kâr kard-an dar in sharâyet xeyli saxt-e.  
 work do-INF in this conditions very difficult-is  
 ‘Doing work in these conditions is very difficult.’  
 (Persian; Karimi, to appear: 8)



In a discussion of gerunds in Sakha, Baker (2009) similarly notes that agreement on the gerund is ungrammatical in cases of non-obligatory control (16a-b).

(16) **Sakha gerunds require the absence of agreement in NOC:**

- a. Masha terilte-ni salaj-yy-ta  
Masha.GEN company.ACC manage-GER-3SG  
'Masha's managing the company'
- b. terilte-ni salaj-yy  
company-ACC manage-GER  
'the management of the company'  
(Baker 2009: 16-17)

In contrast, in languages without an infinitive, such as Greek and Bulgarian, arbitrary PRO is not attested. In Greek subjunctive clauses, *pro* is interpreted referentially (17a) and arbitrary readings are available only with an overt impersonal pronoun (17b).

(17) **Greek subjunctive clauses with agreement do not allow arbitrary readings:**

- a. Ine efkolo na fiji.  
is easy SUBJ leave.3SG  
'It is easy for him/her to leave.'
- b. Ine efkolo na fiji kanis.  
is easy SUBJ leave.3SG one  
'It is easy for one to leave.'  
(Roussou 2009: 1830)

We can conclude from these facts that there is no objection to the assumption that NOC PRO, like OC PRO, is incompatible with subject-verb agreement.

We can further specify what is special about subject-verb agreement. Baker (2008) points out that subject-verb agreement is the only type of agreement that involves person agreement cross-linguistically. Agreement with adjectives or secondary predicates only consists of number or gender agreement. We can illustrate this with the following paradigm from Swahili (18a-b).

(18) **Swahili verbs agree in person, but adjectives do not:**

- a. Ni-li-kuwa ni-ki-som-a.  
1SG.PAST.be 1SG.CONT.read.FV  
'I was reading.'
- b. Ni-ø m-refu.  
1SG.be CL1.tall  
'I am tall.'  
(Ashton 1949 in Baker 2008: 1)

In (18a), the verb agrees with the subject in person and in number. In (18b), however, the clitic *m* on the adjective, which marks “singular number and human/animate gender” (Baker 2008: 2), only agrees with the subject in number and gender. This asymmetry turns out to hold across languages.

From this perspective, we can explain why subject-verb agreement should be special. Indeed, PRO can agree in number and gender with secondary predicates, as the examples in (19a-d) from Icelandic illustrate.

(19) **PRO agrees in number and gender:**

- a. Að vera ríkur er ágætt.  
to be.INF **rich.NOM.MASC.SG** be.3SG nice  
'To be rich is nice.'
- b. Það er ekki alltaf leiðinlegt að ferðast ein.  
it be.3SG not always boring to travel.INF **alone.NOM.FEM.SG**  
'It is not always boring to travel alone.'
- c. Að vera ríkir er ágætt.  
to be.INF **rich.NOM.MASC.PL** be.3SG nice  
'To be rich is nice.'
- d. Að vera ríkar er ágætt.  
to be.INF **rich.NOM.FEM.PL** be.3SG nice  
'To be rich is nice.'

(adapted from Sigurðsson 2008: 424)

We can then be more precise and say that PRO is incompatible with person agreement.

We can exploit this generalisation about PRO to derive its properties. Specifically, the intuition that I wish to pursue is that person agreement is crucial for case checking for lexical arguments, but not for PRO. This theory will require two assumptions: 1) person agreement is necessary for case checking and 2) PRO can check case without person agreement. The first of these is not particularly controversial. Given that person agreement is only present on verbs, it is essentially similar to the idea that only  $\phi$ -complete heads assign case (Chomsky 1995).<sup>3</sup> I will assume here, however, that it is only person agreement that is involved in case checking. On the assumption then that infinitival verbs lack even covert person agreement (following Bianchi 2003), we can at least derive the fact that lexical arguments in infinitival subject position need to undergo  $\theta$ -movement. This is necessary in order for the argument to enter into a person agreement relationship with a head and receive case.

3 Note that some authors have challenged the link between agreement and case, or at least the conventional conception of it (Markman 2005, 2009), particularly given the weak evidence for the idea that covert object agreement is involved in accusative case assignment. The evidence for the involvement of some form of person licensing in the licensing of direct and indirect object is more robust, however, in the form of Person-Case Constraint (PCC) effects (e.g. Bonet 1991; Béjar and Rezac 2003, 2009). We might imagine then that the process of person agreement assumed in this section is actually a mechanism of person licensing and, in principle, independent of morphological agreement.

We can examine this in more detail. Consider the derivation in (20).

(20) **Derivation of *Calvin tried to eat cookies*:**

Calvin tried to eat cookies

[<sub>VP</sub> [<sub>DP</sub> Calvin {iπ,uCase}] v [<sub>VP</sub> eat [<sub>DP</sub> cookies]]]

[<sub>CP</sub> C [<sub>TP</sub> [<sub>DP</sub> Calvin {iπ,uCase}] to [<sub>VP</sub> [<sub>DP</sub> Calvin] ... ]]]

[<sub>VP</sub> [<sub>DP</sub> Calvin {iπ,uCase}] v [<sub>VP</sub> try [<sub>CP</sub> C [<sub>TP</sub> [<sub>DP</sub> Calvin] to [<sub>VP</sub> ... ]]]]]]

[<sub>CP</sub> C [<sub>TP</sub> [<sub>DP</sub> Calvin {iπ,uCase}] T {uπ,iCase} [<sub>VP</sub> [<sub>DP</sub> Calvin] v [<sub>VP</sub> try [<sub>CP</sub> ... ]]]]]]

The argument *Calvin* is merged in the specifier of v, with an unvalued case feature. It raises to spec-TP of the infinitival clause to satisfy EPP. Since the case feature of the argument is still unvalued, because infinitival T does not initiate person agreement, it then needs to raise into the matrix clause in order for the derivation not to crash. The argument is then attracted to matrix spec-vP. Note that I take infinitival C not to be a phase head (as in section 2.3), explaining why A-movement can proceed from one spec-vP position to another. Finally, the φ-probe on T initiates agreement with the argument and checks its unvalued case feature.

The second assumption that is necessary to derive the distributional generalisation described here, that PRO can check case without person agreement, is less straightforward. It requires some modifications to conventional case theory. I will assume, first of all, that case is componential (see also Belletti 1988; Reinhart 2002; Reinhart and Siloni 2005). Specifically, I propose that case is fed not only by agreement relations, but also by thematic relations. The role of case can be then seen as the morphological marking of the functional heads that an argument is licensed by. In this system, case is not a simple syntactic feature, but a morphological feature defined over multiple syntactic features, specifically those involved in person agreement and θ-marking. Person agreement and θ-assignment are seen as the operations that are necessary for an argument to be licensed in narrow syntax.<sup>4</sup> Case is then taken to be a morphological feature defined over these processes. I will assume that case can be defined both over the specific feature involved, by, for example, marking a specific

4 The role of θ-assignment in licensing lexical arguments is uncontroversial, but, in order to capture the licensing role of person agreement, it is necessary to assume some principle like Béjar and Rezac's (2003, 2009) Person Licensing Condition. Note that person licensing need not take the form of person agreement for the current proposal to work. Indeed, the idea that agreement is implicated in case assignment has been called into question (Markman 2005, 2009) and there are some proposals that derive the significance of person agreement from the assumption of

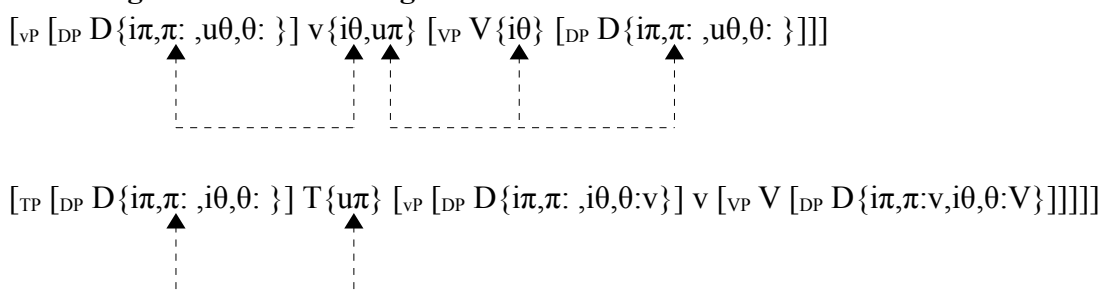
thematic role with an inherent case, or over the functional head involved, by, for instance, assigning case on the basis of the identity of the head the argument agreed with. In this way, as summarised in Table 1, we can accommodate most different types of case. Nominative and absolutive case, for instance, are assigned to nominals that agree in person with T. Inherent cases, such as dative case in Icelandic, are defined over a specific thematic role. Note that these are all *simplex cases*, in that they make use only of one piece of information. We can also accommodate *complex cases*, such as in systems with person-based case splits, which are defined over multiple pieces of information.

**Table 1:** Examples of morphological cases

Information	Example
thematic role (e.g. AGENT, THEME)	dative, (ergative)
$\theta$ -assigner (e.g. v, V)	lexical case, (ergative)
person feature (e.g. 1 <sup>st</sup> , 2 <sup>nd</sup> )	person-based case splits <sup>5</sup>
agreeing head (e.g. T, v)	nominative, accusative, absolutive

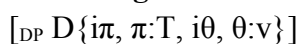
To see how this system works, consider the derivation of a transitive sentence in a nominative-accusative system (21).

(21) **Person agreement and  $\theta$ -assignment in a transitive sentence:**



For ease of exposition, I have represented information about the head involved in person agreement and  $\theta$ -assignment in separate features. Depending on whether it is assumed that morphological processes can read off information about what Agree relations have been established in narrow syntax, this encoding might be redundant. As (21) illustrates, the subject agrees in person with T and receives a thematic role from v. The object agrees in person with v and receives a  $\theta$ -role from V. At PF, case is then assigned on the basis of the mappings given in (22). Nominative is assigned to any argument that has agreed in person with T, while accusative is assigned to any nominal that has agreed in person with v.

(22) **Case assignment at PF for (21):**



5 We might conceive of person morphology as case forms also in the current perspective, but I will not explore this possibility in detail here.

$$\begin{aligned} \{\pi:T\} &\rightarrow \text{NOM} \\ [\text{DP } D \{i\pi, \pi:V, i\theta, \theta:V\}] & \\ \{\pi:V\} &\rightarrow \text{ACC} \end{aligned}$$

An interesting possibility arises in this system. Because cases can be defined morphologically over one feature value, such as a specific thematic role, an argument can still in principle be assigned case without entering into both person agreement and  $\theta$ -assignment. I assume that both of these processes are mandatory for lexical arguments, but there might in principle be arguments for which it is not. If there is an argument that does not need a thematic role, but still enters into person agreement, it could be assigned a case defined over agreement only.<sup>6</sup> Similarly, if there is an argument that does not require person agreement, but still receives a thematic role, it could receive a  $\theta$ -based case still. Suppose that PRO is of the latter type. I have argued already that PRO is incompatible with person agreement, yet, despite this, PRO not only receives a thematic role, like other arguments, but is also able to check case. We can then potentially derive the distribution of PRO and its incompatibility with person agreement from the same source. Suppose that PRO is unique in that it does not enter into person agreement. Specifically, I want to suggest here that PRO does not have person features. I will call this the Personless PRO Principle (23).

(23) **Personless PRO Principle:**

PRO does not have person features.

This principle has two important consequences. It makes PRO unable to enter into person agreement with a  $\phi$ -probe, explaining why PRO is illicit in finite argument positions. In addition, it makes PRO exempt from the person agreement requirement that I assume for arguments. Instead, PRO then only requires a thematic role. A key result of the case system outlined above is that this still allows PRO to receive case, as long as this case is defined over thematic relations. We can then view the apparently structural case that PRO receives in infinitival clauses, such as nominative in Icelandic or dative in Russian, as a type of default inherent case.

Consider, for instance, the derivation of PRO-control in a language like Icelandic (24). PRO is merged in the specifier of  $v$ , where it is assigned a  $\theta$ -role by  $v$ . Because PRO does not have person features, it is then fully licensed, unlike a lexical argument, which would still require person agreement. I assume PRO still moves to spec-TP, to check some tense-related feature (see section 4.3).<sup>7</sup>

6 Expletives could be elements of this type. Deal (2009), for instance, proposes that expletives can be viewed as elements that carry the agreement and case features of their associates to a higher position, allowing the associate to remain in situ for scope reasons. This fits naturally in the current system. Note that this analysis also derives the absence of expletive PRO (Safir 1986; Jaeggli and Safir 1989). If expletives are special in that they only require person agreement and PRO requires the absence of person agreement, we should never find expletives in contexts in which PRO is licit.

7 David Pesetsky (p.c.) points out that there is clear evidence for this movement step. PRO behaves like it c-commands the experiencer for the purposes of Principle B (ia-b).

(i) **PRO behaves like it c-commands the experiencer:**

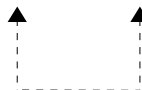
(24) **Derivation of PRO-control:**

Ég vonaðist til [að PRO borða].

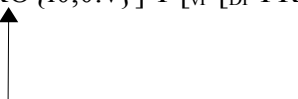
I.NOM want.PAST for to eat.INF

‘I want to eat.’

[<sub>VP</sub> [<sub>DP</sub> PRO {*u*θ,θ: } ] v {*i*θ} [<sub>VP</sub> borða ]]



[<sub>CP</sub> að [<sub>TP</sub> [<sub>DP</sub> PRO {*i*θ,θ:v} ] T [<sub>VP</sub> [<sub>DP</sub> PRO {*i*θ,θ:v} ] v {*i*θ} [<sub>VP</sub> borða ]]]]



Since PRO is then licensed in narrow syntax, it can be assigned case at PF (25). We can then view nominative in Icelandic as some type of default inherent case, assigned when there is no more specific mapping available, following standard assumptions about morphological insertion (e.g. Halle and Marantz 1993).

(25) **Case assignment at PF for (24):**

[<sub>DP</sub> PRO {*i*θ,θ:v} ]

{θ: } → NOM

As a result, PRO is licensed where a lexical argument is not. This derives the fact that PRO and lexical arguments are in complementary distribution in many environments. Note that this theory applies both to obligatory control and to non-obligatory control contexts. What unites these is the absence of person agreement.<sup>8</sup>

I assume that, although PRO lacks person features, it does have unvalued number and gender features. We can then make use of Landau's (2000) account of why PRO must be locally bound, if possible. Landau proposes that the locality of control can be derived from the locality of Agree, if PRO is taken to have unvalued φ-features. I adopt this account here. I assume then that valuation of φ-features is obligatory when possible, but that its absence does not give rise to ungrammaticality, if a local probe-goal relationship is impossible, as

a. John<sub>i</sub> seemed to him<sub>\*i</sub> to be intelligent.

b. PRO<sub>i</sub> to seem to him<sub>\*i</sub> to be intelligent

If PRO were to simply stay in its thematic position, we would not expect a Principle B violation. PRO would remain in the infinitival clause and not c-command the experiencer. See Baltin (1995), however, for an argument that PRO never raises above infinitival *to*.

8 We can also shed light on another construction that has been argued to involve PRO, the *autonomous impersonal* construction. The autonomous impersonal is a construction in which a non-agreeing form of an active verb has a passive-like meaning and does not allow an overt subject, despite behaving syntactically like it is active. Some authors have proposed that this construction involves an arbitrary PRO (e.g. Stenson 1989; McCloskey 2007; Karimi to appear). We can derive this straightforwardly from the absence of person agreement here.

suggested by Preminger (to appear). In NOC contexts, PRO is then still licit, even though its number and gender features remain unvalued.

I also assume that constructions that allow overt infinitival subjects, such as (26a) in English, but also other such constructions (e.g. Haegeman 1985; Mensching 2000; Sundaresan and McFadden 2009), necessarily involve some form of person agreement, which serves to license the lexical argument. We predict then that PRO should be ungrammatical in these contexts, as in (26b).

(26) **For licenses lexical arguments, but not PRO:**

- a. Calvin hoped for him to leave.
- b. \*Calvin hoped for PRO to leave.

I will not go into the characteristics of all of these constructions here, but this is in general the type of solution we can employ.

Aside from the absence of person agreement, there is a further condition on the licensing of PRO that merits discussion. In chapter two, I discussed exhaustive control contexts and argued that these are  $\theta$ -movement contexts. I assumed that the ungrammaticality of partial control follows from the unavailability of PRO-control. The question that arises then is what property causes PRO-control to be ungrammatical in these environments. The next section provides an answer to this question, drawing work by Chierchia (1984) and Wurmbrand (2002), and shows how this can be used also to shed light on the nature of finite OC.

### 4.3 A Further Restriction on PRO

As noted by a number of authors (e.g. Wilkinson 1971; Landau 2000), partial control, in which the lower position in a control relation is interpreted as a superset of the argument in the higher position, is not compatible with all control verbs. In particular, as Landau (2000) observes, modal, aspectual and implicative control verbs resist these readings (27a-f).

(27) **Partial control not possible with modals, aspectuals and implicatives:**

- a. \*Calvin had to watch TV together.
- b. \*Calvin needs to watch TV together.
- c. \*Calvin continued to watch TV together.
- d. \*Calvin finished watching TV together.
- e. \*Calvin managed to watch TV together.
- f. \*Calvin neglected to watch TV together.

In section 2.2, I argued that we explain this pattern if partial control is taken to be a property of PRO-control and assume that these are  $\theta$ -movement contexts. I largely left unaddressed, however, the question of what makes PRO-control unavailable in these contexts. In this section, I will argue that there is a restriction on the licensing of arguments that derives these

facts. Specifically, drawing on work by Chierchia (1984), Wurmbrand (2002), and Pearson (2007), I propose that exhaustive control complements are predicative, while partial control complements denote propositions. If we then assume that propositional T fulfils an important role in the licensing of subjects, we predict that PRO is only licit in propositional complements.

Landau (2000) observes that partial and exhaustive control complements differ in terms of their temporal properties. Where the events described by partial control complements can receive a non-simultaneous interpretation (28a-c), exhaustive control complements only allow a simultaneous reading (28d-f).

(28) **Only partial control complements allow non-simultaneous interpretations:**

- a. Yesterday, Calvin promised to trek to the Yukon today.
- b. Yesterday, Calvin hoped to trek to the Yukon today.
- c. Yesterday, Calvin expected to trek to the Yukon today.
- d. \*Yesterday, Calvin forgot to trek to the Yukon today.
- e. \*Yesterday, Calvin tried to trek to the Yukon today.
- f. \*Yesterday, Calvin began to trek to the Yukon today.

Partial control complements then contrast with exhaustive control complements in that they are tensed in some way. As many authors have noted (e.g. Stowell 1982; Landau 2000), however, this tensedness is limited, in that it is determined by the control verb. *Promise*, for instance, only takes future-oriented infinitival complements. There are also partial control verbs that select for complements with a past tense orientation (e.g. Landau 2000). Factive and propositional verbs, for example, typically select a realis tense (29a-b).

(29) **Factive and propositional verbs select for realis tense:**

- a. Yesterday, Calvin claimed to have raced down the hill last week.
- b. Yesterday, Calvin regretted not having done his homework last week.

We might also imagine that there are partial control verbs that select for a present tense orientation, creating a simultaneous reading like in exhaustive control complements. As Pearson (2007) notes, there are indeed verbs that allow partial control, but not non-simultaneous interpretations. *Enjoy* and *endure* are examples (30a-d).

(30) ***Enjoy* and *endure* allow partial control, but select for simultaneous complements:**

- a. Hobbes enjoyed reading comics together.
- b. \*Today, Hobbes enjoyed reading comics yesterday/tomorrow.
- c. Calvin endured eating dinner together.
- d. \*Today, Calvin endured eating dinner together yesterday/tomorrow.

We can abstract away then from the specific temporal orientations of these control complements and simply say that partial control complements are dependent for tense

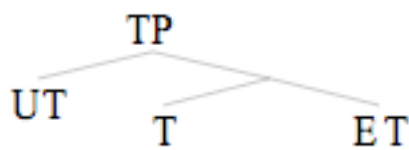


(Landau 2000, 2004).

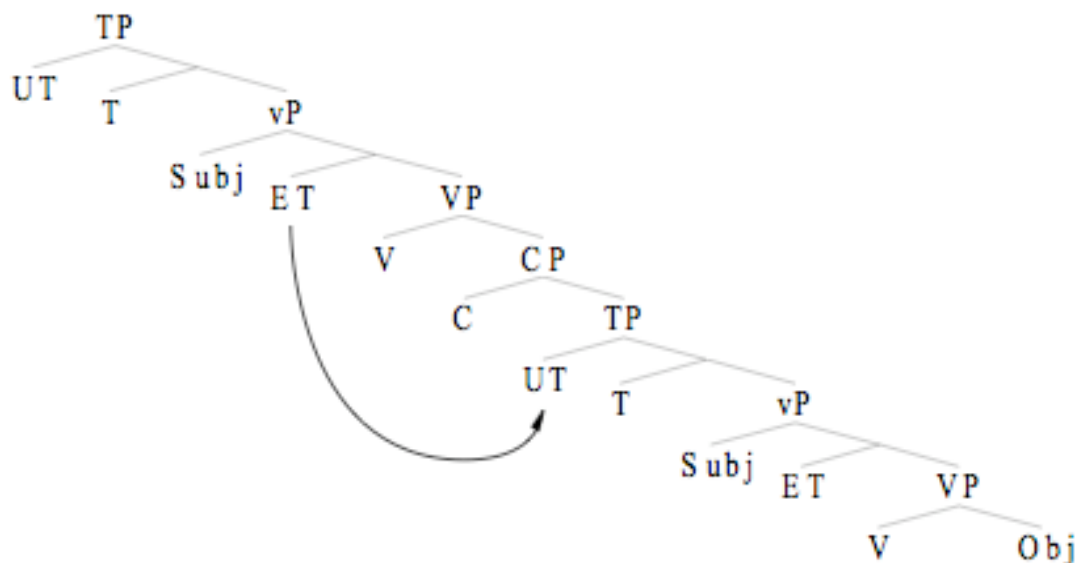
I will exploit this difference here to block PRO-control from exhaustive control complements. It is first necessary, however, to be more explicit about the temporal structure of infinitival clauses. Following Zagana (1990) and Stowell (2007), I assume that tense consists syntactically of a dyadic predicate, identified as T, that takes two time-denoting arguments and orders them relative to each other. The external argument of this predicate denotes the *utterance time* (UT), while the internal argument denotes the *event time* (ET). We can represent this as in (31).

Stowell (2007) suggests that these arguments can bind each other, allowing the temporal interpretations of subordinate clauses to be derived. We can employ this here to derive the interpretations of infinitival clauses. Consider first partial control complements. Since these complements may be future-oriented as well as past-oriented, it is clear that partial control complements contain a temporal ordering predicate, selected for by the control verb. This orientation is obligatorily determined relative to the higher clause, however, unlike in finite subordinate clauses (e.g. Wurmbrand 2007). We can capture this by assuming that the UT argument of partial control complements must be controlled by the ET argument of the higher clause. The temporal structure of the partial control complement is then as in (32). Note that I assume, for ease of exposition, that v corresponds to the ET argument in Stowell's (2007) system.

(31) **Tense as a dyadic predicate:**

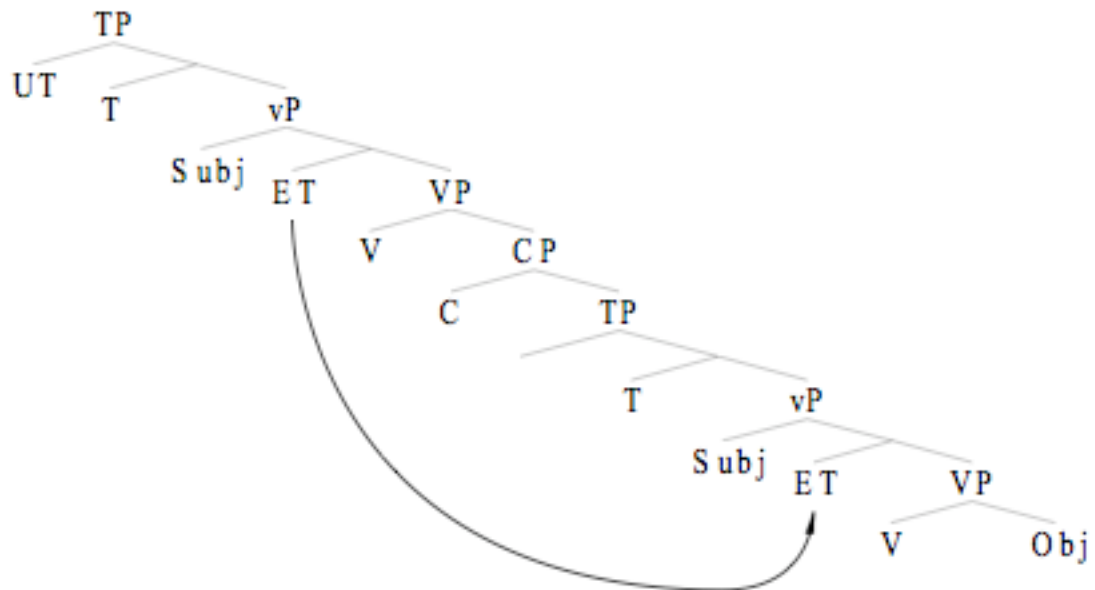


(32) **The temporal structure of partial control complements:**



Unlike partial control complements, exhaustive control complements cannot have a temporal orientation. As such, I will assume that such complements either lack a T projection or contain a T projection that is inert. The UT argument that is present in partial control complements is also absent. I will assume then that simultaneous interpretation of exhaustive control complements derives from the fact that the ET argument is obligatorily bound by the higher ET argument, as in (33).

(33) **The temporal structure of exhaustive control complements:**



We are now in a position to derive the restriction on PRO-control. The specific proposal that I want to pursue here is that arguments carry some time-denoting feature that must be valued by one of the time-denoting arguments selected by the T predicate. Specifically, I assume that subjects are marked with the time denoted by the UT argument, while objects Agree with the ET argument.

The consequence of this proposal is that exhaustive control complements, in which the UT argument is absent, can never tolerate an in situ subject. On the assumption that PRO carries this time-denoting feature also, it is blocked from surfacing in environments in which this feature cannot be valued. As such, we should only find PRO-control, and partial control, in infinitival complements that can be tensed. In this way, we can derive Landau's (2000) correlation between tense and partial control.

Note that it is necessary to assume that a third time-denoting argument is projected in ditransitives, in order for the indirect object to be licensed in the same fashion. This time-denoting argument presumably relates to some subpart of the event structure associated with ditransitives. The upshot of this assumption is that it allows to derive a contrast between subject and object exhaustive control verbs. Interestingly, object control verbs that disallow partial control do not strictly require simultaneity (34a-b).

- (34) **Exhaustive object control verbs allow some non-simultaneity:**
- a. Yesterday, Calvin's mother forced him to go to school tomorrow.
  - b. Yesterday, Calvin's father compelled him to behave tomorrow.

We can derive this if the ET argument of the exhaustive control complement is not bound by the ET argument in the higher clause, but by a third time-denoting argument associated with the indirect object position.

The advantage of this approach to tense and the licensing of arguments is that it also allows us to shed light on the correlation between tense and control in finite OC. As noted by a number of authors (e.g. Iatridou 1988; Varlokosta 1993; San Martin 2004; Landau 2004), partial and exhaustive control verbs behave differently when they select for clauses with subject-verb agreement (see also section 2.4). Specifically, where exhaustive control verbs establish obligatory control (35a-b), partial control verbs allow free reference (35c-d).

(35) **In finite OC, partial control verbs allow free reference:**

- a. O Janis prospaθise na katalavi.  
the Janis tried.3SG SUBJ understand.3SG  
'Janis tried to understand.'  
(Greek; Krapova 2001: 105)
- b. Victor încerca să cinte.  
Victor try.3SG SUBJ sing.3SG  
'Victor tried to sing.'  
(Romanian; Alboiu 2007: 190)
- c. Øelo na erθi.  
want.1SG SUBJ come.3SG  
'I want him to come.'  
(Greek; Krapova 2001: 105)
- d. *pro*<sub>i</sub> vrea să *ec*<sub>ij</sub> plece.  
want.3SG SUBJ leave.3SG  
'She/he wants (for him/her/them) to leave.'  
(Romanian; Alboiu 2007: 193)

Despite this difference, the temporal semantics of these complement clauses are the same as in English. Exhaustive control complements must have a simultaneous reading, even in subjunctive clauses, and partial control verbs typically select for a subjunctive clause that is future-oriented. The only difference is the presence of subject-verb agreement. Using the theory of case developed in section 4.2, we can straightforwardly derive this pattern. Since case requires only person agreement and a thematic role, the presence of person agreement on the subjunctive verb is enough to license a cased argument. As such, the subject position of the subjunctive clause is associated with an independent case. In tensed subjunctive clauses, nothing then bars an independent subject. There is case and an UT argument to check a time-

denoting feature on the subject. In untensed subjunctive clauses, however, we still expect only control to be possible. Because there is still no UT argument in these clauses, the subject will have to move into the higher clause to Agree with a time-denoting argument. This is exactly the picture in (35a-b). The system proposed in this section then derives the correlation between tense and the absence of control in finite OC complements.

In this section, I have attempted to derive the distribution of partial control from the assumption that nominals must check a feature against a time-denoting argument. Drawing on the theory of tense developed in Zagana (1990) and Stowell (2007), I proposed that partial control complements are essentially tensed clauses, but contain an anaphoric UT and a temporal ordering predicate that is selected for by the control verbs. Exhaustive control complements, however, have been argued to lack a UT argument and a temporal argument predicate, and contain simply an ET argument that must be bound by the ET argument in the higher clause. These assumptions combine to predict that an *situ* subject should never be possible in simultaneous complements, correctly blocking PRO-control in non-finite clauses and free reference in finite OC clauses.

### **Final Remarks**

In this chapter, some proposals about the distribution of PRO were outlined. Section 4.1 defends the view that it is necessary to assume a unique null subject for infinitival clauses, drawing on work by Safir (1996). In section 4.2, I proposed a theory of case in which case is defined over person agreement and thematic relations. The distribution of PRO can then be derived from the assumption that PRO lacks person features. This predicts that PRO only requires a thematic role to be licit. In addition, this proposal restricts the distribution to PRO to infinitival clauses. Section 4.3 proposes a treatment of the temporal semantics of control complements which further restricts the distribution of PRO to non-simultaneous complements, or complements with a UT argument.

## 5 Concluding Remarks

This thesis has presented new theories of three aspects of control: obligatory control, adjunct control and PRO. In this way, I hope to have made some headway in an area in which there is little theoretical consensus, or at least offered some interesting alternative analyses.

In chapter two, I argued that OC phenomena really collapse into two constructions:  $\theta$ -movement and PRO-control. A number of diagnostics that can distinguish between these constructions were presented and it was shown how a dual-route theory can make sense of a great deal of empirical complexity. A number of empirical phenomena are easier to deal with in such a theory, since it can rely on independently motivated differences between movement and antecedency. There is then no necessity for special mechanisms to deal with variation in case patterns or in the acceptability of partial control.

Chapter three then presented an analysis of adjunct control that tries to explain the fact that adjunct control often behaves like obligatory control. I suggested that syntactic structures are evaluated with and without reference to adjuncts, drawing on a family of analyses of the CSC (e.g. Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000). This representational analysis of adjunction predicts that only parasitic operations, such as control and parasitic gaps, are licit from adjuncts. Note that this analysis, though couched in terms of the theory of control developed in this thesis, is compatible with other theories of control also.

In chapter four, I attempted to derive the properties of PRO. It was proposed that PRO lacks valued person features. In the context of a new theory of case, in which case is a morphological feature defined over person agreement and the assignment of thematic roles, this is shown to both derive the distribution of control and explain what drives OC.

In this way, I have presented an alternative to contemporary theories of control. Note, however, that there are many issues that I have not had the chance to touch upon here. I have not discussed control in nominals, implicit control, or PRO-Gate, for instance. I hope to examine some of these in future work.

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