3 Adjunction and Control[*]

This chapter examines control into adjuncts and how it should be analysed relative to 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 commonly derived from locality. Although there were 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).[1] In this chapter, I propose a theory of the island status of adjuncts that brings it in line with the analysis of OC and NOC. This theory, though couched in terms of the framework developed in this thesis, is compatible with other ways of deriving control (e.g. Hornstein 1999; Landau 2000, 2004, 2006).

Specifically, I suggest that the ban on extraction from adjuncts should be stated as a constraint on representations. Following representational analyses of the Coordinate Structure Constraint (Goodall 1987; Muadz 1991; Moltmann 1992; Fox 2000; Lin 2001, 2002), it is proposed that syntactic structures are evaluated for semantic wellformedness without reference to adjoined material. This means that syntactic operations across an adjunct are necessarily *parasitic*, in that they require the same operation to have applied in the higher clause. In the domain of Ā-movement, parasitic gaps fit this description, explaining their similarity to across-the-board extraction in coordinate structures. There are also two A-processes of this type: PRO-control and θ-movement, since both involve a complete A-chain in the higher clause. Because the availability of movement from adjuncts is explicitly tied to the availability of θ-movement, this proposal is compatible with theories of control that reject θ-movement (e.g. Landau 2000, 2004, 2006, 2008; Sigurðsson 2008). In essence, the proposal is neutral with regards to the proper analysis of control.

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). I argue that, if adjuncts are assumed not to create islands for control, adjunct control is fully compatible with the theory of the OC/NOC distinction in Landau (2000). 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 Ā-movement from 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

[1]   I will not discuss these proposals here. In the Government and Binding literature, because the island status of adjuncts was commonly tied to the ECP (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.

expletive-raising of adjuncts is discussed and a number of proposals for ruling out these cases are outlined.

3.1 The Nature of Adjunct Control

There are a number of different types of adjuncts into which control can be established that should be distinguished from each other. I will divide these into three main categories, *VP-level adjuncts*, *TP-level adjuncts* and *gerunds*, based roughly on Huettner's (1989) terminology, although more specific distinctions can be made. For the purposes of this chapter, discussion will be restricted mainly to adjuncts in English, though other languages are discussed where relevant.

Many of the adjuncts that allow control are infinitival in nature. The biggest class of these is the class of VP-level adjuncts. Huettner (1989) distinguishes at least five of these: *purpose clauses* (1a),[2] *result clauses* (1b), *goal clauses* (1c), *exchange clauses* (1d) and *stimulus clauses* (1e). See also Faraci (1974), Bach (1982) and Jones (1985) on the characteristics of some of these adjuncts.

(1)   **Types of infinitival VP-level 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)

These adjuncts are distinguishable from each other mainly on semantic grounds. Purpose clauses, for instance, specify the function of an argument, where stimulus clauses describe the event that provides the stimulus for the reaction in the higher clause. In syntactic terms, they behave similarly, as Huettner demonstrates. Primarily, what sets these apart from other infinitival adjuncts is that they allow non-subjects to be controllers and must precede TP-level clauses, both properties that indicate a relatively low point of attachment (Faraci 1974; Bach 1982).

These adjuncts are typically contrasted with *rationale clauses*, as in (2a) (e.g. Faraci 1974; Bach 1982; Jones 1985; Huettner 1989). Huettner also distinguishes *outcome clauses* (2b).

(2)   **Types of infinitival TP-level adjuncts:**
        a.   I gave Scruffy a biscuit [in order to keep him quiet].
        b.   Mary escaped, [only to be recaptured].
               (Huettner 1989: ix)

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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:**
    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 clause also, since they largely behave the same syntactically.

These adjuncts differ from VP-level adjuncts in that they never allow object controllers and must always follow VP-level adjuncts.[3] These properties indicate a higher point of attachment, typically assumed to be T (e.g. Huettner 1989; Whelpton 1995).

In addition to these, there is a reasonably large class of gerundive adjuncts. I will distinguish here between three common types: *temporal gerunds* (3a), *nontemporal gerunds* (3b) and *bare gerunds* (3c).

(3)   **Types of gerundive adjuncts:**
     a.   Calvin braced himself [before/while/after racing down the hill].
     b.   Calvin burped [despite/without/on eating his broccoli].
     c.   Calvin was slumped in the chair, [watching TV].

These clauses are slightly harder to classify, because their behaviour is different from that of infinitival clauses. In some aspects, they behave like VP-level adjuncts, in that object controllers are allowed with some (4a-c).

(4)   **Objects can control into gerunds:**
     a.   Calvin sent Susie away after finding out for him whether his mother was looking for him.
     b.   ?Calvin sent Susie away despite finding out for him whether his mother was looking for him.
     c.   *Calvin approached Susie$_i$, ec_i having grabbed her lunch.

At the same time, however, unlike VP-level adjuncts, gerundive adjuncts can be preposed relatively freely and are freely ordered with respect to rationale clauses (5a-c).

(5)   **Gerundive adjuncts can follow rationale clauses:**
     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.

As such, it is unclear exactly where gerundive adjuncts are attached. For the purposes of this chapter, I will assume that temporal and nontemporal gerunds at least can be attached both at the VP-level and at the TP-level. Bare gerunds are likely TP-level adjuncts, comparable to rationale clauses.

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3   Rationale clauses and outcome clauses actually differ from each other in terms of ordering. Rationale clauses must precede outcome clauses (iia-b).
(ii)   **Rationale clauses must precede outcome clauses:**
a.   Calvin burped in order to annoy his parents, only to be ignored.
b.   ??Calvin burped only to be ignored in order to annoy his parents.
The same considerations apply to gerunds, which can also never precede outcome clauses (iiia-c).
(iii)   **Gerunds must precede outcome clauses:**
a.   *Calvin braced himself only to crash into a tree while racing down the hill.
b.   *Calvin burped only to be ignored by his parents despite not having eaten the broccoli.
c.   *Calvin was slumped in the chair only to fall out watching TV.
It is likely then that there is more to be said about the syntax of outcome clauses. One possibility is that outcome clauses are attached at T, but obligatorily dislocated to some higher projection to mark contrastive focus. This would explain their resistance to preposing and their ordering relative to other adjuncts.

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,[4] c) only allows a de se interpretation, and d) only allows a sloppy interpretation under ellipsis (e.g. Williams 1980; Hornstein 1999).

First, consider adjunct control in non-preposed adjuncts. When a local argument is available, it cannot be circumvented in favour of a long-distance control reading (6a-j).

(6)   **Local arguments cannot be circumvented for control:[5]**
    a.   *John$_i$ thought Sue$_j$ built the extra room [ec_i to stow her sewing supplies for her$_j$].
    b.   *Sue$_j$ saw that John$_i$ awoke [ec_j to find him$_i$ in bed].
    c.   *Sam$_i$ said that his mother$_j$ came along [ec_i to look after the children for her$_j$].
    d.   *Sue$_i$ thought that they had given her father ten dollars [ec_i to pose with a cobra].
    e.   *Mary$_i$ noticed that her mother blushed [ec_i to recall Tom's importunities].
    f.   *Calvin$_i$ thought that Susie protested [in order ec_i to annoy his parents].
    g.   *Calvin$_i$ thought that Susie fell [only ec_i to see her get up].
    h.   *Calvin$_i$ saw that Hobbes winced [while ec_i racing down the hill].
    i.   *Calvin$_i$ thought his parents were annoyed [despite ec_i eating his broccoli].
    j.   *Calvin$_i$ noticed Hobbes outside, [ec_i watching TV].

A second test is whether the subject gap needs to be c-commanded. As (7a-j) shows, c-command is a requirement for control into embedded adjuncts.

(7)   **C-command is a requirement for adjunct control:**
    a.   *John flipped the pages of the book$_i$ [ec_i to be read later].
    b.   *Sue$_i$'s boyfriend$_j$ awoke [ec_i to find him$_j$ grumpy].
    c.   *Sam$_i$'s mother$_j$ came along [ec_i to look after the children for her$_j$].
    d.   *They had given Sue$_i$'s father ten dollars [ec_i to pose with a cobra].
    e.   *Mary$_i$'s father blushed [ec_i to recall Tom's importunities].
    f.   *Calvin$_i$'s mother protested [in order ec_i to annoy his$_i$ father].
    g.   *Calvin$_i$'s mother$_j$ protested, [only ec_i to ignore her$_j$ advice].
    h.   *Calvin$_i$'s sled hit a bump [while ec_i racing down the hill].
    i.   *Calvin$_i$'s food remained largely untouched [despite ec_i eating his broccoli].
    j.   *Calvin$_i$'s toys were sprawled across the floor, [ec_i watching TV].

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4   It is probably more accurate to say that the antecedent must be an argument of the higher verb, considering that some cases of OC allow possessors to control (iva-b), as Landau (2000) points out.
  (iv)   **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. Outside of these constructions, the c-command requirement is still a valid diagnostic.
5   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.

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 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 (8a-h). In (8f), for example, the unfortunate must believe that it is the unfortunate receiving a medal.

(8)   **De se readings are obligatory in adjunct control:**
  a.   The unfortunate awoke to have received 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 appear to hold of adjunct control also (9a-j).

(9)   **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.
  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 appear to behave like obligatory control. However, as a number of authors have pointed out (e.g. Manzini 1983; Roeper 1987; Lasnik 1988; Huettner 1989; Landau 2000), in some instances, TP-level adjuncts and gerunds allow the controlling argument to be absent or implicit. This is true of rationale clauses, for example, though notably not of outcome clauses (10a-d).[6]

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6   Bach (1982) suggests that objective clauses show similar behaviour. He reports the examples in (va-d) as grammatical.
    (v)   **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.
    Although the status of at least (va-b) seems questionable to me, these examples do not affect the logic of the argument developed here. More serious is Bach's claim that control of the subject gap in objective clauses

(10)   **Higher argument can be absent with some rationale clauses:**
      a.   In order to watch TV, a comfy chair is ideal.
      b.   Mary was foully murdered in order to keep her from talking.
      c.   *The game was rigged, only to lose because of a mistake.
      d.   *Susie was attacked with a snowball, only to miss her.

This is possible with gerunds also, but primarily when they are fronted (11a-c).

(11)   **Fronted gerunds do not need local c-command:**
      a.   Before bracing himself, Calvin's sled hit a bump.
      b.   On arriving in town, John's fears were exacerbated.
      c.   Watching TV, the comfy chair was ideal.

Much has been made of these kinds of examples. In particular, it has been taken as evidence against treating adjunct control as a type of OC (e.g. Landau 2000: 178). While this conclusion is clearly correct for examples like (10a-b) and (11a-c), it is important to note that this kind of behaviour is limited to contexts in which there is no suitable, local argument position. In addition, how data about the nature of adjunct control is interpreted depends on our conception of the OC/NOC distinction. It is not clear that it is reasonable to expect adjunct control to uniformly behave like OC or NOC. Control verbs select for the antecedent and the clause with the subject gap and, as such, we can reasonably associate one type of behaviour with them. For adjunct control, this is not so clear-cut. 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. We could imagine a theory, for instance, in which it is a property of the subject gap, like some anaphoric property, that forces it to be obligatorily controlled. From this perspective, it is particular clause types that can be OC or NOC. It might then be meaningful to talk about whether specific adjunct control clauses are OC or NOC. Suppose, however, that we assume the theory of the OC/NOC distinction in Landau (2000). Landau argues that it is the presence or absence of an overt argument position in the local domain of the subject gap that determines whether a 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 (12a) 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 (12b-c), despite the fact that these establish OC otherwise.

(12)   **Some OC verbs allow the higher argument to be absent:**
      a.   It was decided to build a snow fort.
      b.   Calvin probeerde een sneeuwfort te bouwen.

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    can be non-obligatorily controlled even when there is a suitable, local argument present. He cites the examples in (via-b).
(vi)   **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.

Calvin try.PAST   a   snow.fort   to build.INF
'Calvin tried to build a snow fort.'

c.   Er   werd   de hele   middag   geprobeerd een sneeuwfort te bouwen.
      there be.PAST the whole afternoon try.PART   a   snow.fort   to build.INF
      '(lit.) It was tried the whole afternoon to build a snow fort.'

Adopting this perspective has serious consequences for how we analyse adjunct control, because adjunct control involves a wide range of higher verbs. As such, we expect to find NOC when there is no suitable argument position in the higher clause. This is what we see in the case of implicit control into rationale clauses and gerunds. The real question to ask is then whether adjunct control behaves like OC when there is a suitable argument position in the higher clause. If NOC effects are allowed in this configuration, then the higher VP is not part of the local domain of the adjunct. If, however, we only find cases of obligatory control, then the higher VP is part of the local domain. In fact, as I have demonstrated in this section, it is the latter that is the case. Overwhelmingly, when there is a suitable argument position in the higher clause, only OC is licit. If the proposal that the obligatory nature of OC reduces to considerations to locality is to be taken seriously, the conclusion must then be that adjuncts are part of the local domain for control. On similar grounds, other authors have reached the same conclusion (e.g. Williams 1992; Hornstein 2001).

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 (13a-c). Purpose clauses, as in (13a), are particularly productive in this respect.

(13)   **Inanimate controllers are possible in adjunct control:**
        a.   Calvin built a snow fort$_i$ [ec_i to hold their arsenal].
        b.   The snowball$_i$ hit Susie [after ec_i flying through the air].
        c.   The comic$_i$ was spectacularly entertaining in its first few pages, [only ec_i 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 (14).

(14)   **Case-sharing is possible in adjunct control:**
        Ivan   vstal   pogovorit' 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 θ-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. 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 is able to accommodate obligatory control.

3.2 A Representational Analysis of the Coordinate Structure Constraint

This section introduces a type of analysis 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). It is 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 (15a-b).

(15) **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 describes these restrictions, Ross formulated the Coordinate Structure Constraint (CSC), as in (16).

(16) **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 (17a-c).

(17) **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.[7] 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 (18a-b).

(18)   **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 (15b). This structure has the component sentences in (19a-b).

(19)   **Component sentences of (15b):**
  a.   *What did Calvin grab the sled
  b.   What did Calvin race down *t*

The component sentence in (19b) is well-formed, because it contains a complete Ā-chain. The sentence in (19a), 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 (19a) 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 (17b).

(20)   **Component sentences of (17b):**
  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 Ā-chains may mix these in ATB constructions. Paluan, for instance, makes use of a resumptive strategy when objects of prepositions are targetted for extraction, but otherwise employs Ā-movement. As Goodall (1987) observes, these strategies may be mixed in ATB extraction (21a-b).

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

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7   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.

      a.   akmedengelii a bilas [el lebilʔerar a Cisco] me [a Ioseb milngesbereber er

know.1sɢ   boat ᴄ bought   Cisco and   Ioseb painted   ᴘ

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 ᴘ it   Sie and   her.sister bought

'What did Sie make and her sister buy?'

(Goodall 1987: 68)

In (21a), extraction from the first conjunct uses a movement strategy while the second conjunct uses a resumptive pronoun. In (21b), 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 semantic wellformedness without reference to adjoined material. This predicts that operations that cross an adjunct boundary are necessarily parasitic. As a result, the only varieties of A-processes and Ā-processes that are possible from adjuncts are operations of this type.

      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 Ā-extraction. Like conjuncts, adjuncts do not appear to permit extraction of an element inside them (22a-c).

(22)   **Adjuncts block Ā-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 (23a-c).

(23)　**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 Ā-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 (24a-c).

(24)　**Parasitic gaps require Ā-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; 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 semantic wellformedness in terms of component sentences. Specifically, I propose that syntactic structures are evaluated without reference to adjoined material. In other words, a syntactic tree must be well-formed without its adjuncts. I will refer to this theory as the representational analysis of adjunction (25).

(25)　**Representational Analysis of Adjunction:**
　　　Syntactic structures are evaluated for wellformedness without reference to adjoined
　　　material.

A representational analysis of adjunction, just like other analyses of adjunction (e.g. Huang 1982; Stepanov 2007), can explain why Ā-extraction from adjuncts is illicit. Consider, for example, the component sentences it predicts for the ungrammatical example in (22a), *Who did Calvin get angry after Hobbes fraternised with?*, given in (26a-b).

(26)　**Component structures for (22a):**
　　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 (26a) contains an operator, but no variable position. As a result, just like the component sentence in (19a), it violates the ban on vacuous quantification and the structure is ill-formed. As such, even though the component sentence in (26b) 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 (27a-b).

(27)   **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 (27a) is well-formed, because it contains both an operator and a variable. The same is true of (27b), 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. First of all, in this theory, the island status of adjuncts derives from representational constraints. As a result, 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 is that they are *parasitic*, in that they require an application of the same type of operation in the higher clause. In other words, the operation cannot contribute decisively to the licensing of any element in the higher clause and must piggyback on an operation in the higher clause. 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 θ-movement, also fit this description.
      First, consider parasitic gaps. The parasitic nature of this construction is well-documented. As the contrastive pairs in (23a-c) and (24a-c) illustrate, parasitic gaps are only possible if there is also an application of Ā-movement involving the same chain in the higher clause. We can derive the fact that this configuration is necessary to allow an Ā-gap in the adjunct from the theory assumed here. Consider, for example, the component sentences of (23c), in (28a-b) below.

(28)   **Component sentences for (23c):**
    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 (28a) and (28b) 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 operations. In fact, there are two possible A-operations that can apply to complete A-chains. The first of these is PRO-control. Control of a PRO serves to connect a complete A-chain to a 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 (29a-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.

(29)   **Component structures of *Calvin burped PRO to disgust his parents*:**
    a.   Calvin [$_{vP}$ [$_{DP}$ *t*] burped]
    b.   Calvin [$_{vP}$ [$_{DP}$ *t*] burped] PRO to [$_{vP}$ [$_{DP}$ *t*] disgust his parents]

In (29a), the A-chain headed by *Calvin* is well-formed, because it includes a thematic position, spec-vP, and a case position, spec-TP. In (29b), 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, 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, θ-movement applies to a complete A-chain. As such, it should be licit across an adjunct. To see this, consider the component structures of a sentence like *Calvin burped to t disgust his parents* in (30a-b).

(30) **Component structures of *Calvin burped to t disgust his parents*:**
    a.   Calvin [$_{vP}$ [$_{DP}$ *t*] burped]
    b.   Calvin [$_{vP}$ [$_{DP}$ *t*] burped] to [$_{vP}$ [$_{DP}$ *t*] disgust his parents]

The component sentence in (30a) is identical to the well-formed (29a). (30b) is also well-formed, because it simply includes (30a) plus an extra thematic position. As a result, nothing blocks movement from the adjunct. In this way, the fact that control is essentially a parasitic operation, in that relies on the presence of a complete A-chain, means that control is possible into adjuncts.

It is important to note that other types of A-movement are ruled out under this analysis. If not parasitic, A-movement from adjuncts gives rise to ungrammaticality, like Ā-movement. As such, movement from adjuncts cannot feed passivisation or raising, as (31a-b) arguably illustrate.

(31) **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 (31b), for example, corresponds to the component sentences in (32a-b).

(32) **Component sentences for (31b):**
    a.   *Calvin was [$_{vP}$ slept]
    b.   Calvin was [$_{vP}$ slept] [$_{PP}$ near [$_{DP}$ *t*]].

Although (32b) is arguably well-formed, because *Calvin* occupies both a case position and a θ-position, the component sentence in (32a) 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. 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.

A key feature of this analysis 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 (1993) 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), that are unavailable in parasitic gap constructions. In a similar vein, PRO-control and θ-movement employ 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 θ-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 a problem for the analysis of locality in adjuncts. 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.

3.4 On Expletive-Raising and Apparent Non-parasitic 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 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 Ā-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 adopt Truswell's (2007) analysis of cases of Ā-movement from adjuncts, in which it is argued that the relevant adjuncts are different in that they occupy a slot in the event structure of the higher predicate. This analysis can be integrated in the current framework naturally.

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

(33a-c).

(33) **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 (33a), the expletive *there* has two associates, *a snow fort* and *a snow castle*. The same is true of *it* in (33b) and *there* in (33c). 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 (33a-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; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009).

Chomsky (1995), for instance, proposes that associates raise to the expletive position at LF to satisfy their case properties. In addition to this, he suggests that expletives behave like affixes at LF, in that they require an argument to attach to in order to be interpretable. A standard expletive-associate chain is then established as in (34a). The argument *a sled* raises to spec-TP at LF, in order to check its case feature and to allow the expletive *there* to affix to the associate. Expletive-raising from adjuncts is ungrammatical in this theory, as in (34b). Although the DP *a sled* can raise to spec-TP as in (34a), the lower associate, *a tiger*, is then prevented from checking case in that position. As such, the sentence is predicted to be ungrammatical.

(34) **Expletive-associate chains in Chomsky (1995):**
      a.   [$_{TP}$ [$_{DP}$ a sled]+there is [$_{VP}$ *t* on the hill]]
      b.   [$_{TP}$ [$_{DP}$ a sled]+there is [$_{VP}$ *t* on the hill] without being a tiger eager for adventure]

Similar predictions are made by the theory of expletives in Bobaljik (2002), which essentially refines the Chomsky analysis by providing an explanation of why the associate does not behave as if it is in the expletive position for the purposes of binding.

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 (33a) in such a theory (35).

(35) **(33a) if expletive and associates initially form one constituent:**
There was [DP [DP *t*] a snow fort] without being [DP [DP *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 φ-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 (36a-c).

(36) **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 (36a), *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 (37a-c).

(37) **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 (38a-c) illustrate.

(38) **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 (38a), the expletive *there* is associated with both *a snow fort* and *a snow castle*. Similarly, the expletives in (38b-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 for the theory advanced in this chapter is the fact that adjuncts do not always behave as islands even for non-parasitic Ā-movement. Thus, the following cases of extraction have been reported as grammatical (39a-c).

(39) **Extraction from adjuncts is possible in some instances:**
a. What did John drive Mary crazy trying to fix?
b. What did John enrage his neighbours whistling?
(Truswell 2007: 1355)
c. What did Calvin get up to do?

Truswell offers an explanation of a class of these cases and argues that a semantic generalisation underlies them. He points out that these examples are sensitive to a number of factors that are unexpected from a configurational perspective. Specifically, these examples are greatly improved by embedding the particles *around* and *about* and by embedding the infinitival clauses under *try* (40a-b).

(40) **The particles *around* and *about* and the verb *try* facilitate extraction:**
a. *What did she jump singing?
b. What did she jump around singing?
c. *What did John drive Mary crazy fixing?
d. What did John drive Mary crazy trying to fix?
(Truswell 2007: 1359, 1362)

As Truswell points out, this is quite surprising from a syntactic perspective, since, generally, adding syntactic material makes extraction more difficult. Instead, Truswell argues that what ties these cases together is that, semantically, the events depicted can be interpreted as a single event. Specifically, he proposes the semantic condition in (41).

(41) **Truswell's (2007) semantic generalisation:**
Extraction of a complement from a secondary predicate is permitted only if the event denoted by the secondary predicate is identified with an event position in the matrix predicate.
(Truswell 2007: 1359)

From this perspective, we can understand why the island status of adjuncts is not absolute in these cases. The relevant adjuncts behave like arguments of the higher verb in these contexts. Suppose that interpreting the events in the higher clause and in the adjunct as a single event causes the adjunct to need to be evaluated along with the rest of the syntactic structure. This is a relatively natural assumption to make, since, if the event in the adjunct is an integral part of the event structure, the adjunct has to be evaluated along with the rest of the tree for the event structure to be well-formed semantically.

In this way, two apparent empirical problems can be integrated with the current analysis. 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; 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. In addition, the fact that Ā-movement is possible from adjuncts in some constructions can be accommodated in the current framework if we assume the theory in Truswell (2007).

Final Remarks

In this chapter, I have tried to show 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 θ-movement out of adjuncts and the configurational similarities between these constructions. Because the availability of movement from adjuncts is tied to the availability of θ-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; Basilico 1997; Sabel 2000; Griffin 2001; Bobaljik 2002; Deal 2009).

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