5.1 The Residue

In previous chapters, we have argued that control is not a unified phenomenon. Once we reject this idea, then we must explain a certain amount of critical data and observations. We argued that obligatory control is to be explained differently from non-obligatory control, and we offered a syntactic explanation for obligatory control (OC) constructions. However, we have so far neglected to consider non-obligatory control (NOC). In this chapter, a different approach to non-obligatory control constructions will be considered. Previously, it was argued that there are many differences between obligatory and non-obligatory control, and in this chapter it will be explained why these differences exist.

This chapter is organized as follows: in §5.2 the differences between obligatory and non-obligatory control will be reviewed and clarified. In §5.3 a new explanation for non-obligatory control will be given, and in §5.4 we will consider various elaborations and explorations of that explanation. We then conclude.

5.2 Non-Obligatory Control and Obligatory Control

What are the properties of non-obligatory control which differentiate it from obligatory control? Although we will argue that they are fundamentally different, the similarities between them are obvious. Both obligatory control constructions and non-obligatory control constructions involve “missing” or phonologically null theta-marked subjects of
non-finite clauses. It is on the basis of this observation that it has been assumed that both
types of constructions were regarded as being instances of the same underlying phenomena,
and therefore that a unified theory to explain both types of constructions—Control
Theory—was proposed.

We have argued in previous chapters that obligatory control constructions are explained
by independently motivated constraints on Case movement and theta marking in the
Minimalist Program. This explains both the distribution and the interpretation of obligatory
control constructions. Their distribution is constrained in the same way as the tail of any
other Case-chain, because the structure assigned to these constructions by the grammar is
a Case-chain. Similarly, given that a Case-chain must have a single, uniform interpretation
at the LF interface, the interpretation of obligatory control constructions also falls out of
this theory without further stipulation. Therefore, in a significant sense, we have assimilated
obligatory control constructions to Movement in the Minimalist Program.

Why is it not possible for non-obligatory control to be explained in the same way? As
a first step, consider the following data, repeated from chapter 1.¹

(1)  
   a. John wanted PRO to behave himself/*oneself
   b. John thought that it was time PRO to behave himself/oneself

(2)  
   a. John asked PRO to see himself/*oneself in the mirror
   b. John asked how PRO to see himself/oneself in the mirror

(3)  
   a. John told Mary PRO to wash herself/*himself/*themselves
   b. John told Mary that it was time PRO to wash herself/himself/themselves

(4)  
   a. John’s sister wanted PRO to behave herself/*himself
   b. PRO to behave myself/himself/oneself would be wrong

¹For consistency, the format and structure assigned to the sentences in chapter 1 has been maintained,
including PRO in the subject position of the non-finite clauses. This certainly doesn’t imply that we are
backsliding in our analysis, merely that we want to compare these sentences directly and easily, which this
usage abets.
The examples in (1-4a) — obligatory control — have a number of similarities which distinguish them from (1-4b) — non-obligatory control.²

- **Uniqueness of Antecedence:** In the examples (1-4a), there is always a single unique interpretation for PRO, while in the examples (1-4b) there is a number of possible interpretations, because there are multiple possible antecedents. This is reflected by the number of possible reflexives in (1-4b).

- **Long-distance Antecedence:** In optional control constructions, the antecedent may be non-local; in fact, it may be arbitrarily far away from its controller. We see this in (3b), where PRO is separated from its possible antecedents by several clause boundaries. This does not happen in obligatory control constructions. (In the theory presented in this dissertation, this is because of the inherent locality of feature-driven movement.)

- **Arbitrary “PRO”:** The (1-4b) examples allow the “arbitrary PRO” interpretation, which is in itself quite unexpected and anomalous. However, the (1-4a) examples do not allow it.

- **C-command:** In obligatory control the antecedent must c-command PRO — which in our theory amounts to the antecedent c-commanding its trace, which directly follows from the movement analysis. However, c-command is not necessary for optional control, as we see in sentences like *To swim every morning is Chris’ favorite recreation.*

- **Split Antecedence:** Optionally controlled PRO has a number of other features which

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²This, the differences between OC and NOC constructions are precisely parallel to the difference between reflexives (subject to Condition A) and pronouns (subject to Condition B). We argue that D-pronouns act like pronouns in this way, but why do pronouns and anaphors act this way? One explanation may lie in recent analyses of the Binding Theory, which argues that reflexives undergo movement to a functional category to get their interpretation—a movement which is not required (and not possible) for pronouns. So, the way we have stated the relation may be backward: it may be movement itself which explains this cluster of properties for both reflexives and in OC constructions, and the absence of movement which allows both pronouns and NOC constructions to their relatively greater interpretative freedom.
make its interpretation similar to a pronoun’s. For example, in optional control constructions we find split antecedence, in which more than one antecedent binds the controllee; we see this is (3b), where PRO can refer to both John and Mary and where PRO can be the antecedent for the reflexive themselves. This is not possible for obligatorily controlled PRO.

- Overtness of Antecedent: In obligatory control constructions, the antecedent must be an overt DP. We see this in the ungrammaticality of sentences like *John was promised to leave. However, in non-obligatory control constructions, the antecedent need not be syntactically realized in the sentence.

In each of these points, obligatory control constructions pattern exactly the same way as chains resulting from Movement, as we would predict given our analysis of Obligatory control constructions. Because obligatory control construction involve a Case-chain, there must be a single, unique antecedent which c-commands its controllee. Locality is assured by the Shortest Move Requirement, the minimality required of feature-driven movement, and of course split antecedence is impossible given the requirements on chain structure. The antecedent must be overt, because it is the head of the chain of which the controllee is part. Finally, the “arbitrary PRO” interpretation is impossible in obligatory control constructions because the head of the Case-chain determines the LF interpretation of the entire chain.

However, non-obligatory control shows a very different clustering of features, which is much more reminiscent of the binding of pronouns (which are subject to Condition B of the Binding Theory, or its equivalent). Following Chomsky (1981), Condition B says that a pronoun must not be locally c-commanded by an antecedent (where “locally” is defined technically, but for our purposes can be read as “being in the same CP clause”). Therefore, Condition B pronouns do not need to be c-commanded by their antecedent, and must have antecedents which are not local. In fact its antecedent need not even be
syntactically realized in the same sentence. Also, a pronoun need not have a unique antecedent, and usually may have many potential binders, and split antecedence is observed as well. By each of these criteria, non-obligatory control constructions act like pronouns.

It is well known that Condition B of the Binding Theory does not specify which antecedents a pronoun may have (unlike Condition A); rather, it specifies which antecedents are not possible for a particular pronoun. However, from the standpoint of the syntax, a pronoun may randomly take anything in the (current) universe of discourse as an antecedent, as long as it satisfies Condition B. Otherwise, the syntax simply doesn’t care; from its point of view, the index of a pronoun is assigned randomly. Other components of the human language facility determine which antecedent a pronoun may take: largely, the semantics and the discourse component which specify a pronoun’s indexation.

For the remainder of this chapter, we will assume that these extrasyntactic components determine the possible antecedents in non-obligatory control constructions, because of the close similarities between the interpretation given to pronouns subject to Condition B and the controlleres in these constructions.

5.3 Proposals for Non-Obligatory Control Constructions

What then is the actual structural difference between obligatory and non-obligatory control constructions? Although both types of control surface as “missing” subject of non-finite clauses, we have seen through closer investigation shows that the different types of control have different clusters of properties, a prima facie indication that different parts of the language facility may be responsible for them. We have previously argued that the occurrence and reference properties of obligatory control can be better analyzed as Case-checking movement. Among other advantages, this gives an explanation for the properties listed above which differentiate obligatory control from non-obligatory control. Since the head of the Case-chain and its tail (that is in the standard theory PRO and its antecedent) are part of the same object at LF and therefore must receive an identical interpretation, it
is clear that, in obligatory control, there can be only a single possible (and an obligatory) controller, possible only under certain circumstances, particularly c-command— they are all part of a single chain.

However, for those same reasons, we cannot possibly offer a Case-chain explanation for non-obligatory control. As we have seen, NOC constructional allow multiple antecedents and split antecedents, and does not require c-command for antecedence. These properties, utterly uncharacteristic of the theory of movement and chains, are to be found in various aspects of the Binding Theory. This is especially true of pronouns subject to Condition B, which also allow split antecedence and no not require c-command of their antecedents. It is possible that non-obligatory control is made possible by the presence of a pronominal like PRO, despite the arguments we have previously considered against having PRO involved in obligatory control? If so, we would once again face questions of how to explain the occurrence of PRO, especially relating to its Case features.

Let us explore a formal alternative to this. Let us assume that there is a DP element—a D-pronoun—which has only a minimal number of formal features, and no features which are interpreted at either the PF or LF interface. Therefore it has a null interpretation at the PF and LF interfaces (which is distinct from the “no interpretation” given to objects which are illegitimate at an interface.) Aside from a complete lack of interpreted features, we assume that the only formal feature possessed by a D-pronoun is the capacity to check EPP features. Once the D-pronoun moves to check EPP features of the non-finite clause, the formal features are deleted and the D-pronouns is completely featureless. Since D-pronouns have neither Case nor Agreement features, they cannot violate Greed and move to any Case-checking or Agreement-checking position.

Since D-pronouns also lack Case or Agr features, they do not need to have their Case

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3In Chomsky (1995), it is assumed that the EPP features are the D-features of T’. We are forced not to accept this conclusion as is, since a D feature would be Visible and interpreted at LF. Instead, we will assume that whatever formal mechanism constitutes EPP feature checking, it happens in the T/AgrS checking domain and it is mediated by formal, uninterpreted features that are deleted before getting to the LF interface.
or Agr features checked; convenient, since non-finite T’ does not have Case features which can check a D-pronoun’s Case-features, and similarly there is no AgrS’ which can check a D-pronoun’s Agr features. With no index, a D-pronoun is not subject to the Binding Theory, and with no other features to consider, the only syntactic operation in which a D-pronoun is involved is EPP-driven movement to check D-features in T’. All clauses with a T’ have EPP features which need to be checked.

A D-chain is formed by the movement of a D-pronoun to SpecTP. After the D-feature of the D-pronoun is checked in SpecTP (overtly, by hypothesis, universally), the D-feature disappears, leaving only a chain with a null interpretation. Nonetheless, the now featureless D-chain remains. Critically for this analysis, a theta role may be assigned to a D-pronoun (or to its D-chain). Having a null interpretation at the interfaces, this D-chain could only trivially be assigned a theta role — trivially in the sense that assigning a theta role to a D-pronoun would be almost identical to not assigning that theta role at all. From the standpoint of the LF interpretive mechanisms, the process of theta-role assignment allows the reference of the theta role to be constrained by the interpretation of the LF object to which the theta role is assigned. However, if the object to which the theta role is assigned has a null interpretation, then that LF object will not restrict the interpretation of the theta role at all. Then, other interpretative mechanisms would be employed to give that theta role an interpretation; examples of other interpretation mechanisms would include logophoricity and other pragmatic factors, as well as other partially understood interpretative mechanisms.

Given this hypothesized D-pronoun, the question immediately arises of how to prevent D-pronouns from occurring in clauses where they are not wanted. For example, how do we prevent a D-pronoun from being introduced into sentences which we have analyzed previously as obligatory control constructions, such as the following sentence with the associated LF structure:
With the LF of (5b), one would assume that (5a) could have the “arbitrary PRO” interpretation, for example, that Jamie wants someone to leave. Of course, that is not an acceptable interpretation for (5a), and to prevent it we need to exclude D-pronouns from preempting the analysis we gave these constructions in chapters 2-4.

This can be done if we assume a D-pronoun, like any other lexical item, is present in the numeration of a sentence. Therefore, (5a) might have two numerations. The first, following the analysis given to (5a) in chapter 2, would be comprised of {Jamie, wants, to, leave}, along with a number of functional heads. However, the analysis implicit in (5b) requires that another element be added to the numeration set—namely, the D-pronoun, which is not necessary in the first analysis. If we require that the numeration for this sentence be as small as possible, then the first analysis will be preferred to the second. Therefore, the D-pronoun could only be used as a last resort, if a smaller numeration set failed to satisfy the grammar in some way or failed to converge at one of the interfaces.

### 5.4 Exploring Non-Obligatory Control

If we accept the analysis of NOC constructions in §5.3, a number of directions in which to explore are open to us. It is necessary to give at least an outline of how the theta roles assigned to D-pronouns are interpreted, and to give a preliminary explanation for the “arbitrary PRO” interpretation possible in NOC constructions; we will do this in §5.4.1. We will look at adjunct small clauses in §5.4.2. Although adjunct small clauses are potentially ambiguous between being an OC and an NOC construction, we will argue for a movement analysis to explain their properties (at least, for most of them). In §5.4.3, we will look at resultative clauses in English and Chinese. Also, there are a number of NOC constructions, like purpose clauses, for which we will argue for a D-pronoun analysis in
§5.4.4. We claim that the constraints which apply to their interpretation are ultimately not syntactic, but rather based on the semantic or discourse components of the language facility.

5.4.1 “Arbitrary” “PRO”

If the interpretation of D-pronouns is not constrained by the syntax, then what analysis can we give to the so-called “arbitrary PRO” interpretation arising in NOC constructions? Let us assume that after the assignment of a theta role to a D-pronoun, the D-pronoun can (but need not necessarily) receive a null interpretation, even from components of the grammar outside of the syntax. In this case, the theta role would still itself be interpreted, but as if the theta role had not been assigned to anything at all. This analysis predicts, then, that the interpretation possibilities of “arbitrary PRO” should be the same as the interpretation of an unassigned theta role, which Frey (1993) concludes is:

...eine nicht-projizierte Argumentstelle, die in der Syntax zugänglich und die semantisch als freie Variable zu deuten ist. Wird die nicht-projizierte Argumentstelle zur Etablierung einer Modifikations- oder Prädikationsbeziehung benutzt, muß die freie Variable identifiziert werden mit dem referentiellen Argument des Bezugselements. Ist das implizite Argument eine blockierte Argumentstelle, der keine ‘von’-Phrase zugeordnet ist, entzieht es sich der Syntax, wie die Semantik die freie Variable verwaltet.4

This seems to be true. Consider the following example of the “arbitrary PRO” interpretation, which is typical of these constructions.

4...an unprojected argument position, which is accessible to the syntax and interpreted as a free variable in the semantics. If the unprojected argument position is used to establish a modification or predication relationship, then the free variable must be identified with the referential argument of a referring element. If the implicit argument is a blocked argument position which is not associated with a by-phrase, then it avoids the syntax, since the semantics manages the free variable.” (translation JHO’N)
(6) [It is necessary \([\text{TP} \, \text{D-pro}_1 \, \text{to} \, [\text{VP} \, \text{t}_1 \, \text{log in after midnight}]])

The D-chain \{\text{D-pro}_1, \text{t}_1\} is assigned the agentive theta role of the verb \text{log in}, and then it is given the “arbitrary interpretation. In this sentence, the interpretation of the subject of the subject clause is generic, whose only restriction is that it can refer only to humans. At first glance, this last property differentiates it from a “detransitivized” clause like the following example.

(7) The condemned prisoner ate ___ heartily last night.

In (7), the unassigned patient theta role (whose unfilled position is underlined in the example) can also be given a “generic” interpretation. However, this interpretation critically cannot refer to humans, and this exclusion is taken to show the difference between the interpretation of “arbitrary PRO” and the interpretation given to unassigned theta roles.

However, there is a better explanation for this difference in interpretation showing that both (6) and (7) are examples of unassigned theta roles. In the standard Control Theory, PRO must occur in subject position, where by an unrelated coincidence it is likely to be assigned an agentive theta role. On the other hand, unassigned theta roles are necessarily not in subject position, since independent conditions of the grammar (namely the EPP) require there to be a subject. Hence, an unassigned theta role is likely to be non-agentive in nature. Now, it is widely recognized that agentivity itself carries the implicature that it is assigned to animate, if not human, entities. Therefore, we need not make any special assumptions about control to predict the interpretative properties of “arbitrary” PRO; we need only claim that the differences in the properties of theta roles lead to the interpretative differences.\(^5\)

\(^5\)This is not to say that any theta role may optionally not be assigned. Indeed, it is clear that at least some theta roles are obligatorily assigned. However, most cases the obligatory theta role assignment (like external theta roles) is caused by independent conditions of the grammar. For instance, note that external theta roles
Also, note that in the rarer cases where a inanimate theta role is assigned to subject position or an (somewhat) agentive theta role is assigned to object position, we see interpretations which are in the standard Control Theory considered impossible: inanimate “arbitrary” PRO and unassigned theta roles with animate interpretation.

(8)  
  a.  PRO to develop stress fractures is inevitable (for stone monuments).
  b.  The chocolate-raspberry torte was intended to please ____ , and it did.

Also, note that adjunct PPs can be interpreted as antecedents in both NOC constructions and for unassigned theta roles (such as by-phrases in passives).

(9)  
  a.  [To arrive late] is unusual for John
  b.  The cake was eaten [by Pat]

It is also true that particularly prominent discourse items (from outside the sentence) may be the antecedents for NOC constructions and unassigned theta roles, as well as for pronouns.

(10)  
  a.  John has always been quite prompt. [To arrive so late] is unusual.
  b.  The steak was perfectly cooked. John ate ___ immediately.
  c.  Mary₁ entered the room. She₁ was looking very grunge.

These same constructions can receive the “arbitrary” interpretation. Examples of this interpretation given to unassigned theta roles were seen above; however, examples of

must be assigned because the EPP requires those chains to exist already, which as a consequence insures that those theta roles are assigned. However, I will assume that any requirement that certain theta roles must inherently be assigned is not a part of the syntax proper; such a requirement may be semantic or pragmatic in nature.
pronouns getting the “arbitrary” interpretation are well known:

(11) a. What do you do when a policeman arrests you at a rally?
    b. You know what they say: easy come, easy go.
    c. One never knows, does one?

Of course, there are a number of constraints on the appearance of such pronouns in English. What is important is that this interpretation is possible at all, which argues for the congruence of the interpretative mechanisms for pronouns and D-pronouns.

Finally, the behavior of D-pronouns in English is reminiscent of the behavior of null pronominals in other languages. In languages like Spanish and Italian, it is well known that null subjects are possible. Insofar as other languages lack the possibility of null subjects for no clear reason, it has been proposed that there is a “null subject parameter” which controls whether a language allows null subjects. However, in light of the proposals in this chapter, we can offer another explanation for null subjects in these languages. In the MP, as in other recent work within the Principles and Parameters framework, it has been proposed that grammar is universal across all languages; therefore, all variation among language must ultimately be part of the lexicon. Many parameters, especially those relating to agreement, Case assignment, and movement, can easily be accommodated in such a theory. However, this proposal comes across some difficulties, though, when trying to lexicalize the Null Subject Parameter, because it cannot really be reified as the property of a single functional category. However, D-pronouns share the requisite properties of null pronominals: they are phonologically null, they are interpreted like other pronouns subject to Condition B, and they only occur under particular selections of other functional categories. Naturally, the exact formal feature set of null pronominals would differ from that of D-pronouns—for example, the null subjects in Romance undergo Case-checking. Nevertheless, once the formal features are checked, those features disappear, and thereafter
the remnant chains are interpreted like the chains of D-pronouns. The advantage of this viewpoint of the Null Subject Parameter is that it lexicalizes the principle; language which have these null pronouns (like Spanish and Italian) would exhibit null subjects, while other closely related languages lacking those lexical items would not show null subjecthood. Therefore, if we accept this line of argumentation, we can go further in eliminating variation in the syntax (a goal of the Minimalist Program) and reduce it to variation in the lexicon.

To summarize, it is the nature of the theta role which determines implicatures of animacy, not the syntactic structure of theta assignment to subjects or objects. Then, it becomes clear that there is no substantive difference between the “arbitrary PRO” interpretation of D-pronouns and the interpretation given to unassigned theta roles.

5.4.2 Adjunct Small Clauses

In chapter 3, we discussed argument small clauses. Because argument small clauses must be licensed through feature checking in order to be assigned a theta role, the head of an argument small clause must undergo head movement to the matrix verb. This creates a configuration in which the head of the small clause and the verb cannot both assign a theta role to the same Case-chain.

However, this analysis relies on the argument nature of those small clauses. This analysis predicts that adjunct small clauses are not subject to this constraint: because adjuncts are not assigned a theta role, they need not be licensed through movement, and this removes the constraint on the small clause head and the verb assigning theta roles to the same object. This prediction is borne out.

(12) a. Jamie₁ arrived [t₁ sad]
    b. Jamie₁ ate the meat₂ [t₂ raw]
    c. Jamie₁ ate the meat₂ [t₁ nude]
If we give (12a-b) a Case-movement analysis, and assume that the small clause is a complement of the innermost VP shell, we derive the following LF structures:

(13)  
   a. Jamie arrived sad  
       \[ \text{IP Jamie}_1 \text{arrived}_2 + \text{I}^* \{ \text{vp t}_1 \text{t}_2 \{ \text{ap t}_1 \text{sad} \} \} \]  
   b. Jamie ate the meat raw  
       \[ \text{IP Jamie}_1 \text{AgrO}^* + \text{I}^* \{ \text{AgrOP} \{ \text{dp the meat}_2 \text{ate}_3 + \text{AgrO}^* \{ \text{vp t}_1 \text{t}_3 \{ \text{ap t}_2 \text{raw} \} \} \} \] 

Structurally, this is completely analogous to the analysis of subject control constructions (like \textit{want}) object control constructions (like \textit{persuade}) we gave in chapter 2. What is critical here (and how this differs from other small clauses which are subcategorized for by the verb such as \textit{Chris considered Jamie intelligent}) is that the non-argument small clause is an adjunct modifying phrase, and therefore does not need to be licensed through movement and feature checking. Therefore, in (12a) the main verb \textit{arrived} and the adjective small clause head \textit{sad} can both assign theta roles to the DP chain \{[\text{dp Jamie}_1 ,t_1] \}, and in (12b) the main verb \textit{ate} and the adjective head \textit{raw} can both assign theta roles to the DP chain \{[\text{dp the meat}_2 ,t_2] \}.

Of course, there is another possible analysis for (12b) which involves using a D-pronoun. The sentence with an LF structure (using a D-pronoun) follows:

(14)  
   Jamie ate the meat raw  
   \[ \text{IP Jamie}_1 \text{AgrO}^* + \text{I}^* \{ \text{AgrOP} \{ \text{dp the meat}_2 \text{ate}_3 + \text{AgrO}^* \{ \text{vp t}_1 \text{t}_3 \{ \text{ap t}_2 \text{raw} \} \} \} \] 

There is only one immediate problem with this analysis: the D-pronoun does not have a D-checking position to move to, since the small clause lacks a T' functional projection—in
the LF structure in (14), a “dummy” functional phrase FP is used instead, which may stand for an AgrP or check a variety of features. The lack of a D-checker is potentially a difficulty with the argument, it is one I need not dwell on, since there is another reason why this analysis is impossible; the numeration being larger than necessary, the sentence is excluded on the grounds of Economy, as argued above. Therefore, we are forced to adopt the obligatory movement analysis of adjunct small clause constructions, as analyzed in (13a-b).

However, there are also adjunct small clauses in which the matrix subject is the antecedent for the small clause specifier, like (12c), despite the fact that the matrix verb is transitive. However, without changing the structure of the matrix clause (to make it more like *promise*, i.e. a subject control construction with a transitive verb) it is impossible to derive an LF structure in which there is a Case-chain from the subject of the resultative clause to SpecAgrSP in the matrix clause—moving from the SpecVP will always result in a shorter chain and hence a more economical derivation. However, consider the D-pronoun analysis for (12c), with its LF structure:

\[
(15) \text{Jamie ate the meat nude}
\]

\[
[\text{IP Jamie, AgrO}^+\text{I}^+ [\text{AgrOP [DP the meat, ate}^+\text{AgrO}^+ [\text{VP t, t, t, [VP t, t, t, [FP D-pro4 nude}^+F^+ [\text{AP t, t}]]]]]}
\]

Therefore, the D-pronoun analysis is the only one possible for these constructions, and therefore because it isn’t blocked by a more economical derivation with a smaller numeration, (15) is grammatical. However, we still must consider the problem which we sidestepped before when considering the grammaticality of (14). We defined D-pronouns to be pronouns which need to check only their D-feature and otherwise lack all features,

\footnote{At least, this analysis is excluded with this interpretation of the D-pronoun. As we will see below, if the D-pronoun is given another interpretation (for instance, as coinlexed with the matrix subject rather than the matrix object) the sentence is possible.}
formal or interpreted. However, at first glance there is no T’ projection in the resultative small clause which can check the D-features of the D-pronoun, or more generally do the operations which satisfy the EPP.

One plausible response to this objection is to argue that the feature checking within the small clause AP (and its associated functional category FP) also satisfies the EPP—as does feature checking in all other clauses, finite or non-finite, as we discussed previously. This would imply that the EPP features, which we previously argued that D-pronoun had to check, were not necessarily associated with the D-features of T’. The EPP features could be associated with other features and other functional heads. In the case of English resultative clauses, one might hypothesize that the Agr-feature checked by the F’ head of the FP functional projection also satisfied the EPP requirements of the grammar. However, it is not clear why this should be the case, and in the absence of a deeper analysis of EPP effects, which is outside the scope of this thesis, we cannot say with any certainty whether this is plausible. However, on independent grounds it seems to be necessary for D-pronouns to occur in subject-antecedent resultative clauses, so it is clear that a more articulated theory of EPP effects is called for.

If we accept this (admittedly somewhat questionable) analysis, then we can derive the acceptability of the following sentences:

(16) a. Jamie₁ ate the meat₂ [t₂ raw] [D-pro₁ nude]
    b. *Jamie₁ ate the meat₂ [D-pro₁ nude] [t₂ raw]

In (16a), we can analyze the first small clause as involving movement, as in (14), and the second small clause with a D-pronoun analysis, as in (15). This preserves the locality of the Case-movement, and we predict (16a) to be grammatical. However, in (16b) there are a number of problems. First, there is no Spell-Out position for the DP the meat which is immediately post-verbal. At Spell-Out, the DP’s Case-checking movement has not happened
yet, and even if it had, that Case-checking movement takes it to SpecAgrOP, which is to the left of the VP. Therefore, on the intended interpretation, the word order of (16b) is impossible. On the other hand, one might expect *Jamie ate nude the meat raw* to be grammatical—since at least the DP the meat is in a possible Spell-Out position—and in fact that sentence does seem to be (marginally) grammatical, at least with an intonation indicating that the clause *the meat raw* has been extraposed. Without that intonation, the sentence seems to be not very good, which might be related to some sort of Shortest Move violation required to move the DP the meat, over the intervening predicative clause, to check Case in SpecAgrOP.

### 5.4.3 Resultatives in English and Chinese

Resultative complements occur in a variety of languages. They are a type of adjunct small clause. A resultative complement construction is used to express the goal or endpoint of an activity expressed by the matrix clause. In general, we can say that most adjunct small clauses express the relation between the matrix clause X and secondary predicate Y as *X and/while Y*, whereas a resultative complement construction expresses the relation *X until/so much that Y*.

In this section we will be concerned with resultatives in English and Chinese. The Chinese examples are from Huang (1992) and Chuang (1997):

(17) Jamie hammered the metal flat

(18) a. Zhangsan ku-de [t₁ hén shangxin]

Zhangsan cried-DE very sad

Zhangsan cried and got very sad
b. Zhangsan ku-de [ Lisi hen shangxin]
Zhangsan cried-DE Lisi very sad
Zhangsan cried so much that Lisi got very sad

c. Zhangsan ba Lisi ku-de [t_i hen shangxin]
Zhangsan BA Lisi cried-DE very sad
Zhangsan cried until Lisi got very sad

d. Lisi bei Zhangsan ku-de [t_i hen shangxin]
Lisi BEI Zhangsan cried-DE very sad
Lisi became very sad from Zhangsan crying.

In the standard versions of the Minimalist Program, the subject of the resultative small clause is PRO, which is controlled by some DP in the matrix clause. Having rejected Control Theory in previous chapters, we must find another explanation for this construction. Either we can use a Case-movement analysis (thereby assimilating resultative constructions to obligatory control constructions), or we can give a D-pronoun analysis to them (drawing a parallel to other kinds of non-obligatory control constructions).

First we consider the English resultative example in (17). It is clear that we can give (17) the same analysis as the other adjunct small clauses we considered in §5.4.2. For (17), the hypothesized LF structure would be this:

(19) Jamie hammered the metal flat

\[ \text{[IP Jamie}_1 \text{ AgrO}^+ \text{I}^+ [\text{AgrOP [DP the metal]}_2 \text{ hammered}_3 \text{+AgrO}^+ [\text{VP t}_1 t_3 \text{ [AP t}_2 \text{ flat}]]]} \]

The subject of the small clause moves to the matrix clause’s SpecAgrOP to check its Case, and the resulting Case-chain \{[DP the metal]_2, t_2\} may be assigned theta roles by both the head of the small clause and the main verb.
However, unlike the adjunct small clauses discussed earlier, we do not get subject control interpretations for resultative constructions. Consider the following sentences:

(20)  
   a. Jamie shouted herself deaf  
   b. *Jamie shouted [t deaf] (on resultative interpretation)  
   c. Jamie flew herself blind  
   d. *Jamie flew blind (on resultative interpretation)

For these sentences, we see that the resultative requires an overt object. We hypothesize that the resultative small clause imposes certain semantic requirements on its subject: that the subject of the small clause be the patient of an action described by the main clause, and that the causer of the “result”—the subject of the matrix clause—be distinct from the patient of the action, or the causee.\(^7\)

Notice in particular that (20b,d) are grammatical if interpreted as adjunct small clauses, as can be easily seen, especially in (20d). So, it seems plausible that (20b, d) are structurally grammatical at LF, but that they are not satisfy the semantic postulates of a resultative construction, and are thereby ruled out by the semantic component of the language faculty, despite their syntactic well-formedness.

With this in mind, we can propose an LF structure for (20a). This structure is completely parallel to (19):

(21) Jamie shouted herself deaf.

\[
[ \text{IP} \text{ Jamie} \text{ AgrO}^+ \text{I}^+ \text{ AgrOP} \text{ [DP herself]} \text{ shouted} \text{ AgrO}^{-}\text{VP} \text{ t} \text{ t} \text{ t} \text{ AP t deaf]})]
\]

Once again, the subject of the resultative small clause moves to SpecAgrOP to check its

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\(^7\) Notice that the matrix sentence need not assign an agent theta role. Consider the grammaticality of The lightning frightened Alex witless. Even though the marix clause is a “psych predicate,” it can still take a resultative small clause.

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Case feature, and the resulting Case-chain \{[_{dp, herself}_2, t_2]\} is assigned a theta role by *

Case feature, and the resulting Case-chain \{[_{dp, herself}_2, t_2]\} is assigned a theta role by *deaf*—the matrix verb *shouted* has no theta role to assign to it. However, semantically, the sentence also is licit, because there is a patient which arrives at the result, and the causer and causee are structurally distinct. This is not true of the LF structure in (22), despite the fact that it is syntactically well-formed as we have previously argued.

(22) a. Jamie shouted deaf

[_{dp Jamie, shouted} t_{t_1} t_{t_2} [_{AP t_1 deaf}]]

Syntactically, it is completely parallel to (13a), but the semantic component, noting that it does not satisfy the meaning postulates of a resultative construction, disallows it.

Resultatives in Chinese have been analyzed in the past as instances of control—see for instance Huang (1992). However, recent work by Chuang (1997) has argued for a movement analysis of Chinese resultatives, and her analysis is compatible with the broader analysis of control constructions offered in this thesis. We repeat the basic examples from Chuang (1997) and Huang (1992), which are completely structurally analogous to the examples initially given in (18).

(23) a. Zhangsan qi-de [t_{t_1} hen lei]

Zhangsan ride-DE very tired

*Zhangsan rode until he got very tired*

b. Zhangsan qi-de [ ma hen lei]

Zhangsan ride-DE horse very tired

*Zhangsan rode so much that the horse got very tired*

c. Zhangsan ba ma_{t_1} qi-de [t_{t_1} hen lei]

Zhangsan BA horse ride-DE very tired

*Zhangsan rode until the horse got very tired*
The basic resultative construction in Chinese is given in (23a-b). It is crucial to notice that (23a) is grammatical with a resultative interpretation, in contrast to English. This might be expected, since the corresponding syntactic structures are also grammatical in English; it is the semantic constraints on the resultative construction which (we argued) ruled out the English cases like (23a), and we conclude that the semantics of resultative constructions must not entail these semantic postulates in Chinese.

Otherwise, Chinese resultatives act just as one would expect from English adverbial small clauses. The analysis of Chuang (1997), like the analysis here, predicts the following LF structure for (23a), which is perfectly parallel to (13a) with essentially the same derivation:

(24) \[ \text{[ip Zhangsan}_i \text{ qi-de}_2 +I^* \text{[vp t}_1 \text{ t}_2 \text{ [ap t}_1 \text{ hen lei}]}} \]

Again, the movement of Zhangsan to form the Case-chain \{Zhangsan, t, t, \}, required to check its Case features, also permits theta assignment by both the main clause verb qi-de and the resultative clause head hen lei. Similarly, the LF structure for (23b) is parallel to (13b):

(25) \[ \text{[ip Zhangsan}_i \text{ AgrO}^* +I^* \text{[AgrOP [dp ma]_2 qi-de}_2 +AgrO^* \text{[vp t}_1 \text{ t}_j \text{ [ap t}_2 \text{ hen lei}]}} \]

Here, the Case-chain \{[dp ma]_2, t, \} is assigned two theta roles, and hence in Chinese, as in English, only the object can be the antecedent of the resultative clause’s subject.

In (23c-d), there are examples of two common Chinese constructions: the BA-
construction and the BEI-construction. The BA-construction is used to move objects into a VP-external position, and like the analogous movement in Dutch (for example) there is a definiteness effect. The BEI-construction is roughly analogous to passivization in English.

If we assume, following Chuang (1997) and common sense, that BA heads a functional projection which causes overt movement of the object, and BEI heads a VP-adjunct phrase, the following LF structures for (23c&d) follow:

\[(26)\]
\[
\text{a. } [\text{IP } Zhangsan_1 \text{ AgrO}^\circ + I^\circ [\text{AspP } [\text{dp ma}_2 \text{ ba } [\text{AgrOP } t_2 \text{ qi-de}_3 + \text{AgrO}^\circ ] [\text{VP } t_1 t_3 [\text{AP } t_2 \text{ hen lei}]]])]
\]

\[
\text{b. } [\text{IP } Ma_1 \text{ qi-de}_3 + I^\circ [\text{VP } [Zhangsan_3 \text{ bei } t_3] [\text{VP } t_1 t_2 [\text{AP } t_1 \text{ hen lei}]]])]
\]

(26c) has an LF structure like (25) or any other object control construction, with the additional overt movement to SpecAgrOP induced by the BA particle, and (26d) is exactly parallel to (24), with the addition of the adjunct BEI-phrase.

In review, we have seen that resultatives in both English and Chinese may be explained by the theory being proposed here. This is encouraging, since the theory has been able to explain facts of two quite divergent languages with essentially the same proposal, and by hypothesizing essentially the same structures in both languages.

5.4.4 Nishigauchi (1985): Purpose Clauses and Optional Control

Another construction involving optional control constructions is the purpose clause. In this section, we will look at the Control Theory outlined by Nishigauchi (1985) to account for purpose clauses (and similar non-obligatory control constructions), and argue that her account of control is not a plausible explanation for all control constructions, especially obligatory control constructions. On the other hand, there is an interpretation of her analysis which is compatible with our analysis of non-obligatory control constructions.

Although proposed as a Theory of Control, most of the data considered in Nishigauchi
(1985) are purpose clauses. Consider the following data taken from her paper (leaving the identity of the phonologically null category open for now):

(27)  a. John bought a book [t, to read]
     b. John bought Susan a car [t, to drive]
     c. John asked Bill for a book [t, to read]

The antecedent for the null category in (27a, c) is the subject John, but the DP Susan in (27b)—in these purpose clause constructions, the antecedent is unique, but is apparently sensitive to the presence of optional prepositions phrases in the matrix clause. According to Nishigauchi (1985), purpose clauses also do not allow split antecedence and the controller is obligatory—if it exists at all. Also (although this is not mentioned by Nishigauchi) long-distance antecedence is not possible. In these ways, purpose clauses are similar (at least in part) to OC constructions. However, they differ from OC constructions in several ways. C-command is not a requisite for antecedence in purpose clause constructions:

(28)  A car [t, to drive] would be a necessity for John

And, as mentioned above, the presence of an antecedent in a purpose clause construction is not obligatory:

(29)  It is useful to have a car [t, to drive]

In these cases, the empty category has the “arbitrary” interpretation.

Nishigauchi (1985) offers an analysis what she calls “Thematic Control”—which includes obligatory control and some types of non-obligatory control constructions. We have already proposed another analysis to account for obligatory control constructions,
which has empirical advantages over Nishigauchi’s proposals, which are as follows:

(30) **Rule of Control** (def. 80 in Nishigauchi 1985)
   a. PRO is controlled by $\beta$ in the $\theta$-domain of $\alpha$, where $\alpha$ is MC(PRO) and $\beta$ is a PL for $\alpha$.
   b. Otherwise, PRO is free (pragmatically controlled).

(31) **Nishigauchi Theta Domain** (def. 81 in Nishigauchi 1985)
   $\gamma$ is the $\theta$-domain for $\alpha$ if $\gamma$ is a minimal category—NP, S', (or S)—that contains
   (i) $\alpha$, and (ii) an actual theta-assigner for $\alpha$.

(32) **The Primary Location** (def. 82 in Nishigauchi 1985)
   The Primary Location: $\beta$ is a PL for $\alpha$ iff:
   a. $\alpha$ and $\beta$ are contained in a $\theta$-domain $\gamma$ and are arguments of $\delta$, where $\delta$ is an actual theta-assigner.
   b. $\alpha$ is Theme in $\gamma$, or is a predicate on a Theme argument in $\gamma$.
   c. $\beta$ is an argument bearing the highest thematic relation available in $\gamma$ in keeping with the PL Hierarchy.

(33) **The PL Hierarchy** (def. 15 in Nishigauchi 1985)
   1. Goal > 2. Location, Source

The basic story is that the DP assigned the Goal theta role (if there is one) is the antecedent in “Thematic” control constructions.\(^8\) However, in the analysis of obligatory control constructions, there are several immediate counterexamples. The differences

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\(^8\)Nishigauchi (1985) recognizes that there is another type of control—“pragmatic control”—which does not follow the rules of Thematic Control. In our proposal, pragmatic control would be a subset of non-obligatory control, and its operation would be largely extra-syntactic.
between the verbs *persuade* and *promise* (for one example), which we captured in Chapter 2, are impossible to account for in Nishigauchi’s theory, since the differences between the verbs have no effect their theta assignment properties. Also, as we saw above, purpose clauses do not share several of the important properties which characterize obligatory control constructions. Therefore, we must reject Nishigauchi’s analysis as a general theory of “Thematic Control”, although it remains a valid generalization accounting for the interpretation of purpose clauses. We also conclude that purpose clauses are a subclass of non-obligatory control constructions, and the subject of the purpose clauses in (27-29) is *D-pro*.

Consider the sentences in (27). The antecedent for the purpose clause’s subject is the recipient of the “goal” theta role in the matrix clause—or at least the person who ends up with the patient object. Of course, in (27a), the agent who bought the book is usually assumed also to have received the book, and therefore the subject-agent is also the “goal”. In (27b), there is no doubt about which theta role is assigned the goal theta role, and as predicted that is the antecedent as well. Finally, in (27c) we again have an implicit goal theta role is assigned to the subject, who is the recipient of *the book*. In (28), the antecedent is in an adjunct phrase which does not even c-command the purpose clause; however, in (28) the optional adjunct phrase supplies a recipient of the subject of the sentence *a car to drive*. In (29) there is no possible recipient for *a car*, so the subject of the purpose clause cannot find an antecedent; however, here as in other cases of non-obligatory control constructions, the subject is given the “arbitrary” interpretation.

Given the properties of purpose clauses, it is impossible to give them a movement analysis as we did other cases of obligatory control constructions. Rather, we are forced to suppose that they form another type of non-obligatory control constructions. Given that the empirical generalization found in Nishigauchi (1985) is correct, as it seems to be, an analysis of purpose clauses must be in a linguistic component in which thematic roles are taken into account. Arguably, this is at the level of semantic and discourse analysis.
One argument for this is that purpose clauses can take an antecedent from another sentence, as long as that sentence supplies a plausible recipient for the purpose clause’s DP. For example:

(34) John₁ bought a car. It had become necessary to have a car [D-pro₁ to drive to work in].

In (34), the antecedent for the purpose clause subject is not in its sentence, but was introduced earlier in the discourse and is implied to be the recipient of the car. In this case, a syntactic analysis is precluded, and only a semantic/discourse-based analysis can possibly explain the facts.

However, this raises an interesting possibility. There are many sentences in English which are analyzed as involving for as a C° head taking a non-finite TP and assigning Case to the subject of the TP clause, as in the following:

(35) a. Jamie bought a car [for [Pat to drive]]
    b. It is impossible [for [Jamie to leave]]
    c. [For [John to err]] is more than human

There is another possibility, though. Consider the possibility that for is not a complementizer at all, but is as usual a preposition introducing a optional adjunct clause, which—because it introduces the appropriate theta role into the theta grid of the matrix clause, introduces an obligatory controller, as in the purpose clauses we saw above.

The analysis needs to be fleshed out, but it has a few desirable properties. For instance, it explains why the for + DP subject can be moved around as a unit, as if it were

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9How for would assign Case to SpecTP in the Minimalist framework is extremely speculative at best. That in itself is an argument for the (sketchy) proposal that is presented here as an afterthought, since in this proposal for is straightforwardly a preposition.
a phrase.

(36)  a. [For Pat], Jamie bought a car [to drive]
    b [For whom] is it impossible [to leave]
    c. [To leave] is impossible [for Jamie]

Under the for-as-complementizer analysis, these facts are quite bizarre, and would probably be the only case of non-constituent A´-movement in English. However, if we view for as a preposition and the moved item as a PP constituent, then the sentences in (36) are exactly what is to be expected.

5.4.5 For-Complementizers

In English, one type of clause has been argued to be a CP headed by a Case-checking C° for. Consider the following sentences:

(37)  a. Jamie hoped/hated/decided to impress Chris.
    b. Jamie hoped/hated/decided for Andy to impress Chris.
    c. It is necessary/tough to impress Chris.
    d. It is necessary/tough for Jamie to impress Chris

(37a) is a subject control sentence, and it has a counterpart, (37b), which allows a for-complement and a subject in the embedded clause. Similarly, (37c) involves non-obligatory control, and its for-complement counterpart, (37d), has an explicit subject in the complement clause.

However, if for is a C° head, then it has some unusual properties. Consider the following sentences:
(38)  
a. For Jamie, it is necessary to impress Chris.  
b. *For Andy, Jamie hoped/hated/decided to impress Chris

In (38a), we see that it is possible to topicalize *For Jamie, although it is not a constituent. Assuming *for is a C°, Jamie must be a DP in SpecAgrSP, and these two words do not form a constituent. On the other hand, in (38b) we see that this movement is impossible, as one would expect when trying to move a non-constituent. Then, (38b) is consistent with assuming *for is a C°. However, it is impossible that for can act as a C° in sentences like (37c&d) and (38b).

Let us consider an alternative, based on Epstein (1984). If the subject of the non-finite clause in (37c&d) and (38b) were a D-pronoun rather than the lexical DP, we could construe the sequence of *for plus the DP as a PP. Recalling the discussion of purpose clauses in §5.4.4 and in Nishigauchi (1985), it is unsurprising that such a PP, with a benefactive type of meaning, could be interpreted as the antecedent of the D-pronoun. This would also explain the differences in topicalization in (38a) and (38b): in (38b), the topicalized element is a constituent PP, while in the ungrammatical (38a) the topicalized phrase is not a constituent.

5.5 Conclusion

In this chapter, we have argued that in contrast to obligatory control constructions, the interpretation of non-obligatory control constructions is not determined by the syntax, and cannot possibly be determined by the syntactic component. Instead, we argued, the antecedents of NOC constructions are determined in other components of the grammar, in particular in the semantic and the discourse component. There are several formal theories of discourse: Discourse Representation Theory (Kamp 1981, Klein 1986, Sells 1987, Kamp and Reyle 1993) and Dynamic Montague Grammar (Groenendijk and Stokhof 1990, Chierchia 1995), among other variants. This presents a problem, since the architecture
of these components is significantly different from that of the syntax, and it is outside the scope of this thesis to present a coherent and concrete analysis of NOC constructions, since the theories on which we might base such an analysis are at best in an early stage of development.

Nonetheless, this chapter demonstrated that OC and NOC constructions are of a different nature, and that NOC constructions must have an extrasyntactic analysis which is completely separate from the analysis given in chapters 2, 3 and 4 for obligatory control constructions. Therefore, if nothing else, we no longer need to worry about it as much.