"So Easy to Look At, So Hard to Define": *Tough* Movement in the Minimalist Framework

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Abstract

This dissertation addresses the syntactic analysis of the (English) *tough* construction (TC), a syntactic construction in which (typically) adjectival predicates in the semantic class of *tough* and *easy* may participate:

(i) John$_i$ is tough/easy/impossible/a cinch to please e_i

In this construction, the matrix subject is coreferent with the understood (non-overt) object of the embedded infinitival, as the non-TC paraphrase in (ii) shows:

(ii) It is tough/easy/impossible/a cinch to please John

A theoretically and empirically adequate analysis of such constructions has long proved elusive in generative syntactic frameworks: on the one hand due to apparent incompatibility with the theoretical principles of Case-theory, θ-theory, and movement constraints, on the other due to a range of largely contradictory empirical facts suggesting that TCs involve both NP-movement ('A-movement') and *wh*-movement ('A′-movement'). The very fact that within previous Principles and Parameters models TCs have proved "in principle unexplainable" (Holmberg, 2001:839) appears detrimental to the credibility of such syntactic frameworks. I attempt to fill this previously conspicuous 'gap' in the empirical adequacy of Principles and Parameters syntax, arguing that recent revisions to the minimalist framework (particularly Chomsky 2000; 2001a) should inspire a rethinking of TCs, thus lending further support to the current minimalist framework and the manner in which core theoretical principles are reworked therein.

Chapter 2 provides a range of evidence to support the claim that the lexical argument structure of *tough*-class predicates is identical in both TC and non-TC configurations. Chapter 3 briefly introduces crucial additions to the recent minimalist framework concerning agreement, movement and feature-checking. Chapter 4 details the various problems encountered by the most common analyses of TCs within generative syntax, and the reasons why each is incompatible with a specific set of basic theoretical assumptions. Drawing on this, chapter 5 outlines an analysis of TCs consistent with these assumptions as stated in the current framework, based on an innovative approach to the syntax of null *wh*-operators. Chapter 6 explores some consequences of extending this analysis to provide an account for a set of constructions apparently related to TCs.

Contents

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Chapter 1

An introduction to *tough* constructions

Tough constructions[1] (henceforth TCs) have been of syntactic interest since very early generative syntax (Lees 1960, Miller and Chomsky 1963, Chomsky 1964), where much attention was paid to the raising/control distinction between constructions of the type *easy to please* and of the type *eager to please* respectively. Example (1a) is the type of syntactic configuration which I refer to as a *tough* construction, characterised by an apparent gap in the object position of an embedded infinitival clause, and by the appearance in matrix subject position (referred to hereafter as the '*tough* subject' in a TC) of a syntactic argument understood as coreferent with this 'missing' object.

(1) a. John$_i$ is tough to please e_i
    b. John$_i$ is handsome to look at e_i

1.1 Why the *tough* puzzle is a tough puzzle to solve

As (1b) shows, predicates such as *tough* share a *prima facie* syntactic distribution with other predicates involved in so-called 'Object Deletion' (OD) configurations. However, sentences of the type in (2) and (3) have often been adduced in support of

[1] Also commonly termed *tough*-movement constructions, or *easy to please* constructions.

the view that *tough*-class predicates and other OD predicates (such as *handsome*) exhibit different thematic behaviour:

(2) a. It is tough to please John
b. * It is handsome to look at John

(3) a. To please John is tough
b. * To look at John is handsome

As *it* in (2) is a nonthematic expletive, it appears that *tough* predicates do not subcategorise for a syntactic subject, whereas *handsome*, for example, does. Assuming that a single lexical argument structure for *tough* is responsible for (1a), (2a) and (3a),[2] an important consequence is that although *John* clearly occupies the matrix subject position in both (1a) and (1b), only in (1b) can it be considered an argument of the adjectival matrix predicate.

The *tough* subject thus appears to bear a thematic relation to the main verb of the embedded infinitival clause, traditionally leading syntacticians to assume that a movement operation in the TC's derivation is responsible for the *tough* subject's apparent displacement. Indeed, since Rosenbaum (1967) first proposed a transformational rule later coined '*tough* movement' (TM), the majority of analyses of TCs have appealed to some variety of movement. However, even the most fundamental properties of this movement have been the subject of vigorous debate.

Rosenbaum's suggestion (see also Postal 1971, Postal and Ross 1971, Berman 1973) assumed TM to be a rule of object-to-subject raising (essentially, A-movement). Certain empirical evidence (summarised comprehensively by Bayer 1990) appears to show that an assimilation of TM to raising is well motivated. However, Chomsky (1977) provides convincing empirical support for an account of TM based rather on A′-movement of a phonologically null *wh*-operator, roughly as in (4):

(4) John_i is tough $[_{\text{CP}}\ \text{Op}_i\ [_{\text{TP}}\ \text{PRO to please } \text{t}_i]]$

(based on Chomsky 1977)

Although the evidence for A′-movement appears compelling (based on sensitivity to island effects and the licensing of parasitic gap constructions, for example),

[2]Evaluating the validity of this assumption is the focus of chapter 2.

standard *wh*-movement tests such as sensitivity to Weak Crossover and Binding Condition C are not wholly consistent with Chomsky's analysis.

Beyond such empirical concerns, the fact that neither A-movement or A′-movement can be claimed to be theoretically adequate has proved particularly problematic for Principles and Parameters (P&P) models, such as the Government and Binding (GB) framework. Both types of analysis, as well as proposed fusions of the two, seem incompatible with either θ-theory, Case theory, or movement theory, all of which are central components of the GB model. Holmberg (2001) states the scale of the *tough* puzzle as follows:

> "[A] phenomenon such as *Tough*-movement may be as close as we get in syntactic theory to one which remains unexplained, and in principle unexplainable, in a given model."
>
> (Holmberg 2001:839)

Despite a long literature concerning TCs, such a study is clearly still of theoretical importance: the syntax of *tough*, possibly more than any other syntactic puzzle, has long represented a rather conspicuous thorn in the side of generative syntactic theory.

1.2 Aims and organisation of the dissertation

This dissertation develops an analysis of the syntax of TCs broadly within the minimalist framework developed by Chomsky (1993; 1995), adopting the extensions of the framework developed by Chomsky (2000; 2001a, and to some extent 2001b). It is my intention to offer some degree of methodological innovation and a study of the implications of the developing syntactic framework for a previously problematic syntactic puzzle, with two research aims. Firstly, as there appear to be very few minimalist accounts of TM suggested in the literature, to examine the extent to which the minimalist framework (and in particular its recent developments) may provide an insight into the mysterious properties of TCs. As many important theoretical concepts and principles of previous frameworks are either redundant or reworked under Minimalism, I explore how recent theoretical developments affect the adequacy of previous accounts and present fresh possibilities for analysing TCs. Notably, such developments include the implications of

phase-based derivations, standardised feature-checking configurations, and the relationship between Case-assignment and φ-feature agreement. Secondly, I report on the implications that a potential analysis of TCs may have for certain aspects of minimalist theory. As this framework is still currently in its formative stage, and altering rapidly in light of both empirical and conceptual concerns, any account of TM which is largely compatible with all of the core theoretical assumptions might provide evidence for any additional refinements to the framework required in order for the analysis to work.

The dissertation is organised as follows. Chapter 2 is devoted to proposing a lexical argument structure of *tough*-class predicates for both TC and non-TC configurations. This concerns not only the thematic status of the *tough* subject, but also the argument/adjunct status of the apparently optional *for*-phrases which may appear with *tough* predicates as well as that of the embedded infinitival clause. Chapter 3 briefly outlines the fundamental set of theoretical assumptions that I adopt, which are largely consistent with recent developments in minimalist theory. Chapter 4 outlines and evaluates previous analyses of TCs, examining for each the theoretical issues posed by minimalist theory and hence explaining why each is incompatible with core theoretical assumptions concerning θ-theory, the Case Filter, and movement. Drawing on this, chapter 5 argues that recent developments to the framework permit the possibility of an innovative analysis consistent with the minimalist goals of eschewing representational filters and of providing a feature-based account for all derivational dependencies. Core theoretical assumptions are retained, often with minor modifications consistent with the minimalist framework. Chapter 6 explores an interesting extension of this analysis in order to provide an account for a set of related constructions, and chapter 7 concludes the dissertation.

Chapter 2

Tough predicates and their arguments

This chapter proposes a lexical argument structure for *tough*-class predicates, which must be central to any analysis of TCs. Crucially, this involves a judgement concerning whether the argument structure of a *tough* predicate differs according to whether it occurs in a TC or a non-TC configuration, adopting as a null hypothesis the view that there is no such difference. Essentially, this chapter is devoted to evaluating the evidence against this null hypothesis, concluding by proposing an argument structure to be adopted throughout. First, and perhaps most importantly, the thematic status of the *tough* subject is examined. Secondly, the differences between varieties of *for*-phrases and the constraints governing their realisation in TCs and non-TCs are observed. Finally, the status of the embedded infinitival clause as an argument or an adjunct in TCs is examined.

2.1 What it is to be a *tough*-class predicate

Predicates which enter into TC configurations are typically adjectives, but also nominal expressions which denote ease and difficulty, such as *tough*, *simple*, *im-*

possible, *hard*, *a bitch*, and *a cinch*.[1, 2] As was first noticed by Lees (1960), and discussed further by Nanni (1978), Akatsuka (1979), Chung and Gamon (1996), there is a sub-class of *tough* predicates with quite different semantics (such as *annoying*, *unpleasant* and *fun*) which may still be considered *tough* predicates due to their appearance in the same range of syntactic environments as *tough*, *easy* etc:

(1) To watch Lloyd-Webber's hit musicals is annoying/unpleasant/fun

(2) It is annoying/unpleasant/fun to watch Lloyd-Webber's hit musicals

(3) Lloyd-Webber's hit musicals are annoying/unpleasant/fun to watch

I do not doubt that more deserves to be said concerning this sub-class of *tough* predicates, yet the familiar space and scope limitations prevent this. I do not pursue further the particular semantic characteristics of *tough* predicates here, but the crucial point is that (following Chomsky 1981, Mulder and den Dikken 1992, but *contra* Lasnik and Fiengo, 1974, Chung and Gamon, 1996, and others) I do not classify predicates such as *pretty* and *handsome* as *tough*-class predicates, despite their appearance in OD contexts, precisely because they do not occur in non-TC environments (see (2b), (3b) in chapter 1).

2.2 Methodology and the single subcategorisation hypothesis

The classical transformational approach to TM proposed by Rosenbaum (1967) is one in which TCs (e.g. (3)) are derived by optional operations: a construction such

[1]Flickinger (1995) and Dalrymple and Holloway King (2000) suggest that verbs such as *take* (*six months*) and *cost* (*five pounds*) may be considered *tough*-class verbs as they exhibit properties quite similar to other *tough* predicates and also occur in constructions apparently equivalent to non-TCs. Pesetsky (1987) also suggests that 'Psych-verbs' such as *annoy* may be classed as *tough*-predicates yet as Pesetsky concedes, informants typically judge the relevant sentences (such as (i)) rather marginal:

(i) War$_i$ frightens me$_j$ [PRO$_j$ to think about e_i]

(Pesetsky 1987)

[2]The reader is referred to Akatsuka (1979), Flickinger and Nerbonne (1992), Flickinger (1995), Chung and Gamon (1996), among others, who provide more exhaustive lists of the predicates that occur in TCs.

as (1) provides the input to an application of extraposition, with (2) as the output, which in turn provides the input to object-to-subject raising, deriving the TC in (3). In the spirit of the transformational account for the TC/non-TC alternation, an important underlying null hypothesis adopted in this chapter is that a single argument structure of *tough* predicates can account for its appearance in both TC and non-TC configurations, and that the TC/non-TC alternation simply derives from alternative underlying numerations which the derivation accesses. I believe that this should be the null hypothesis on conceptual grounds, following Aniya's (1998) observation that this results in a simplification of the lexicon (citing this as an advantage of generative accounts of TCs over lexically-based analyses). In the following sections of this chapter, I evaluate on empirical and theoretical grounds the evidence often provided against a single subcategorisation for *tough* predicates, in order to judge the adequacy of the null hypothesis.

2.3 *Tough* subjects and 'that' θ-role

Perhaps the most important and controversial question relating to the argument structure of *tough* predicates concerns the thematic status of the *tough* subject, an issue central to any analysis of TM. I assume the intuitions underlying Chomsky's (1981:36) initial θ-*criterion*, namely that an argument must bear a single θ-role, and that non-arguments may not bear any θ-role. If the *tough* subject is an argument, then it must be assigned a θ-role either from the main predicate in the infinitival clause or from the *tough* predicate itself (as its surface position might lead us to believe). In non-TCs, *tough* predicates clearly do not assign a θ-role to the constituent corresponding to the *tough* subject in TCs: therefore, adopting the latter position would result in falsification of the null hypothesis.

Evidence against the null hypothesis that the *tough* subject in TCs does not receive an 'external' θ-role from the *tough* predicate has generally been sought in the literature from two perspectives: first, if the *tough* subject relies on the infinitival verb to assign its θ-role, then this verb should always be present in the structure; second, if there is only a single subcategorisation, then we should expect TCs and non-TCs not to exhibit systematic semantic differences.

2.3.1 Infinitival clause omission

It is well documented that the infinitival clause is often omitted in TCs, and Williams (1983), Kim (1995) and others argue that the *tough* subject's θ-role is assigned by the *tough* predicate on the evidence of such cases:

(4) Mathematical problems involving quadratic equations are easy

In the absence of any predicate in an embedded clause which could assign the *tough* subject's θ-role, Williams claims that the *tough* predicate must assign an external θ-role to the *tough* subject in such cases.

However, once a wider range of *tough* subjects is considered, following observations of Comrie and Matthews (1990) it is clear that there are significant restrictions on the cases where this omission is possible (as we will see in § 2.5.1). I take this to be evidence in favour of Pesetsky's (1987) conclusion that sentences such as (4) simply involve ellipsis of the infinitival clause. *Contra* Williams and Kim, I assume the infinitival clause to be underlyingly present in (4), and so the verb in the unpronounced infinitival may, at least potentially, assign a θ-role to the *tough* subject, as in (5):

(5) Mathematical problems involving quadratic equations are easy (to solve)

2.3.2 The semantics of TCs and non-TCs

In favour of allowing dual subcategorisation for *tough* predicates, it has often been suggested that semantic differences obtain between TCs and non-TCs. The relevant interpretation difference between the two constructions is well documented: Schachter (1981), Bayer (1990), Grover (1995) and Kim (1995) report that TCs seem to give rise to a salient reading whereby some property of the *tough* subject is interpreted as being responsible for the difficulty/easiness (or whatever property is denoted by the *tough* predicate). Thus, in (6a) but not (6b), the most salient ('responsibility'/'causativity') reading is one in which the difficulty experienced is the result of some property of the mountain, such as the terrain, gradient etc:

(6) a. This mountain is difficult to walk up

b. It's difficult to walk up this mountain

As causativity is generally considered to be encoded syntactically (relating to θ-role assignment), Kim claims that *tough* predicates differ in TC and non-TC sentences with respect to which constituents are assigned which θ-roles. Under her analysis, in non-TCs an external cause θ-role is assigned to the infinitival clause. In TC configurations, however, the cause θ-role is assigned not to the infinitival clause, but to the *tough* subject. The infinitival is not assigned a θ-role in the TC configuration, and thus has adjunct status (see § 2.5).[3]

Goh (2000b), however, provides detailed empirical evidence that this responsibility reading cannot be attributed to a difference in θ-role assignment in TCs and non-TCs. Goh demonstrates that the causativity reading in TCs is restricted and weak: it can be very easily cancelled by additional contextual information, as shown in (7), where the responsibility for the difficulty is ascribed not to the mountain but to the rucksack, inside the adjunct *while...* clause:

(7) This mountain is difficult to walk up while carrying such a large and cumbersome rucksack

Furthermore, as Goh shows, we can very easily find contexts where the TC is unable to give rise to a causative interpretation. Where the *tough* subject is propositional, for example, as in (8a), there is no conceivable interpretation difference from the equivalent non-TC (8b).

(8) a. That Jo wears size 9 shoes is difficult to believe
b. It is difficult to believe that Jo wears size 9 shoes

Goh (2000a) also highlights a particularly good example from Berman (1973). Although idiom chunks such as *the hatchet* in (9) cannot by their very nature bear any 'responsibility', they may appear as *tough* subjects:

(9) The hatchet is hard to bury after long years of war

(Berman 1973)

[3] A similar analysis of the *tough* predicate argument structure is adopted by Hornstein (2000).

Goh's (2000a, 2000b) conclusion, which I find persuasive, is that the interpretative differences between TCs and non-TCs can be attributed to pragmatics rather than to thematic differences.[4]

Further reason for resisting the claim that the *tough* subject's θ-role is assigned by the *tough* predicate is that it would assimilate TCs to cases of *pretty* constructions (e.g. (10a)) and degree specifier constructions (DSCs) involving *too*+ADJ or ADJ+*enough* (e.g. (10b)):

(10) a. These flowers are pretty to look at
b. These books are too expensive to buy
c. These stolen car stereos will be difficult to sell on

Although it is impossible to deny the superficial similarity between the sentences in (10), there are important differences.[5] As noted above, there are cases where omission of the infinitival clause in a TC is grammatical, yet these rely heavily on contextual factors (see § 2.5.1). The same is not true for *pretty* constructions and DSCs, however, as the omission of the infinitival in these cases is free:

(11) a. These flowers are pretty
b. These books are too expensive
c. ?? These stolen car stereos will be difficult

The difference in the acceptability of (11a)/(11b) compared with (11c) can be attributed to the suggestion that in (11c), the predicate which assigns a θ-role to the DP in matrix subject position is not present in the sentence, nor salient enough in the discourse for it to be identified as present in the underlying structure. In (11a) and (11b), on the other hand, it is assumed to be the matrix predicate (*pretty*/*too expensive*) which assigns the matrix subject's θ-role, so omission of

[4]This is compatible with Pulman's (1993) suggestion that TM is associated with a 'focussing' effect, and Soames and Perlmutter's (1979:501) claim that the difference between TCs and non-TCs is simply one of "focus and emphasis".

[5]See chapter 6, note 5 in particular. Interestingly, Solan (1979) argues that TCs should not be assimilated to *pretty* constructions (whose matrix subjects are assigned θ-roles by their matrix predicates) on the evidence of acquisition data. Solan's study finds that children pass through a stage of acquisition where they can successfully interpret TCs but not *pretty* constructions, claiming that this (apparently regular) delay suggests underlyingly different syntactic derivations for these two constructions.

the infinitival is not critical for the interpretation of the sentence.[6] This view appears to be further supported by semantic differences between the two types of predicate. Schachter (1981:446) asserts that *tough* predicates, unlike *pretty*-class predicates "express properties not of entities but of acts."[7, 8]

We may conclude from the discussion in this section that the empirical evidence seems by no means sufficient for us to reject our null hypothesis of a single subcategorisation for *tough* predicates. Assuming henceforth (with Chomsky 1981, Browning 1987, Pesetsky 1987, Comrie and Matthews 1990, Brody 1993, and many others) that *tough* predicates do not assign a θ-role to the *tough* subject of TCs, I now open out the discussion to the other types of constituent which *tough* predicates may potentially be argued to subcategorise for.

2.4 *For*-Phrases in TCs and non-TCs

Tough predicates in both TC and non-TC configurations may optionally take at least one overt DP introduced by *for* (henceforth '*for*-phrase'):

(12) a. John is difficult (for Mary) (*for Bill) to please
b. It is difficult (for Mary) (for Bill) to please John
c. (For Bill) to please John is difficult (for Mary)

This section initially aims to explain the variation between the appearance of no, one, or two *for*-phrases, and to examine the consequences for the argument structure of *tough* predicates and for the single subcategorisation hypothesis. In the literature, the discussion of the *for*-phrase has generally centred on whether,

[6] See § 2.5.1 for further differences between these types of predicate concerning entailment relationships between overt and omitted infinitivals.

[7] Similarly, Soames and Perlmutter (1979:501) state that in a sentence such as (i) below, "it is not the manuscript that is easy, but rather my arranging for you to see it."

(i) The manuscript will be easy for me to arrange for you to see

(Soames and Perlmutter 1979)

[8] Schachter appears to overlook the possibility that *tough* predicates may also express properties of states:

(i) Rich and powerful linguists are easy to be envious of

in cases where only one *for*-phrase is present, *for* is a preposition which takes a DP complement (as in (13a)), or whether *for* is a complementiser, and the DP is simply the subject of the infinitival clause (as in (13b)).

(13) a. John is [$_{\mathrm{AP}}$ tough [$_{\mathrm{PP}}$ for Mary$_i$][$_{\mathrm{TP}}$ PRO$_i$ to please]]
b. John is [$_{\mathrm{AP}}$ tough [$_{\mathrm{CP}}$ for [$_{\mathrm{TP}}$ Mary [$_{\mathrm{T'}}$ to please]]]

For convenience, where *for* is analysed as a complementiser, I abbreviate to *for*$_C$; where *for* is analysed as a preposition, I abbreviate to *for*$_P$. Instances where the category of *for* is unanalysed or irrelevant to the discussion bear no subscript.

2.4.1 Introductory Remarks and Assumptions

Following Pesetsky (1987) and Kim (1995),[9] I assume that *tough* predicates may assign an experiencer θ-role to a DP introduced by *for*. It seems quite clear that in (14), for example, Mary is the experiencer of difficulty in trusting John:

(14) Given his recent history with women, John is difficult for Mary to trust

An initial assumption, then, is that there is at least one type of *for*-phrase which is an argument of a *tough* predicate.[10] Given the assumption that θ-roles are assigned in base-positions,[11] I assume, naturally, that the experiencer θ-role is assigned to a DP complement of P (a *for*$_P$-phrase in the matrix clause, as in (13a)): only in (13a) is the *for*-phrase in a configuration in which a θ-role may be assigned to it by the *tough* predicate.

A second important assumption is that there is a particular *for*-phrase which occurs with TCs and non-TCs, but in fact has little or nothing to do with the syntax of *tough* predicates:

(15) For Mary, John is difficult to please

[9] See also Hukari and Levine (1991), Chung and Gamon (1996).

[10] This is supported by the fact that even when no *for*-phrase is present we interpret the experiencer as arbitrary/implicit. I believe that the case for the presence of an implicit PP was first made by Berman and Szamosi (1972).

[11] See § 3.1.

Chomsky (1973) and Lasnik and Fiengo (1974) first noted these examples, but (I believe incorrectly) report this type of example as a paraphrase of (16), derived by preposing the *for*-phrase:

(16) John is difficult for Mary to please

Hukari and Levine (1991) present evidence that this *for*-phrase is base-generated *in situ*, and does not undergo movement in these cases. Furthermore, Browning (1987) and Levine (2000) recognise that the *for*-phrase in a position peripheral to the rest of the sentence (usually delimited by a comma in written form) does not correspond semantically to that in (16).[12] As Browning observes, the meaning of the *for*-phrase in (15) can be paraphrased by *as far as Mary is concerned*. Accordingly, a truth conditional difference obtains between (15) and (16): in (16), Mary must be understood as the agent of the embedded verb, *please*, and is also understood as experiencing difficulty; in (15), Mary is not necessarily the agent of *please* nor the experiencer of any difficulty (both may be arbitrary in reference). Furthermore, the fact that such a for_P-phrase can occur with a range of predicates which clearly do not normally take a for_P-phrase leads us to conclude that this is simply an optional adjunct with no particular relevance to *tough* predicates:

(17) For Gareth, Rachel is a danger to other road-users

2.4.2 Possibilities for realising *for*-phrases with *tough* predicates

The sentences in (12) above show that while non-TCs permit up to two *for*-phrases, TCs permit at most one. The relevance of this observation to this chapter concerns whether it justifies rejecting the single subcategorisation hypothesis. In order to examine this, we require an analysis of which type of *for*-phrase is permitted, and which is not permitted, in TCs.

As non-TCs allow two *for*-phrases, it is natural that in such cases, one is analysed as a for_P-phrase, and one as a for_C-phrase. It can be assumed that the *for*-phrase immediately preceding *to* in the infinitival clause is a for_C-phrase, and the one immediately following the *tough* predicate a for_P-phrase:

[12] Chomsky (1973) mentions a difference in interpretation in a subset of these cases, yet is not explicit about what this difference is.

(18) a. It would be awkward [$_{\text{PP}}$ for John] [$_{\text{CP}}$ for Mary to join that dating agency]

b. [$_{\text{CP}}$ For Mary to join that dating agency] would be awkward [$_{\text{PP}}$ for John][13]

The DP inside the matrix *for*$_P$-phrase is assigned an experiencer θ-role by *awkward*, while the DP introduced by *for*$_C$ is assigned a θ-role (here, the agent θ-role) by the infinitival verb *join*.

When one *for*-phrase is present, however, a choice of analyses is potentially available. In the case of the clausal subject non-TC, the analysis is simple, as surface string positions suffice to identify each type of *for*-phrase:

(19) a. [$_{\text{CP}}$ PRO to join that dating agency] would be awkward [$_{\text{PP}}$ for John]

b. [$_{\text{CP}}$ For Mary to join that dating agency] would be awkward

In (19a), the *for*-phrase is the *for*$_P$ variety, confirmed by its interpretation as the experiencer. In (19b), on the other hand, the *for*-phrase must be the *for*$_C$ variety, confirmed by the fact that although Mary is the agent in the infinitival clause, the experiencer of awkwardness may be interpreted as arbitrary in reference.

With the expletive subject non-TC, the situation is less evident, as the surface string position of the single *for*-phrase predicts the following ambiguity:

(20) a. It would be awkward [$_{\text{PP}}$ for John] [$_{\text{CP}}$ PRO to join that dating agency]

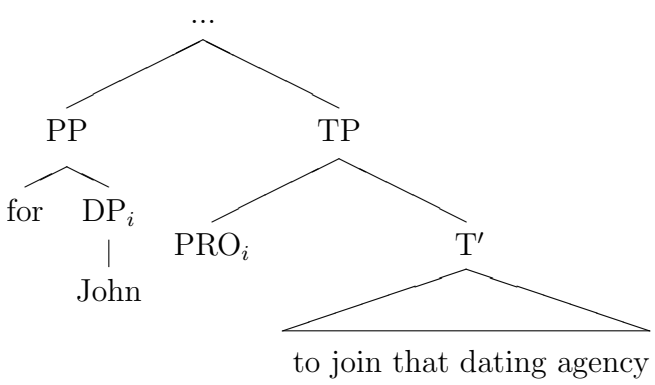
b. It would be awkward [$_{\text{CP}}$ for John to join that dating agency]

I believe that both structures (with the corresponding interpretations) are available. (20a) is perhaps the more salient, with John experiencing awkwardness, while also being understood as the agent of *join*, controlling PRO in the infinitival. Under (20b) John is still the agent of *join*, yet the experiencer is arbitrary or implicit.

[13]Note that Bresnan (1971) and Brame (1976) claim that sentences of the type in (18b) are unacceptable. To my knowledge, it was Berman and Szamosi (1972) who first noted the acceptability of these constructions and I agree with their (and many other researchers') grammaticality judgements, assuming that this type of sentence is perfectly acceptable.

Interestingly, a potential theoretical problem for the for_P-phrase analysis (20a) (and also for the corresponding analysis in TCs, see below) is the question of how PRO control would be adequately achieved. Generally, PRO control requires a configuration whereby a coindexed category c-commands PRO.[14] However, the DP *John* coindexed with PRO cannot c-command it, being the complement of a preposition:

(21)



However, Manzini (1983) observes other cases where c-command is not in fact a requisite for PRO control. Alternatively, it is not difficult to envisage an analysis of PRO control whereby the PP containing a DP acts as the appropriate c-commanding category here for the purposes of control.[15]

2.4.3 Analysing the *for*-phrase in TCs

As TCs only permit one *for*-phrase, and the surface string positions of each type of *for*-phrase in the TC configuration (like the expletive subject non-TC) would give us no indication of which to adopt, we appeal to predicted interpretation differences in order to specify whether it is the for_P-phrase or the for_C-phrase which is incompatible with TCs.

(22) That dating agency would be awkward for John to join

It seems clear that John must be understood as both the experiencer of *awkward* and the agent of *join*, corresponding to the interpretation of the for_P

[14] See chapter 3, note 8 for a formal definition of c-command.

[15] Williams (1989) claims that 'grammatical' (as opposed to 'semantic') prepositions have no thematic/argument structure as such, which permits θ-role assignment to permeate the PP projection to the DP. A parallel account might suggest that DP arguments introduced by for_P act as if the PP level were not present for the purposes of c-command.

analysis (20a) for the expletive subject non-TC with a single *for*-phrase. Unlike the expletive subject non-TC, however, the alternative for_C analysis is unavailable: there can be no interpretation of (22) whereby John is the agent of *join*, but the experiencer of *awkward* is arbitrary or implicit. It appears, then, that some (unexplained) constraint rules out TCs with an overt complementiser/subject in the infinitival clause, although PP arguments are permitted just as for non-TCs. This is in fact the most commonly held view in the literature, e.g. Chomsky (1977), Soames and Perlmutter (1979), Jones (1991).

Further evidence for the for_P analysis is available. As shown above in § 2.3.2, the infinitival clause in a TC can be omitted.[16] If the *for*-phrase available with TCs is not in the infinitival clause, when the infinitival is omitted we predict that the *for*-phrase may still be realised, as is attested:

(23) Mathematical problems involving quadratic equations are easy for me (to solve)

This is entirely unexplained if the *for*-phrase in TCs is analysed as a for_C-phrase (with *me* at SpecTP), as it would essentially require ellipsis of a T′ constituent, which is implausible.

Finally, the unacceptability of expletives (which are obligatorily introduced by for_C) in the *tough* infinitival of TCs is explained under the for_P analysis:

(24) ?? The empirical adequacy of a syntactic framework is always awkward for there to be any doubt about

2.4.4 Implications for the single subcategorisation hypothesis

Clearly, the evidence for treating the *for*-phrase in TCs as a PP is quite compelling. We might still wonder, though, whether the fact that TCs do not permit for_C-phrases (whereas non-TCs do) argues for a rejection of the single subcategorisation hypothesis. Note that the DP introduced by for_C is, in those cases where it is permitted (i.e. non-TCs), not an argument of the *tough* predicate,

[16] See also § 2.5.1.

but of the verb inside the embedded infinitival. Rejecting the null hypothesis on such grounds would indicate that *tough* predicates subcategorise for a CP in both TCs and non-TCs, yet in TCs, this argument must not contain an overt complementiser/subject.[17] However, while it would be straightforward to account for the appearance of particular arguments of a *tough* predicate within the predicate's lexical argument structure, it is less clear how the *tough* predicate's subcategorisation can specify a requirement internal to one of its arguments. It seems more theoretically desirable, then, to retain the null hypothesis, and to account for this requirement in the syntactic mechanisms underlying TM. This simply reapportions the burden of empirical explanation to the syntactic derivation, and indeed might potentially provide important evidence concerning the syntax of the embedded clause in TCs.

2.5 The status of the *tough* infinitival clause

The remaining question concerns the argument/adjunct status of the infinitival clause which, as we have seen, is present in the majority of TCs (and all non-TCs). In non-TC sentences, the status of the infinitival clause (henceforth the 'non-*tough* infinitival') as a syntactic argument is uncontroversially assumed. While the null hypothesis is that *tough* predicates in TC configurations also subcategorise for an infinitival argument (the '*tough* infinitival'), Nanni (1978), Wilder (1991), Contreras (1993), Kim (1995) and Hornstein (2000) provide certain arguments for treating the *tough* infinitival as an adjunct, suggesting that the single subcategorisation hypothesis should be rejected. I evaluate these arguments in this section.

2.5.1 Optionality of the *tough* infinitival

As adjuncts are not subcategorised, the prototypical test for adjuncthood is that of syntactic optionality. Adjuncts can, by and large, be freely omitted without inducing any grammaticality-based violation. Thus Wilder (1991), Kim (1995) and Hornstein (2000) claim that the possibility of omitting the infinitival clause in a TC with no truth-conditional difference represents strong evidence for treating the *tough* infinitival as an adjunct, as we have seen above.

[17] If we assume for now that the infinitival clause is indeed an argument of the *tough* predicate in TCs, see § 2.5.

(25) a. This problem is difficult to solve

b. This problem is difficult

However, across a wider range of TCs, *tough* infinitival omission is not consistently applicable. The examples in which the *tough* infinitival is not phonologically present are in fact restricted to cases where the linguistic context (as in (26)) or extralinguistic context (as in (27)) is rich enough for the full meaning of the omitted clause to be retrieved:

(26) This article on Russian military vehicles will be easy for Jofrid to translate into Norwegian but difficult for Nina (to translate into Norwegian)

(27) Today's opposition will be difficult (to beat)

Following observations by Comrie and Matthews (1990), I maintain that where the meaning of the omitted infinitival clause cannot be retrieved from the preceding discourse (as in (25b) and (27)), the acceptability of the TC relies heavily on a salient 'characteristic function' of the entity denoted by the *tough* subject. Accordingly, (25b) can paraphrase (25a) but not (28), as the characteristic function of *problem* is typically something that one tries to solve, not (necessarily) to understand the significance of.

(28) This problem is difficult to understand the true significance of

In the absence of appropriate preceding linguistic context, a *tough* subject whose referent does not possess a salient characteristic function will not permit omission of the infinitival, as Comrie and Matthews observe:[18]

(29) a. ?? That 1970s archeological find is easy

b. That 1970s archeological find is easy to forget the importance of

(30) a. ?? That Mary should decide to visit was easy for us

b. That Mary should decide to visit was easy for us to understand

Similarly, Dowty (1982) demonstrates that entailment tests can be used to distinguish adjuncts from arguments. If a construction contains an infinitival

[18]Jones (1991) accounts for the unacceptability of such sentences in terms of 'opaque' predications.

adjunct, then it it should entail the truth of the equivalent sentence without the infinitival. Thus, (31a) should entail (31b) under the adjunct analysis of the *tough* infinitival, yet it clearly does not:

(31) a. Today's opposition will be easy to underestimate
b. Today's opposition will be easy

Furthermore, Dowty points out that if a syntactic argument is unrealised, then its meaning will remain implicit in the sentence. Indeed, it seems that easiness or difficulty (etc.) is obligatorily experienced with respect to something; perhaps, as Akatsuka (1979:6) claims, with respect to "[typically] agentive experiences", which effectively correspond to the content of the *tough* infinitival.

The evidence from the optionality of the *tough* infinitival in fact indicates that omission of this clause bears similarity to cases of argument omission rather than adjunct omission. As the infinitival has argument status in non-TCs, there is clearly no reason to reject the single subcategorisation hypothesis on the evidence of optionality.

2.5.2 Tense and *tough*

The embedded clause in TCs is obligatorily infinitival, yet this is far from true in non-TCs, where it may also be finite (32) or gerundival (33):

(32) a. * Bill is tough for John [that Mary is marrying]
b. [That Mary is marrying Bill] is tough for John
(33) a. * Bill is tough for John [Mary marrying]
b. [Mary marrying Bill] is tough for John

This could be taken as evidence that the *tough* predicates in TCs and non-TCs have different selectional requirements. However, the explanation for the grammaticality judgements of the above sentences in fact appears to lie elsewhere: as shown below in § 6.1.1, the requirement for non-finite tense is appears to be a general property of a set of constructions related to TCs (and crucially, not of non-TCs). If (32a) and (33a) may be ruled out on independent grounds, stating

an infinitival requirement in the subcategorisation of *tough* predicates in TCs but not in non-TCs (thereby rejecting the single subcategorisation hypothesis) may mask an important generalisation.

2.5.3 Island effects and the *tough* infinitival

Hornstein (2000), assuming a *wh*-movement account of TCs, argues for the adjunct status of the *tough* infinitival on the grounds that *wh*-extractions out of the *tough* infinitival give rise to stronger island violations than *wh*-extraction from a *wh*-island complement. The stronger ungrammaticality of extractions from subject/adjunct domains than from object domains was first observed by Huang (1982), formulated as the *Condition on Extraction Domain* (CED). In (34), relativisation (typically considered a *wh*-movement operation since Chomsky 1977) applies, moving a null *wh*-operator object out of an embedded clause. In both sentences, a null operator (Op_k) *wh*-moves across a filled SpecCP position ('long *wh*-movement'), under the analysis of TCs that Hornstein assumes. This configuration standardly gives rise to the weak 'Subjacency' violation attested in (34a).[19] In this example, the clause from which long *wh*-movement occurs is a complement (object) clause. Hornstein's argument is that the stronger violation observed for (34b) (the equivalent relative clause construction involving a TC) is only explained by a CED effect: that is, if the clausal domain from which the long *wh*-movement of Op_k occurs is not a complement clause, but an adjunct clause.

(34) a. ?? The book [Op_k that I wondered [$_{\text{CP}}$ who$_i$ t$_i$ read t$_k$]] was on display

b. * The sonata [Op_k that violins are easy [$_{\text{CP}}$ Op_i to play t$_k$ on t$_i$]] is...

(based on Hornstein 2000)

However, there is good reason to think that if, as Hornstein (2000:112) observes, there is indeed a "clear difference in acceptability" between (34a) and (34b), its explanation is not as straightforward as a simple CED violation in (34b). Contreras (1993) notes that in other contexts of TCs where CED effects are predicted (if the *tough* infinitival is treated as an adjunct clause), for many speakers they are not attested. For example, Contreras treats (35) as acceptable (presumably

[19] See § 4.3.1 for a more detailed account of Subjacency violations in TCs.

with a weak Subjacency violation), but highlights that Nanni (1978) treats similar cases as ungrammatical.

(35) ?? [Who$_i$ is this book easy [Op$_k$ to read t$_k$ to t$_i$]]?

(based on Contreras 1993)

The apparent absence of CED violation indicates that the *tough* infinitival should not be treated as an adjunct in TCs, yet this of course leaves the grammaticality distinction between (34a) and (34b) unexplained. An interesting similarity between (34a) and (35), which both receive the weak '??' judgement, is that only one null *wh*-operator is present in each case: in (34a), the null operator moves across a SpecCP filled with *who*, while in (35), the *wh*-phrase *who* moves across a SpecCP filled with a null operator. In (34b), on the other hand, one null operator moves across another, with reduced acceptability. As Bernadette Plunkett (p.c.) notes, it is possible that an explanation based on parsing difficulties in sentences with null operator movement over another null operator may be able to account for the grammaticality difference between (34a) and (34b) without recourse to the CED. Furthermore, as the constraints on null operator movement differ (in rather confusing ways which remain poorly understood) from those on overt *wh*-movement in numerous respects (see Stowell 1986, Cinque 1990, Grover 1995), subtle grammaticality variations of the type attested in (34a) and (34b) might be expected for independent reasons.

I concede that the argument/adjunct status of the infinitival clause is rather slippery and somewhat controversial, yet in light of a lack of convincing supporting evidence for treating the *tough* infinitival as an adjunct, I consider it unwise to reject the null (single subcategorisation) hypothesis.

2.6 Conclusions about *tough* predicates

This chapter has studied the evidence for the rejection of the null hypothesis that both TCs and non-TCs are derived from a single lexical argument structure of *tough* predicates. On the basis of the evidence provided I believe that a single subcategorisation, with θ-roles assigned to a PP argument and a CP argument, seems to provide the 'best fit' for the lexical argument structure of *tough* predicates in both TCs and non-TCs. I cannot, however, claim to have achieved more

than simply scratching the surface of a great deal of complex and often awkward empirical data which add to the mystery surrounding the *tough* argument structure. There is, I believe, much, much more to be said concerning *for*-phrases, the *tough* infinitival and the properties of non-TCs, all of which of course extends well beyond the present scope. This dissertation now shifts in focus, with the broad aim of incorporating the proposed argument structure of *tough* predicates into a syntactic analysis of TCs within the minimalist framework.

Chapter 3

The minimalist framework: core concepts

A natural consequence of adopting the single subcategorisation hypothesis is that the explanation for the TC/non-TC alternation (and the empirical characteristics associated therewith) must lie in alternative numerations, giving rise to the application of different syntactic operations. Before we may attempt to discover the nature of the particular syntactic operations involved in deriving TCs, however, we must make our theoretical assumptions explicit. In this chapter I outline the crucial aspects of the minimalist framework I adopt, starting with a brief outline of minimalist assumptions concerning θ-role assignment and phrase structure.

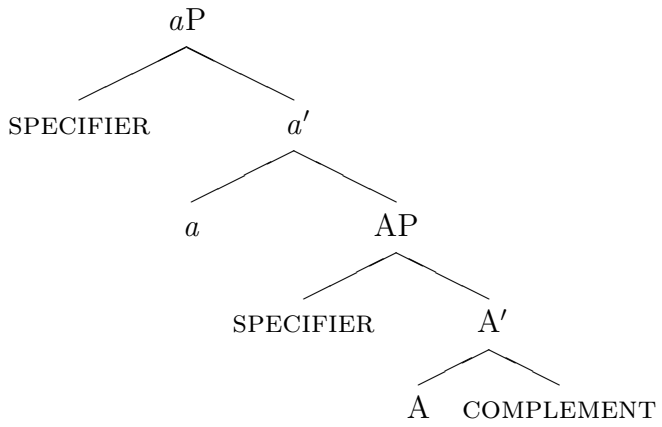
3.1 Minimalist phrase structure and first-Merge positions

A notable aspect of phrase structure in Minimalism (Chomsky 1995, and subsequent work) is the presence of a ('light') vP projection associated with certain functional properties, dominating VP. The Specifier of vP hosts the external argument of the verb and is assigned the agent θ-role; v is therefore associated with agentive properties.[1] If we assume (e.g. following Adger 2003) that the presence of a light functional head above the corresponding lexical head extends to NPs (which are therefore merged with n), then as George Tsoulas (p.c.) notes, it is

[1] At least for transitive verbs; see also note 6.

entirely natural that we predict that a functional head a may merge with AP;[2] just as verbs undergoes obligatory (head-)movement to v under current assumptions, adjectives will move to a. Potentially, then, arguments of *tough* may merge in the following Specifier and Complement positions:

(1)



I adopt a minimalist formulation of the Lexical Clause Hypothesis (LCH), and in particular its manifestation in Hale and Keyser's (1993) configurational version of θ-theory, adopted by Chomsky in subsequent revisions of the minimalist framework. All arguments of a predicate are required to be base-generated (henceforth 'first-merged') within that predicate's maximal projection, e.g. within vP, aP, nP. Assuming that Specifier and Complement positions within vP/nP/aP are θ-positions, the LCH is achieved by the following:[3]

(2) *The θ-theoretic principle*
"Pure merge in θ position is required of (and restricted to) arguments."[4]
(Chomsky 2000:102)

The θ-theoretic principle effectively rules out both movement into a θ-position in order to inherit a θ-role and the movement/transmission of θ-roles.[5]

[2]Bennis (forthcoming) also argues for the presence of aP.

[3]Following Chomsky and Lasnik (1993), I retain the assumption that the distinction between θ-positions and non-θ-positions is not a stipulative one. Chomsky and Lasnik argue that while the distinction between A-/A′-positions, for example, is not well defined by underlying principles, a θ-position can simply be defined as a position to which a θ-role is assigned.

[4]'Pure merge' can be understood as first-Merge, or more specifically, Merge which does not involve Move (see § 3.2.2).

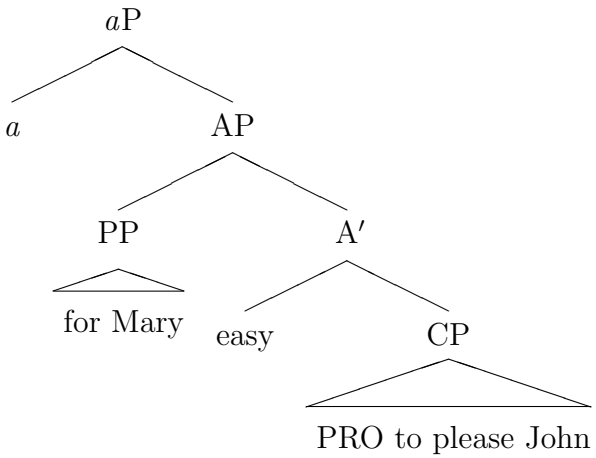
[5]There is significant debate in the minimalist literature on these matters; see Hornstein (1999; 2000), Manzini and Roussou (2000) for alternative approaches.

The earliest accounts for the TC/non-TC alternation (Rosenbaum 1967, Postal 1971, Higgins 1976) assumed the embedded infinitival clause to be the external argument of a *tough* predicate. Importantly though, the existence of unaccusative predicates (whose internal arguments may surface in subject positions) was not assumed. On the evidence that the for_P-phrase invariably occurs immediately right-adjacent to the *tough* predicate (itself head-adjoined to *a* under the assumptions I adopt), I assume that the PP experiencer first-merges at SpecAP. If so, only two potential first-Merge positions for the clausal argument are available, either Spec*a*P or as the sister of A.

It may be assumed that the clausal subject non-TC is potentially derivable by movement of the clausal argument from either of the two remaining *a*P-internal θ-positions into matrix subject position (SpecTP). However, if we take the expletive subject non-TC, the two first-Merge positions of the clausal argument result in significantly different derivations required to derive the surface order of *it*→*is*→Adj→PP→CP: if first-merged at Spec*a*P, the CP argument must undergo extraposition and adjoin to a higher node, with expletive *it* inserted in SpecTP; if first-merged as the sister of A, however, extraposition is not required in order to derive the surface order, just expletive *it* insertion. The same goes for the derivation of TCs, which shares the *is*→Adj→PP→CP string order. We might suppose then, that intuitively, merging the infinitival clause in the Complement position within AP is preferred, as it does not require obligatory application of a typically non-obligatory operation such as extraposition in order to derive TCs.

I henceforth assume the following first-Merge positions to be valid:

(3)



It should be noted that (3) is effectively identical to the *v*P-internal argument structure that Holmberg and Hróarsdóttir (2002) and Anagnostopoulou (2003)

assume for raising verbs, with the PP experiencer merged in SpecVP and the clausal argument as the sister of V.[6]

3.2 Core concepts in Chomsky (2000; 2001a)

I also adopt a set of theoretical assumptions concerning syntactic computation based on the most recent revisions of the minimalist framework, as proposed by Chomsky (2000, 2001a, and to some extent 2001b). The ways in which recent minimalist theory departs from previous P&P frameworks are outlined in this section.

3.2.1 Merge, Agree and feature-checking

The framework provides the core syntactic operation MERGE in order to introduce items from the relevant numeration to satisfy selectional requirements. Merge takes two syntactic objects and creates a new single object, which can then merge with another syntactic object, with another single object as the output. However, additional operations must take place, allowing further syntactic dependencies to be established. The current version of Minimalism requires all syntactic operations to be motivated by the presence of uninterpretable, unvalued features, which must be 'checked' and eliminated from the derivation before the relevant chunk of the derivation is sent by TRANSFER to the semantic and phonological components (notated Σ and Φ respectively, following Chomsky 2001b).[7] AGREE is the second core syntactic operation, which serves to check uninterpretable features in a particular standardised configuration. An uninterpretable (u) feature such as $[u\varphi]$ acts as a PROBE which seeks a matching valued, interpretable (i) feature such

[6]If *tough* predicates do not subcategorise for an external argument in Spec$a$P, it is not entirely clear that a must be present at all. However, even verbs which do not assign an agent θ-role are assumed by Chomsky (2001a) to undergo head-movement to adjoin to v merged with VP: v simply has different functional properties relating to different verb types (e.g. transitive/intransitve). I assume here that we may extend this to *tough* predicates, precisely because it allows us to retain the first-Merge positions assumed for raising predicates. If the *tough* adjective were not to undergo movement to a, then the surface order in (i) would be predicted:

(i) John is [$_{\text{AP}}$ for Mary [$_{\text{A}'}$ tough [$_{\text{CP}}$ to please]]]

[7]Another crucial assumption of Chomsky (2001a;b) is that the derivation is sent to the interfaces in *phases* (see § 3.2.3).

as $[i\varphi]$, within a search domain (broadly, a local c-command domain).[8] Only an interpretable feature constitutes a potential GOAL. Feature-matching of the uninterpretable and interpretable varieties of the same feature type (e.g. $[\varphi]$) results in the application of Agree between the two categories which bear these features. Agree checks the uninterpretable feature and marks it for elimination from the derivation, although the precise stage at which the checked uninterpretable feature is eliminated completely from the derivation is the subject of some debate (see especially Pesetsky and Torrego 2001). As uninterpretable features are illegitimate objects at the interfaces, if Agree cannot eliminate a given uninterpretable feature before it is transferred to Σ and Φ, the derivation will crash.

One special instance of an uninterpretable feature is that of Case. DPs are considered to enter the derivation bearing an uninterpretable Case feature $[u\text{Case}]$, which is unvalued, e.g. for nominative, accusative etc. $[u\text{Case}]$ does not probe for $[i\text{Case}]$, but rather serves to specify $[i\varphi]$ of a DP which bears it as 'active' to a higher probe.[9] $[u\text{Case}]$ on a DP is eliminated by Agree (i.e. *in situ*) as a reflex of φ-agreement, when the DP's own $[i\varphi]$ acts as a goal for a probing Case-assigning head, such as v and T. The elimination of $[u\text{Case}]$ on a DP results in its $[i\varphi]$ becoming inactive, and hence unable to enter into further operations. Accordingly, the syntactic configuration required for Agree requires not only feature-matching within a local domain, but also that the goal be active at the relevant stage of the derivation in order for it to be visible to the probe.

In the tree structure diagrams provided below, a checked uninterpretable feature is is marked by strikethrough ($[\cancel{u\text{Case}}]$); an interpretable feature rendered inactive is denoted by wavy underlining ($\underset{\sim}{[i\varphi]}$).

3.2.2 The status of Move

The core operations of Merge and Agree are, in the framework outlined thus far, insufficient to account for displacement of constituents from their first-Merge positions. MOVE is proposed as a complex derived operation, involving first application

[8] With the possible exception of EPP-features (see § 3.2.2) there is no 'Spec-head' agreement, as a head does not c-command its Specifier under a fairly standard definition of c-command: "α c-commands β if α does not dominate β and every γ that dominates α dominates β" (Chomsky and Lasnik 1993:518). A head does not c-command its Specifier as the X′-level projection dominating the head does not dominate the Specifier.

[9] Note that it is not the category bearing φ-features whose status may be active or inactive, but the φ-features themselves. This distinction becomes crucial in § 5.4.3 below.

of Agree, then Merge into the target position.[10] As Move is more complex than either of its constituent operations, it is assumed to be less economical than either Merge or Agree alone. Thus, as Agree is sufficient to eliminate uninterpretable features from the derivation, Move is only triggered by the presence of a different type of uninterpretable feature optionally borne by the functional heads v, T and C (the *core functional categories* in Chomsky 2000). This is the EPP-feature, or [uEPP]. The EPP-feature has had various incarnations since Chomsky (1981),[11] but for our purposes here can be considered as an uninterpretable feature which is only eliminated by movement (or possibly first-Merge) of some category into its Specifier. Agree alone, then, is insufficient to satisfy [uEPP], while any movement to a Specifier position must be triggered by [uEPP] on the relevant functional head.

A final point to note concerning movement in Minimalism is the assumption (since Chomsky 1993) that movement can be considered as a Copy operation: the (putatively) moved category is in fact simply (re-)merged into the 'landing site' receiving phonological realisation in this position. The copies of the moved category in each intermediate position are stripped of phonological content, but are otherwise featurally identical to the overt copy. There is no 'movement' per se, and no 'traces' with different syntactic properties from the moved category left in intermediate positions.[12]

3.2.3 Phases

The locality constraints on movement are now necessarily derived from those on agreement, yet we still require some syntactic mechanism in order to achieve successive-cyclicity, which was crucial to movement theory in previous frameworks. To this end, Chomsky (2000) introduces the concept of derivational PHASE. Upon completion of each strong phase, which amounts the projection of every CP and accusative vP, the content of the phase is transferred to Σ and Φ; everything within the phase is thus inactive to any further operations. The exception is the

[10] Chomsky (2001a) claims that a third core operation, PIED-PIPE, is involved in movement, though the status of this operation is not made explicit.

[11] As reported by Butler (2003). Optional EPP-features on the heads v and C are termed 'P(eriphery)'-features in Chomsky (2000, 2001a) and 'Occ(urrence)'-features in Chomsky (2001b). I retain the general term 'EPP' for simplicity.

[12] As remains standard practice, I retain the much of the traditional terminology and notation associated with 'movement', aware that this is potentially misleading under the Copy theory of movement.

syntactic material at the the left-edge of each intermediate phase, i.e. SpecCP and Spec$v$P, which is not transferred until the completion of the next higher phase. Any category whose uninterpretable features can only be checked by Agree (with or without Move) with an element in a higher phase must target each intermediate 'escape hatch' position of SpecCP and Spec$v$P: only in this way can it avoid being transferred prematurely with its unchecked uninterpretable feature to Σ and Φ. These phase-edge positions constitute escape hatches because within any given phase, a feature can probe as far as the left-periphery of the immediately lower phase - SpecCP/C or Spec$v$P/v, but no further. This is formalised by Chomsky (2000, 2001a) as the Phase Impenetrability Condition (PIC) for a phrase HP which has the structure in (4):

(4) [α [H β]]

(5) *Phase Impenetrability Condition* (*PIC*)
"In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge [its Specifier(s)] are accessible to such operations."
(Chomsky 2000:108)

The feature which drives movement to these intermediate Specifier positions is [uEPP].

This is the set of fundamental theoretical assumptions that I adopt below, although further details and more controversial assumptions will be brought to the discussion, as and when required. I now turn to the principal analyses of TCs and examine the relative compatibility of each with such a framework of assumptions.

Chapter 4

Previous analyses of *tough* constructions

This chapter outlines, in roughly chronological order, the various types of analyses of TCs proposed in the literature, with the intention of demonstrating that no analyses proposed to date can be considered to be without significant theoretical inadequacies. After examining the empirical and/or theoretical motivation for each analysis, I formulate theoretical objections in terms of the assumptions I adopt, and where possible, begin to suggest ways in which they may be overcome in the current framework. The analysis in the following chapter is substantially informed by this discussion of previous accounts of TCs.

4.1 A-movement (object-to-subject raising)

A transformational rule of *tough* movement was first devised by Rosenbaum (1967) (and elaborated by Postal 1971) in order to derive TCs and non-TCs from the single Deep-Structure (roughly, first-Merge) representation in (1a):

(1) a. [To believe him] is difficult
b. It is difficult [to believe him]
c. He$_i$ is difficult [to believe t$_i$]

Extraposition applies to (1a), resulting in the insertion of *it* into matrix subject position, yielding (1b); *tough* movement then applies to (1b), raising the object of the embedded matrix verb into matrix subject position, replacing the expletive *it*. Generative syntax has long since dispensed with such stipulated transformational rules, but an updated raising-based analysis seems plausible, particularly in light of the conclusion in chapter 2 that *tough* predicates are like raising predicates in that neither assigns an external θ-role.

Furthermore, at least *prima facie*, the empirical evidence for an A-movement account seems persuasive. Bayer (1990), working within the Categorial Grammar framework, argues for some variety of raising-based analysis on the grounds of various empirical commonalities between *tough* predicates and raising predicates (such as *seem*, *likely*). He argues that *tough* predicates place no selectional or categorial requirements on their subjects; rather, these requirements correlate directly with those imposed by the embedded verb on its 'missing' object. Take, for example, the interaction between idiomatic expressions and TM. Berman (1973) notes that the acceptability of *the hatchet* in matrix subject position in (2) is dependent on the matching verb (*bury*) in the embedded clause, and not on the matrix predicate;[1] the same appears to hold of the raising construction in (3).

(2) The hatchet is hard to bury after long years of war

(Berman 1973)

(3) The hatchet is not likely to be buried for many more years to come

In light of the findings of § 2.4.3, an extension of raising to TM potentially has the desirable effect of automatically explaining the unacceptable appearance of overt complementisers and subjects in the embedded clause of TCs: the widely held view in the recent literature is that complement clauses of raising predicates (e.g. *seem*, *appear*) are obligatorily TPs, and not CPs. Thus, it is natural that complementisers should be unacceptable in these clauses. Furthermore, the raising analysis correctly rules out the possibility of TM from an embedded finite clause, as embedded finite clauses obligatorily project to CP. However, the motivation for the TP status of the raising complement is related to the inability of T to

[1] Although Lasnik and Fiengo (1974) claim that such *tough*-moved idiom chunks are ungrammatical. Pulman (1993), and others, observe that the cases of acceptable idiom chunks as *tough* subjects are quite restricted.

assign Case to the subject of the clause (instances of T not selected by C being 'defective').[2] This clearly cannot be true for TCs, under the assumption that the subject of the *tough* infinitival PRO is assigned null Case: if the presence of C permits T to assign Case, then C must be present in the *tough* infinitival.

Patterns of nominalisation might provide further empirical evidence for treating TM as raising. It has been well known, at least since the observations of Miller and Chomsky (1963) (but with more explicit comparisons made by Chomsky 1970), that the unacceptable nominalisation of *tough* predicates closely mirrors that of raising predicates:

(4) * John's easiness/difficulty (for Mary) to please

(5) * John's certainty/liklihood to win the prize

(6) John's eagerness (for Mary) to please

(Chomsky 1970)

However, it is premature to draw the conclusion that this similarity is (somehow) related to the application of a raising operation. Note that nominalisations of *pretty*-class predicates are also unacceptable, yet unlike *tough* predicates, *pretty* predicates must assign an external θ-role, as noted in § 2.3.2: *Mary*, then, has not raised from the embedded clause in (7).

(7) * Mary's prettiness/beauty to look at

Nominalisations in fact do not provide evidence capable of distinguishing between raising and whatever analysis is assumed for *pretty* constructions (I suppose, provisionally, *wh*-movement of the type outlined in § 4.3 below).

It seems, then, that although certain similarities between raising predicates and *tough* predicates are explained under the generalisation that neither assigns a θ-role to the matrix subject, some of the initially appealing empirical evidence for this parallel treatment cannot in fact be so straightforwardly explained. Furthermore, as shown in § 4.3.1 below, a crucial set of empirical evidence which has been influential since the observations of Chomsky (1977) is entirely unpredicted under a raising-based account of TM.

[2] See Chomsky (2000; 2001a).

From a theoretical perspective, one of the principal shortcomings of this analysis is that it incorrectly predicts the Case value of the *tough* subject (note the alternation between accusative *him* in (1a)/(1b) and nominative *he* in (1c) above), as Bayer concedes. Imagine that under a raising account *tough* subject first-merges with V in the embedded clause (e.g. *please*). This DP bears valued, interpretable φ-features, $[i\varphi]$, and an uninterpretable Case feature $[u\text{Case}]$. When v merges with VP, $[u\varphi]$ on v enters into Agree with $[i\varphi]$ on the DP in object position, resulting in accusative Case assignment to the object DP, checking DP's $[u\text{Case}]$ and v's $[u\varphi]$. However, according to Chomsky (2001b:10, note 36), "once Case of α is checked, α is "frozen"; it cannot enter further agreement relations." Given that subject-raising is typically considered to be permitted by the raised DP's $[u\text{Case}]$ not being checked in the embedded clause, there is no possibility for the embedded object DP to move to matrix subject position, or to be assigned nominative Case by T in the matrix clause.[3]

It seems that while the A-movement analysis of TM is consistent with the thematic properties of *tough* predicates, it is fundamentally incompatible with one of the core assumptions of the framework, that a Case feature cannot be checked twice. Equally, the empirical evidence adduced in support of A-movement is not as attractive as it first appears, while further evidence (to be studied below) is clearly irreconcilable with an A-movement account. On these grounds, raising analyses of TM have proved rather unpopular in P&P syntax.

4.2 *Tough* deletion

An analysis of TCs advocated by Akmajian (1972) and explicitly formalised by Lasnik and Fiengo (1974) improves in some respects on the raising analysis in that the Case mismatch is explained. Lasnik and Fiengo claim that the object gap in TCs and other OD constructions (e.g. *pretty* constructions, DSCs) is simply the result of phonological deletion of the object, under identity (coreference) with the *tough* subject:

(8) John$_i$ is difficult to believe ~~John$_i$~~

[3]This could be solved if v in the embedded clause were considered defective and unable to assign accusative Case, yet for TCs this is very hard to motivate in any way which is not entirely *ad hoc*.

Nominative and accusative Case values are assigned independently to each of the two occurrences of *John*, hence overcoming the Case mismatch reported in § 4.1.

An interesting empirical fact in French TCs is explained under a deletion account, rather than the raising analysis (which is generally assumed for Romance TCs).[4] Miller and Sag (1997) note that in French, if the *tough* subject is considered to be raised from the embedded object position, then in sentences with perfect tense in the embedded clause as in (9), it is mysterious why there can be no overt morphological agreement for feminine and/or plural on the participle (*commis*), as is generally the case in French sentences where a direct object moves to a position higher than the perfect participle:

(9) Ce sont des fautes dangereu-ses à avoir
These are some mistakes dangerous-FEM.PL to have
commis/*commis-es dans sa jeunesse.
committed/*committed-FEM.PL in one's youth
'These are mistakes dangerous to have committed in one's youth.'[5]

(based on Miller and Sag 1997)

If *des fautes* is in fact first-merged as the subject of the matrix *tough* predicate rather than the object of the embedded predicate, the lack of participial agreement is explained.

Recall, however, that in § 2.3.2 I concluded that there is good reason to suppose that the *tough* subject is not assigned a θ-role by the *tough* predicate. Assuming this, if we were to adopt Lasnik and Fiengo's analysis of TCs in (8), we would have to rule out the possibility of merging the *tough* subject as an argument of aP, as the *tough* predicate cannot assign a θ-role to it. Yet now the *tough* subject in (8) appears to be without a θ-role, which is generally considered to constitute a violation of the θ-criterion.

We might wonder, though, whether the θ-theoretic problem could be circumvented by claiming that the *tough* subject is not in fact an argument, and therefore needs no θ-role: the *tough* subject could simply be first-merged in matrix SpecTP (a non-θ-position), as suggested by Chomsky (1981) (outlined below

[4]For further important differences between TCs in English and Romance languages, see Kayne (1975), Rizzi (1982), Canac Marquis (1996).

[5]The translation provided is Miller and Sag's, though 'These are dangerous mistakes to have committed in one's youth' seems more natural.

in § 4.3.3).[6] Suppose that such a solution is plausible, while retaining some version of θ-theory. It is not, however, compatible with the assumptions about φ-feature-checking configurations outlined in § 3.2.1. In order for the *tough* subject to be assigned nominative Case by T, its $[i\varphi]$ must check $[u\varphi]$ on T. First-merging the *tough* subject in SpecTP will not provide a suitable checking configuration under the current framework, as SpecTP is not in the c-command domain of T, which bears the $[u\varphi]$ probe. The *tough* subject must therefore originate in some position lower than SpecTP in order for Agree with T to operate.[7]

I assume, therefore, that tension remains between the *tough* deletion analysis and θ-theory, and that the adoption of *tough* deletion necessitates the rejection of the single subcategorisation hypothesis. Much of the empirical evidence against such an approach has been outlined in § 2.3.2 above, which demonstrates that there is good reason to conclude that the *tough* subject is not an argument of the *tough* predicate in TCs. Furthermore, just as for the raising account of TM, *tough* deletion provides no explanation for the important empirical data concerning A′-movement effects described in § 4.3 below. From both empirical and theoretical perspectives, then, an analysis of TCs based (loosely) on control seems no less

[6]This view has had important consequences for syntactic theory. The problem with this S(urface)-structure insertion at SpecTP required by Chomsky (1981) is the type of example alluded to by Chomsky (1993) and attributed to Kevin Kearney by Uriagereka (2000):

(i) A man who is easy (for anyone) to please is easy (for anyone) to convince

(Uriagereka 2000)

Here the *tough* subject itself involves internal application of TM, yet if the *tough* subject were to be inserted at S-structure (after D(eep)-structure, where θ-roles are assigned in GB theory) the thematic requirements internal to the *tough* subject would not be satisfied. The *tough* subject thus appears to have a derivation of its own, which proceeds in parallel with the derivation of the matrix clause until it merges with it (in matrix SpecTP). Accordingly, Lasnik and Uriagereka (1988) (supported by Chomsky 1993, Frank and Kroch 1995, Uriagereka 2000) suggest that the first-Merge of the *tough* subject in matrix SpecTP must be by a process of Generalized Transformation (GT). GT essentially permits different phrase markers to be derived separately (yet in parallel) and then merged with each other; unlike S-structure insertion, this permits *tough* subjects with potentially complex internal structures to be merged late in the derivation. However, as Chomsky (1993) states, such a theory of GTs is irreconcilable with the GB concept of a single D-structure level of syntactic representation. TCs therefore provide Chomsky with empirical evidence for dispensing with D-structure altogether, a crucial departure from previous assumptions.

[7]Note also that first-merging the *tough* subject in SpecTP is inconsistent with empirical evidence concerning floating quantifiers. Quantifier stranding in SpecCopP is also consistent with the suggestion that the *tough* subject has undergone movement from some lower position:

(i) [$_{\text{TP}}$ The boys (*all) are [$_{\text{CopP}}$ (all) [$_{a\text{P}}$ quite [$_{a\text{P}}$ (*all) easy [$_{\text{CP}}$ (*all) [$_{\text{TP}}$ to [$_{v\text{P}}$ (*all) please]]]]]

flawed than that based on raising.

4.3 *Wh*-movement involving a 0-operator

Chomsky (1977) proposes a radical rethinking of the syntax of TCs and related constructions, which has since provided the basis for standard analyses of TCs. Alluding to the varieties of analysis presented in § 4.1 and 4.2, Chomsky notes that TCs seem to exhibit properties consistent with both deletion and movement, and, supported by additional empirical evidence, captures these apparently 'in-between' properties by proposing that TCs (but not non-TCs) involve application of *wh*-movement. Thus, Chomsky proposes a structure which translates into current theoretical assumptions roughly as follows:

(10) John$_i$ is easy for Mary$_j$ [$_{\text{CP}}$ Op$_i$ [$_{\text{TP}}$ PRO$_j$ to [$_{v\text{P}}$ t$_i$ [$_{v\text{P}}$ t$_j$ please t$_i$]]]]

The object of the verb in the embedded infinitival clause is a null *wh*-operator phrase (henceforth '0-operator'), which, like overt *wh*-phrases, is required to undergo successive-cyclic movement to SpecCP.

4.3.1 The motivation for *wh*-movement

The principal evidence for *wh*-movement within the embedded clause is the appearance of the type of island effects typically associated with *wh*-movement.

(11) a. ?? What sonatas is this violin easy to play on?

b. ?? [$_{\text{CP}}$ what sonatas$_i$ is [$_{\text{TP}}$ this violin$_j$ [$_{\text{AP}}$ easy [$_{\text{CP}}$ Op$_j$ [$_{\text{TP}}$ PRO to play t$_i$ on t$_j$]]]]]

(based on Chomsky 1977)

A sentence such as (11) is ungrammatical under minimalist assumptions as it constitutes an extraction from a generalised derivational island configuration: *what sonatas* cannot target the left-periphery of the lower CP phase, as this position is filled by the moved 0-operator. By the PIC, if *what sonatas* cannot reach this position it is invisible to further applications of Agree with a probe in a higher phase,

and (as Agree feeds Move) thus cannot vacate the infinitival clause. Without the 0-operator in TCs, of course, the ungrammaticality of (11) is unpredicted, as the *wh*-phrase *what sonatas* would transit through the vacant intermediate SpecCP.

Moreover, as (12) shows, TCs permit long-distance dependencies across multiple clauses, provided that no intervening category occupies an intermediate SpecCP position, as *why* is assumed to in (13):

(12) A guy like John$_i$ is hard to imagine any woman believing she could ever resist falling in love with e_i

(13) ?? A guy like John$_i$ is hard to imagine any woman wondering why she could never resist falling in love with e_i

TCs are known to exhibit other properties characteristic of *wh*-movement configurations. In particular, Chomsky (1982) and Montalbetti et al. (1982) demonstrate that TCs licence parasitic gap constructions (PGCs), which is generally considered to be a property of constructions involving A′-movement, and not A-movement. Only if TCs involve application of non-overt *wh*-movement is the asymmetry between the grammaticality of PGCs in TCs (14) and in raising constructions (15) explained:

(14) (?) CDs$_i$ are easy [Op$_i$ to copy t$_i$ [without having to pay good money for e_i]]

(15) * CDs are likely [to be copied t$_i$ [without anyone having to pay good money for e_i]]

4.3.2 Empirical problems

Although the general consensus seems to be that an analysis of TCs involving some variety of *wh*-movement is well motivated, other tests often used to distinguish A′-movement from A-movement provide results inconsistent with A′-movement. Under the *wh*-movement analysis, a sentence such as (16) should typically give rise to the weak ungramaticality associated with Weak Crossover (WCO) configurations, as the foot of the *wh*-chain (the operator 'trace' t$_i$ in the infinitival clause) does not c-command the coindexed pronoun *his*.[8]

[8]Lasnik and Stowell (1991) demonstrate that the lack of sensitivity to WCO configurations is not limited to TCs but is also exhibited in related constructions often assumed to involve

(16) John$_i$ is tough [$_{\text{PP}}$ for his$_i$ mother] [$_{\text{CP}}$ Op$_i$ [$_{\text{TP}}$ PRO to love t$_i$]

However, (16) is perfectly grammatical, just as would be expected if A-movement and not A′-movement were involved, as in (17):

(17) John$_i$ seems to his$_i$ mother t$_i$ to lack discipline

Also slightly mysterious under the *wh*-movement account is why TCs do not give rise to Binding Condition C violations. In the GB framework, traces of A′-movement are considered to be R(eferential)-expressions for the purposes of Binding theory, while Condition C states that an R-expression must not be A-bound. However, the trace in the embedded clause in (16) is A-bound by the coreferent matrix subject, *John*. How Binding theory should be incorporated into a minimalist framework is a matter of some debate, yet the empirical predictions made by the GB account of Binding are still relevant, and there is no reason to suggest that the absence of Condition C effects in TCs is any less problematic under any conceivable minimalist account of Condition C.[9]

Finally, Stowell (1986), Cinque (1990) and Grover (1995) show that TCs (as a subset of 'Null Operator Constructions', henceforth NOCs) exhibit a range of additional empirical properties which are not directly explained under an analysis whereby TM is assimilated to *wh*-movement. Some of these are discussed in § 6.1.1.

4.3.3 Theoretical problems

While certain empirical issues remain, there is cause for some theoretical concern, too. In particular, just as is shown above for *tough* deletion, Chomsky's (1977) analysis violates standard versions of the θ-criterion. As Brody (1993) argues, any analysis of TCs based on the 0-operator (yet whereby the *tough* subject does not receive a θ-role from the *tough* predicate) must account for how a single θ-role assigned by the embedded verb is apparently shared between two syntactic

0-operators. See § 6.1.1.

[9]This evidence forces Chomsky (1986) to revise the formulation of Condition C for precisely these 0-operator cases, which seems theoretically undesirable: Chomsky claims that the A-free requirement in 0-operator constructions only applies within the domain of the operator which binds it. See Lasnik and Stowell (1991:714) for an alternative account for why TCs are not subject to Condition C.

arguments: the 0-operator in the infinitival and the *tough* subject. In § 4.2, I showed that current assumptions force us into rejecting the solution whereby the *tough* subject is first-merged in SpecTP, while the conclusions reached in chapter 2 effectively rule out the possibility of merging the *tough* subject as an argument of *tough*. The *wh*-movement analysis as it stands appears to have no answer to the problem of where to first-merge the *tough* subject.

Furthermore, it is unclear what syntactic process ensures that the 0-operator is construed with the *tough* subject. Within the current framework, we might imagine that Agree could provide a plausible explanation, and indeed Browning (1987) proposes a strikingly similar solution. Taking the 0-operator to be an occurrence of *pro*, she states:

> "I assume that pro... must be identified by agreement. Movement of pro to SPEC of CP brings it into a position where this requirement may be satisfied by means of... agreement chain [...] The phi-features of pro are licensed by means of this "chain" of agreement and pro is thereby licensed to head a chain."
>
> (Browning 1987:54)

However, identifying the 0-operator by Agree is in fact problematic within current assumptions, in that Agree only operates between a probing head bearing an uninterpretable feature and some category in its c-command domain bearing a matching interpretable feature. The 0-operator itself may not probe the *tough* subject, as it is the *tough* subject which c-commands the 0-operator and not vice versa. Nor may the tough subject probe the 0-operator: the only uninterpretable feature that the *tough* subject bears is [uCase], which, as we have seen, does not itself probe, but is checked as a reflex of φ-agreement with a c-commanding head.

Chomsky's (1981) analysis of TCs is a notable improvement on Chomsky (1977) as it attempts to resolve both the apparent θ-criterion violation and the problem of construal of the *tough* subject with the 0-operator. Chomsky (1981) assumes that in order to satisfy the θ-criterion, the *tough* subject must be licensed in matrix subject position by being the recipient of a θ-role, even though the *tough* predicate appears to have no available θ-role to assign to it. Assuming the 0-operator to be PRO, Chomsky effectively proposes a system of θ-role transmission from the 0-operator to the *tough* subject:

(18) a. $[_{\text{TP}}$ PRO to please $\text{PRO}_i]$

b. $[_{\text{CP}}\ \text{PRO}_i\ [_{\text{TP}}$ PRO to please $\text{t}_i]]$

c. $[_{\text{AP}}$ easy $[_{\text{CP}}\ \text{PRO}_i\ [_{\text{TP}}$ PRO to please $\text{t}_i]]]$

d. $[_{\text{AP}}\ [_{\text{A}}$ easy PRO to please$]\ \text{t}_i]$

e. $[_{\text{TP}}\ \text{John}_i$ is $[_{\text{AP}}\ [_{\text{A}}$ easy PRO to please$]\ \text{t}_i]]]]$

The 0-operator PRO_i, merged as the embedded object, receives a θ-role from *please* and undergoes A′-movement to SpecCP, leaving behind a trace, as in (18b). After *easy* is merged with this complement clause, at (18d) structural reanalysis occurs, 'flattening out' a portion of the AP's internal structure and that of its complement, effectively creating a configuration in which *easy to please* is a lexical item with no internal structure. Crucially (within GB assumptions), the trace of A′-movement remains outside the portion of structure reanalysed as A. The *tough* subject is first-merged in SpecTP, as in (18e), and receives a θ-role by virtue of a variety of chain formation with the trace t_i outside the reanalysed portion. Reanalysis makes this possible, as in the GB framework, the type of binding of the trace (A-/A′-binding) is crucial in determining the trace's properties. Before reanalysis, when A′-bound by the 0-operator in SpecCP, the trace has the status of a variable. However, after reanalysis, the trace is not A′-bound, but A-bound by the matrix subject, thereby assigning anaphor status to the trace; crucially, this configuration is assumed to permit θ-role transmission from trace to antecedent in GB theory. Thus, Chomsky claims that the θ-role of the trace in embedded object position is transmitted to the *tough* subject, circumventing the apparent θ-criterion violation.

It is in fact Nanni (1978, 1980) who is responsible for first claiming that *easy to please* (etc.) should be treated as a complex adjective without internal structure, in light of certain empirical facts. These include *easy to please* strings in prenominal positions:

(19) There is no doubt that John is an easy to please guy

However, there is also strong empirical evidence which suggests that *easy to please* is not a single lexical item. Levine (1984a, 1984b) provides various examples in which the components of the putative lexical item *easy to please* are not string-adjacent. Assuming that movement into or out of lexical items is banned, *easy to*

please cannot simply be an adjective with no internal structure at the stage of the derivation where *wh*-movement and right-node raising operations apply:

(20) How easy is John to please?

(21) Mary is much more difficult than Sandy to please

(Levine 1984a)

Once again, this version of the *wh*-movement analysis also suffers from theoretical difficulties. As we have seen, first-Merge of the *tough* subject in SpecTP is incompatible with current assumptions, requiring the checking of $[u\varphi]$ on T by Spec-head agreement. Moreover, under minimalist assumptions Reanalysis should be considered an implausible operation on theoretical grounds. It seems clear that such an operation is quite different from the core operations of Merge and Agree, and that unlike Move for example, it cannot be considered a composite operation deriving from Merge and Agree. The addition of an additional operation 'REANALYSE' is irreconcilable with the philosophy underlying the minimalist framework.

Reanalysis may be considered a fairly ingenious solution to a difficult problem facing the *wh*-movement analysis of TCs, but is based on entirely theory-internal assumptions which are no longer tenable. However, in light of the often contradictory empirical evidence provided in this chapter, I believe that it is worthwhile pursuing Chomsky's (1981) intuition that TCs involve both A- and A′-movement-based operations. I now turn to analyses along these lines proposed in the more recent literature on TCs.

4.4 A-A′-A-movement

Returning to the assumption that TM involves movement of the embedded object to matrix subject position, Brody (1993) and Hornstein (2000) suggest that TCs are derived by an application of A′-movement, followed by A-movement of the same category. Brody proposes that the category which is to become the *tough* subject first-merges in the embedded object position, and at a later stage of the derivation, moves to SpecCP of the embedded clause. The movement to this intermediate A′-position renders ungrammatical any further *wh*-extraction from

the embedded clause, and is assumed to provide a satisfactory account for the *wh*-type properties of TCs reported in § 4.3.1. Finally, in the matrix clause, the displaced embedded object is moved again from the embedded SpecCP to matrix SpecTP.

Hornstein's (2000) analysis is essentially very similar, with two significant modifications. As noted in § 2.5.1, Hornstein assumes that the *tough* infinitival is an adjunct. We may suppose for now that treating this clause as an argument does not have serious consequences for Hornstein's analysis. More significantly, Hornstein's account of TCs relies on the addition to the syntactic framework of a variety of movement termed 'sideward' movement (see also Hornstein 1999, Nunes 2001), from the embedded SpecCP into a θ-position inside the matrix AP (or aP under my assumptions). Support for sideward movement (i.e. movement into θ-positions) appears to be growing, yet is explicitly rejected by Chomsky's (2000) formulation of the θ-theoretic principle which I adopt in this dissertation. Regardless of whether sideward movement should be permitted, it is not clear that the *tough* subject should be required to move into a θ-position in order to receive a θ-role from *tough*, if the *tough* subject in fact bears no thematic relation to the *tough* predicate, as I concluded in § 2.3.2.

The modifications proposed by Hornstein are thus unnecessary additions to Brody's analysis. There are, however, more serious theoretical problems for both accounts. The start of the A-A′-A-movement derivation is essentially the same as that proposed for the A-movement analysis. Accordingly, we may transfer the problems associated with the raising analysis. Recall that once accusative Case is assigned by v to the object DP merged as the sister of V in the infinitival clause (the eventual *tough* subject), there seems to be no way for the derivation to proceed, as Case-assignment to a DP renders its φ-features inactive. This difficulty for the A-A′-A-movement analysis may be overcome, partially, by assuming (with Hornstein) that the embedded object bears some variety of uninterpretable *wh*/A′-feature, which is checked via Agree with a corresponding feature on C in the embedded clause. We might assume that the presence of this uninterpretable feature permits the embedded object DP's $[i\varphi]$ to remain active. However, even if this allows the embedded object to move as far as SpecCP of the infinitival clause, still problematic is the fact that all its uninterpretable features will have been checked upon movement to SpecCP, rendering the DP prematurely inactive and hence unavailable for φ-agreement with matrix T.

A final theoretical consideration is that movement from an A′-position to an A-position is generally banned as an Improper Movement configuration. Brody reformulates the principle of Improper Movement to permit this variety of movement in cases where "the lower A-position [embedded object position] is potentially an R-expression and the Ā-position [SpecCP of the infinitival clause] is licensed to contain an operator" (Brody 1993:9). This permits Improper Movement just in the case of TCs, yet represents an entirely *ad hoc* stipulation.

4.5 Conclusions

In this chapter, I have argued that simple raising- and deletion-based accounts of TM are far too simplistic, in light of the compelling empirical evidence for A′-movement. However, given the assumption that *tough* predicates do not assign an external θ-role, it seems impossible to ignore the similarities that TM bears to raising constructions. I have shown here that capturing these properties of both A-movement and A′-movement has thus far proved extremely difficult to achieve within previous theoretical frameworks, and equally under current theoretical assumptions. While A-A′-A-movement analyses for TCs seem intuitively attractive, it remains to be seen how such an analysis may be formulated in a theoretically plausible manner. The following chapter suggests how this might be achieved by embracing certain possibilities provided by current minimalist assumptions.

Chapter 5

A minimalist analysis

Chapter 4 indicated that the core theoretical assumptions of θ-theory and the Case Filter, in their various guises, cannot both be retained if any of the previous analyses outlined therein are to be considered adequate. Furthermore, Improper Movement appears to be violated under any account whereby the *tough* subject is first-merged inside the embedded clause, yet transits through the intermediate SpecCP in order to account for the A′-properties of TM. Despite these theoretical problems, I believe that two fundamental assumptions concerning TCs must be retained: the *tough* subject bears a (direct or indirect) thematic relation only to the infinitival verb, while some variety of A′-movement operation must apply. In this chapter, I intend to improve on previous analyses, demonstrating that these two assumptions are not incompatible with one another: I propose an innovative analysis of the 0-operator in TCs, claiming that this approach is all but entirely consistent with the general theoretical assumptions of the framework developed in Chomsky (2000; 2001a).

5.1 Initial assumptions

5.1.1 Some comments on methodology

Suppose we now take a step back from particular analyses of TCs and consider the wider picture, drawing on the broad conclusions reached thus far and considering what their implications might be. Essentially, in terms of the classical early-1970s

raising vs. control/deletion debate on TCs, we appear to be more sympathetic to the raising approach. However, an extremely important set of empirical facts concerning properties of A′-movement exhibited by TCs complicates the issue, and (as the vast majority of recent analyses suggest) appear to make an analysis based on raising untenable within current assumptions. Three important questions remain unanswered. Firstly, why [*u*Case] on the embedded object (to become the *tough* subject) is not checked *in situ*, and secondly, how this object can move a potentially unbounded distance out of its own clause on the way to matrix SpecTP: A-movement only usually applies internally to a given clause, with the exception of subject-raising[1] (and even in these cases movement is severely restricted). Finally, TM's empirical commonalities with A′-movement constructions are mysterious. Arguing that some version of a raising-based account of TM is to be preferred, I adopt a reductionist approach in proposing a close correlation between these three theoretical issues in order to provide a unified explanation.

Unlike A-movement, A′-movement is not clause-bound, but (provided that it is successive-cyclic) in principle may operate over unbounded distances. Suppose, then, that the reason the embedded object can move an apparently unbounded distance (eventually targeting matrix SpecTP) is precisely because it in fact undergoes A′-movement. This is of course essentially the solution proposed by Brody (1993) and Hornstein (2000). We also require the embedded object not to be assigned Case until agreement with matrix T (I formulate an explanation for this shortly), yet if a DP bears an unchecked [*u*Case] when a phase completes and is transferred to Σ and Φ, the derivation will crash. It is reasonable to suppose that it is because the *tough* subject is A′-moved to each phase-edge position that it can (potentially) work its way through a number of embedded clauses and up to the matrix clause, with its [*u*Case] still unchecked: each phase-edge position (which only A′-movement can target) escapes Transfer.

While this succeeds in partially reducing the mysterious theoretical properties of TCs, the motivation for the embedded object's A′-movement is still thus far unexplained, as is the requirement that its [*u*Case] not be checked *in situ*. Again, the reductionist view supposes that these two concerns share a common explanation, which I formulate in § 5.2 based on a particular conception of 0-operators. First, though, we must make our assumptions concerning the feature specification of 0-operators explicit.

[1] And possibly ECM constructions.

5.1.2 Introductory remarks concerning *wh*-phrases and 0-operators

Following Chomsky (1977) and much subsequent work, I assume that a 0-operator is required in order to account for the properties of A′-movement in the absence of any overt *wh*-phrase. An obvious initial question concerns the identity of the 0-operator. We may assume that the 0-operator should be considered an empty category which may be merged to satisfy a selectional/thematic requirement. In this respect it simply looks like a null pronominal, i.e. PRO (as in Chomsky 1981) or *pro* (as in Browning 1987, Contreras 1993, Adger and Ramchand 2001; 2003). Clearly, its distribution differs drastically from that of PRO: under standard minimalist assumptions, PRO in English is restricted to syntactic configurations in which it can be assigned null Case, i.e. SpecTP of certain infinitival clauses.[2] 0-operators, on the other hand, are most prevalent in object positions, and thus appear to be required to be assigned accusative Case. Though this issue may not, in the end, be crucial, suppose for concreteness that 0-operators may be considered occurrences of a particular variety of *pro*.[3]

A fully-fledged proposal for a system of *wh*-feature checking is well beyond the scope of this dissertation, yet for concreteness it is necessary to make some initial assumptions explicit. (The suggestions made here should be taken as tentative working assumptions.) It is assumed that 0-operators bear some variety of *wh*-type feature(s), in order to account for the similarities between 0-operator constructions and overt *wh*-movement constructions.[4] Chomsky (2000) (*contra* Chomsky 1995) argues that the *wh*-type feature borne by *wh*-phrases is uninterpretable; call this feature [*u*wh]. We may assume that some variety of C is capable of checking [*u*wh]

[2]And perhaps also its first-Merge position Spec*v*P, as Case may potentially be assigned by agreement without movement. Indeed, Sportiche (1988) and Baltin (1995) argue that PRO remains in Spec*v*P (or equivalent) in control infinitivals.

[3]I follow notational convention and use 'Op' in example sentences in order to retain a distinction between the *wh*-operator *pro* and the 'regular' *pro*, which bears a different feature complement.

[4]Adger and Ramchand (2001; 2003) suggest that these features are syntactic encodings of the two distinct semantic elements involved in *wh*-dependencies: an operator, which abstracts over a variable. Adger and Ramchand (2003) claim that the relevant features on *wh*-phrases are [Λ], interpreted as a λ-operator (whose function is essentially to create predicates) and [ID], an identification feature whose particular value (either Λ or φ) is set according to whether the pronoun's interpretation is dependent on the abstraction operator or on an external antecedent. At least for 0-operators, I instead retain a system of formal *wh*-features with purely structural rather than semantic import, since Lasnik and Stowell (1991) observe that the semantics of the majority of 0-operator constructions do not involve true operator-variable configurations: the range of the 0-operator is obligatorily fixed to a singleton set by coreference with another category (in TCs, the *tough* subject).

on the *wh*-phrase, and therefore propose that C may bear a matching feature [*i*wh]. However, given the required probe-goal configuration in the current framework,[5] Chomsky (2001a) notes that it is not immediately obvious how this configuration is instantiated in *wh*-movement constructions. [*i*wh] on C cannot probe for [*u*wh]; C itself must bear some variety of uninterpretable feature which probes a matching feature on the *wh*-phrase. We might reasonably suppose the interpretable feature in question to be something akin to [$i\varphi$], which would indicate that C bears some matching variety of [$u\varphi$].

However, a somewhat paradoxical situation now emerges: the relevant variety of [$u\varphi$] on C must be of a sufficiently distinct type from [$u\varphi$] on for example T or *v* for non-*wh* DPs not to constitute appropriate goals for [$u\varphi$] on C, at least in English. However, as *wh*-phrases (and relevantly, 0-operators), first-merge in object positions, it must also be assumed that the type of [$i\varphi$] on *wh*-phrases is sufficiently similar to [$i\varphi$] on non-*wh* DPs to check *v*'s [$u\varphi$]. This indicates a treatment of φ-features whereby [$i\varphi$] on *wh*-phrases including 0-operators (call this [*i*whφ]) are a subcase of a more abstract set of features [$i\varphi$]. The workings of this system are explained further as they become relevant in the sample derivation of TCs in § 5.3.

5.2 Shedding new light on *tough* subjects

The innovative view of the internal structure of 0-operators I propose below is inspired by Kayne's (2002) derivational account for binding facts. I show that certain aspects of Kayne's account for pronouns and their antecedents are amenable to an analysis of the 0-operator in TCs.

5.2.1 Kayne's (2002) account for the distribution of pronouns and their antecedents

Kayne, broadly adopting the assumptions of the minimalist framework as outlined in Chomsky (1995; 2000; 2001a), yet also largely building on the view of movement and control developed by Hornstein (1999; 2000), argues that upon first-Merge of

[5] Crucially, whereby only uninterpretable features may probe (in their local c-command domain), while only interpretable features may themselves be probed.

a pronoun, its antecedent is also merged within the same DP, in the Specifier position, as in (1):

(1) $[_{\text{DP}}$ John $[_{\text{D}}$ him(self)]]

This complex DP consisting of an antecedent and its pronominal 'double' is assigned a θ-role upon first-Merge, in line with standard minimalist assumptions, yet at a later stage in the derivation, the two components of this complex DP separate: the antecedent component (*John*) sideward-moves to another θ-position and is assigned a separate θ-role accordingly. Kayne is noticeably tentative with regard to explicit formulation and provides little detail concerning the internal structure of the antecedent-pronoun complex and the syntactic mechanisms which operate therein. He also concedes that such an analysis is entirely dependent on permitting movement into θ-positions for example, which (as noted in § 4.4) I do not adopt here. I believe that although certain significant difficulties arise with Kayne's proposal for pronouns and their antecedents, these difficulties, by and large, might not necessarily apply to an account of 0-operators in TCs along similar lines.[6] Largely inspired by Kayne's complex DP in (1), I propose an analysis of TCs which effectively constitutes a variation on the A-A′-A-movement account, yet in a manner consistent with current assumptions concerning Case, θ-theory and Improper Movement.

5.2.2 The complex 0-operator

To illustrate the assumptions I make concerning the complex 0-operator, take as a starting point a simple TC, which we will attempt to derive in § 5.3 below:

(2) John is easy for us to please

As first proposed by Chomsky (2000), the derivation accesses the numeration (i.e. the lexical items which are available for first-Merge) cyclically: as the input to the syntactic derivation, the content of the numeration differs from phase to phase, and only lexical items available in a given phase of the numeration can be merged in the corresponding phase of the derivation. We should suppose that

[6] I do not therefore believe that the account for 0-operators that I propose below is dependent on accepting Kayne's analysis of pronouns and their antecedents.

in the first (deepest embedded) phase of the numeration corresponding to vP, at least the following lexical items are available:[7]

(3) N_{vP}= {PRO, *v*, please, John, *pro*}

The presence of *pro* is crucial, and its motivation is presumed to be related to the fact that a category interpreted as the object of an embedded clause is required to enter into some syntactic relation with a category in a higher clause.[8]

We might suppose that at the point when V (*please*) selects a category with which to merge, *pro* is selected: Stowell (1986), Browning (1987) and Grover (1995) among others note that 0-operators appear to be compatible only with complement positions. However, this is not in fact the whole story: *John* is also associated with the object position of *please*, and if it is present in the current phase of the numeration (assuming a requirement for exhausting numerations) must also enter the derivation in the current phase of the syntactic derivation. Kayne (2002) suggests that the antecedent of a pronoun (corresponding to *John*) is merged as a Specifier of that pronoun (here, the 0-operator *pro*): I follow this suggestion here. Crucially, although Kayne makes no reference to EPP-features on D, I suggest that the 0-operator *pro* is specified with [*u*EPP], motivating Merge of a category into its Specifier position.[9] In light of *pro*'s EPP-feature, the only way in which the numeration of the vP phase in (3) can (potentially) be exhausted is if *John* satisfies [*u*EPP] on *pro*. Accordingly, I adopt the following structure of 0-operators in TCs:

---

[7] I assume that the clausal subject and expletive subject non-TCs share a numeration at the vP and CP phases:

(i) N_{vP}= {PRO, *v*, please, John}

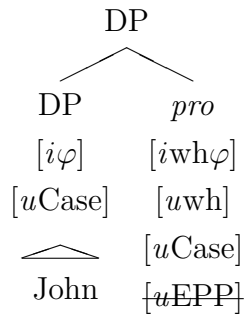
(ii) N_{CP}= {C, to}

The difference between the two constructions is simply that in the expletive subject construction the expletive *it* is present in the (later) phase of the numeration corresponding to the matrix clause.

[8] I intend this as a general statement which extends beyond TCs; see § 6.2.

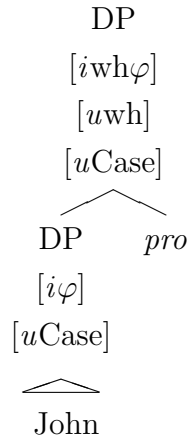
[9] Although this seems somewhat *ad hoc*, in the following chapter I tentatively propose that all 0-operators in fact bear [*u*EPP].

(4)



As is usual, the remaining features on the D head are projected up to DP, giving the whole 0-operator DP (henceforth the 'complex 0-operator') the structure of (5):

(5)



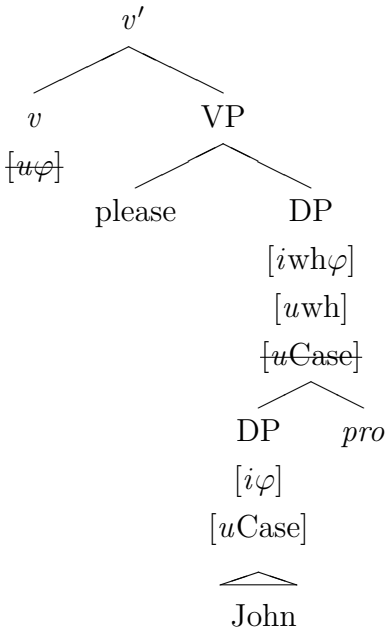
The similarity between (5) and Kayne's analysis of the antecedent-pronoun complex in (1) should be obvious. Having proposed a new analysis of the 0-operator in TCs, we may now proceed to outline a potential derivation for (2).

5.3 Sample derivation

At the start of the derivation, once the complex 0-operator is derived (as in (5)), the whole complex 0-operator merges with V as the object of *please*. The patient/theme θ-role from *please* is assigned to the whole complex 0-operator, not to *John* or *pro* individually.[10] The VP now derived is merged with v, and the complex 0-operator (as the object of *please*) enters into φ-agreement with v, $[u\varphi]$ on v being the relevant probe.

[10]As D is not a lexical head, SpecDP is not considered a θ-position, so Merge of *John* as the Specifier of *pro* cannot be the result of thematic requirement and does not result in θ-role assignment to *John*. I return to this matter in § 5.4.2.

(6)



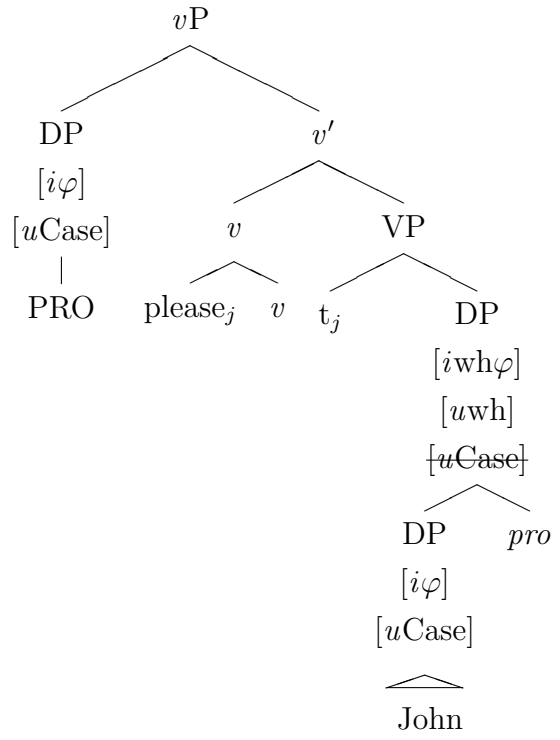
Recall that [*i*whφ] is argued to be an appropriate goal as [whφ] is claimed to be a particular subcase of [φ]. As a reflex of φ-agreement, the Case-assigning head *v* checks [*u*Case] on the complex 0-operator. However, as *v* does not bear [*i*wh], the complex 0-operator's [*u*wh] remains unchecked. I assume that the survival of this remaining uninterpretable feature has the consequence that [*i*whφ] on the 0-operator remains active.

Another crucial point concerning the internal structure of the complex 0-operator is that [*u*Case] on *John* remains unchecked, as *John* has not yet undergone φ-agreement with a Case-assigning head.[11] Recall that [*u*Case] is an illegal object at the interfaces, and must therefore either be checked within this (*v*P) phase or reach the phase-edge (Spec*v*P) in order to escape Transfer to Σ and Φ.

After the usual V→*v* movement, the external argument of *please*, PRO, merges in Spec*v*P:

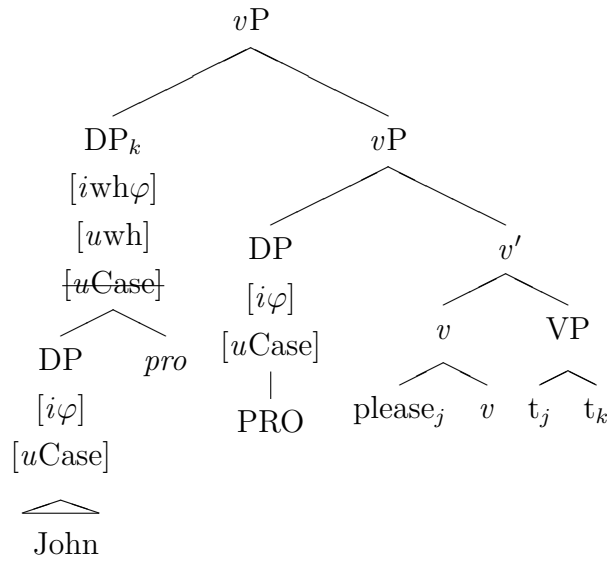
[11] Kayne (2002) does not directly refer to the matter of Case in his analysis of the antecedent-pronoun complex.

(7)



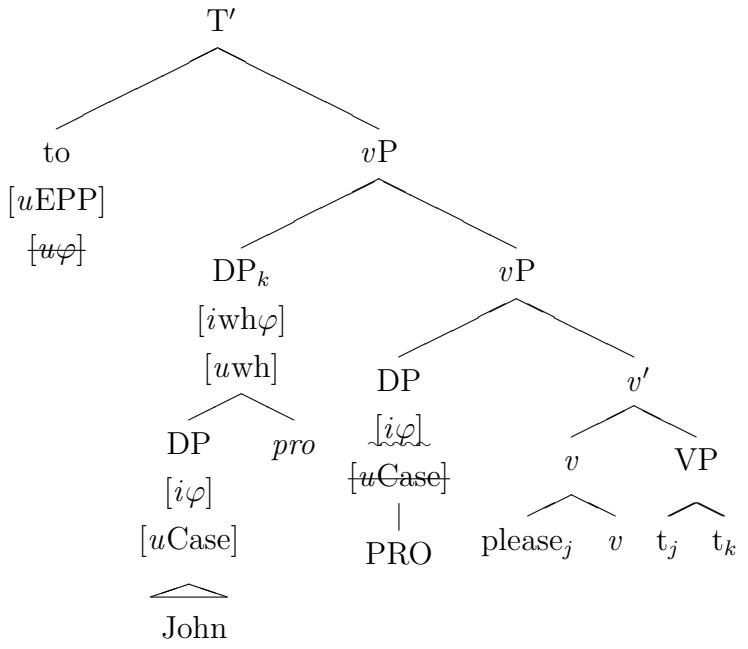
The phase cannot converge yet, however. *Wh*-elements bearing the [*i*whφ]/[*u*wh] feature set are typically required to move, as [*u*wh] cannot (at least in English) be checked *in situ*. As required by the PIC, movement must be successive-cyclic through each phase-edge, and is permitted to target the outer Spec*v*P position by virtue of an optional [*u*EPP] on *v*. This movement of the complex operator also has the desired consequence of allowing [*u*Case] on *John* to escape Transfer with the rest of the phase: *John* gets a 'free ride' to the phase-edge, being pied-piped with *pro*.

(8)



The vP phase thus terminates at (8), and the next phase begins. The derivation proceeds as follows:

(9)



There seems to me to be a question concerning why $[u\varphi]$ on T probes $[i\varphi]$ on PRO and not $[i\text{wh}\varphi]$ on the complex 0-operator (or indeed $[i\varphi]$ on *John* within it): $[i(\text{wh})\varphi]$ on both of these DPs remains active (as both bear an unchecked uninterpretable feature), and so are both potential goals for $[u\varphi]$ on T. This in fact relates to a much more general question concerning the relationship between SpecTP and inner Spec$v$P positions. Chomsky (2001a) claims that the φ-agreement configuration proposed between T and PRO across a DP in the outer Spec$v$P is typically licensed (in English) only if the category in the outer Spec$v$P later moves out of this position, Agree being possible across a 'trace' (an occurrence of a category stripped of phonological content), but not across an overt occurrence.[12] Effectively, this motivates a ban on all 'Object Shift' (OS) configurations in English, where an object moves to the outer Spec$v$P position and no further:

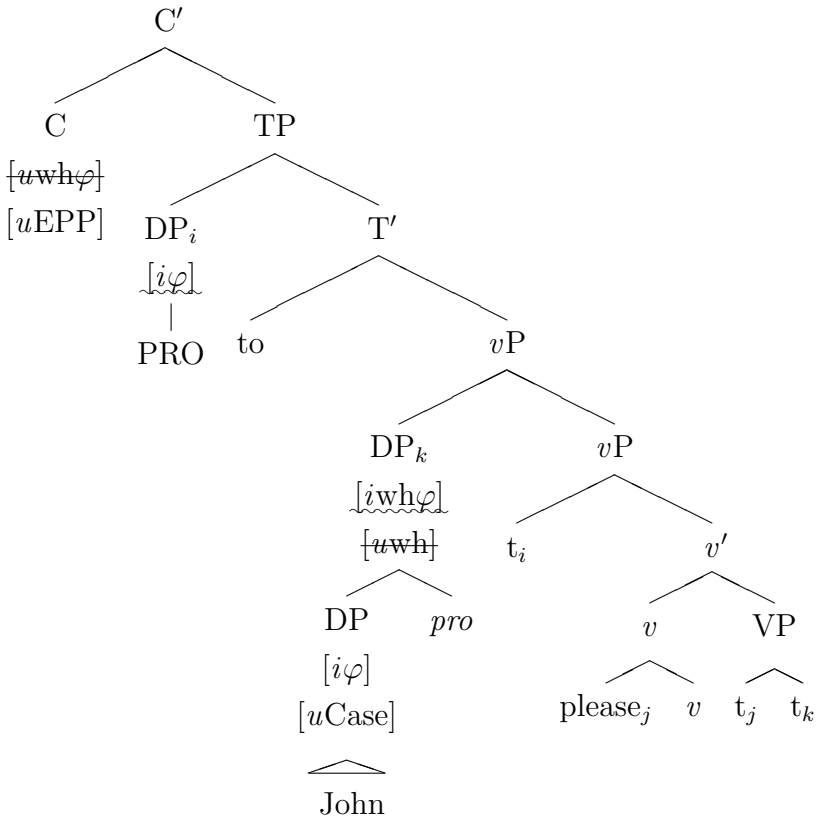
> "[I]n languages of the English/Romance types, the object must move beyond the position of OS [outer Spec$v$P]."
>
> (Chomsky, 2001a:26)

[12] As Chomsky concedes, allowing Agree to operate in this way at this stage of the derivation requires a relaxation of strict cyclicity, with operations being evaluated for well-formedness at the (strong) phase level, not necessarily at the precise moment in the derivation at which they apply.

It appears that some special relationship holds in general between T and (inner) Spec$v$P; we may thus assume that the explanation for this should be sought at some more abstract level. We may leave to one side the matter of φ-agreement of T with PRO for now, providing of course that the complex 0-operator moves further than Spec$v$P.

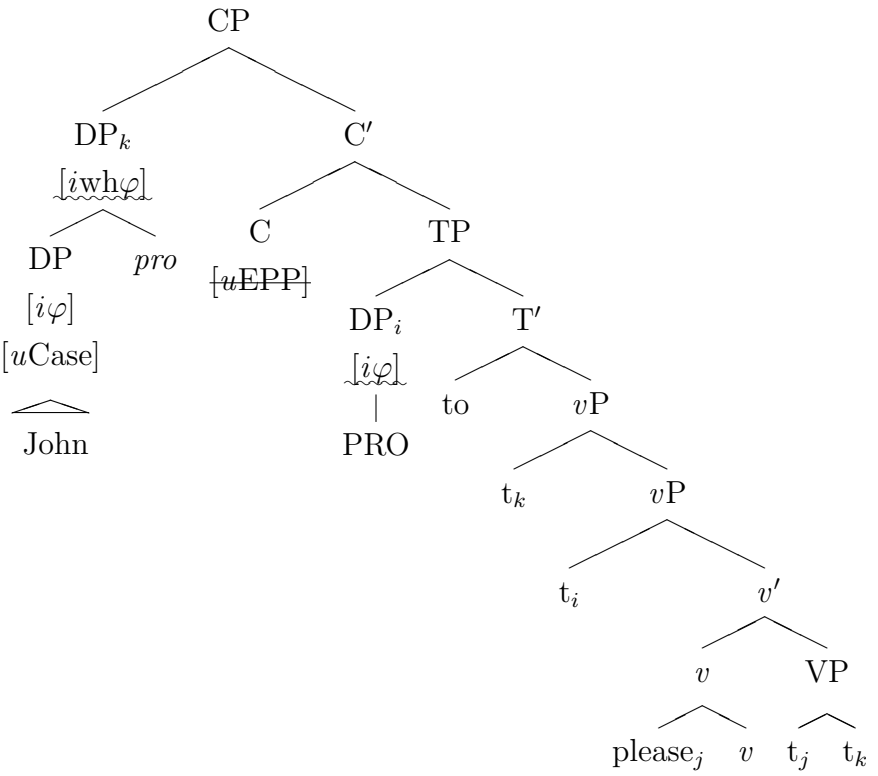
T also bears [uEPP], driving movement of PRO to SpecTP. Next, C merges with TP. We may suppose that this C bears [$u$whφ], which establishes the feature-matching configuration with [$i$whφ] on the complex 0-operator in the left-edge of the vP phase, resulting in Agree. [$u$whφ] on C is thus checked, as is [$u$wh] on the complex 0-operator, rendering its [$i$whφ] inactive:

(10)



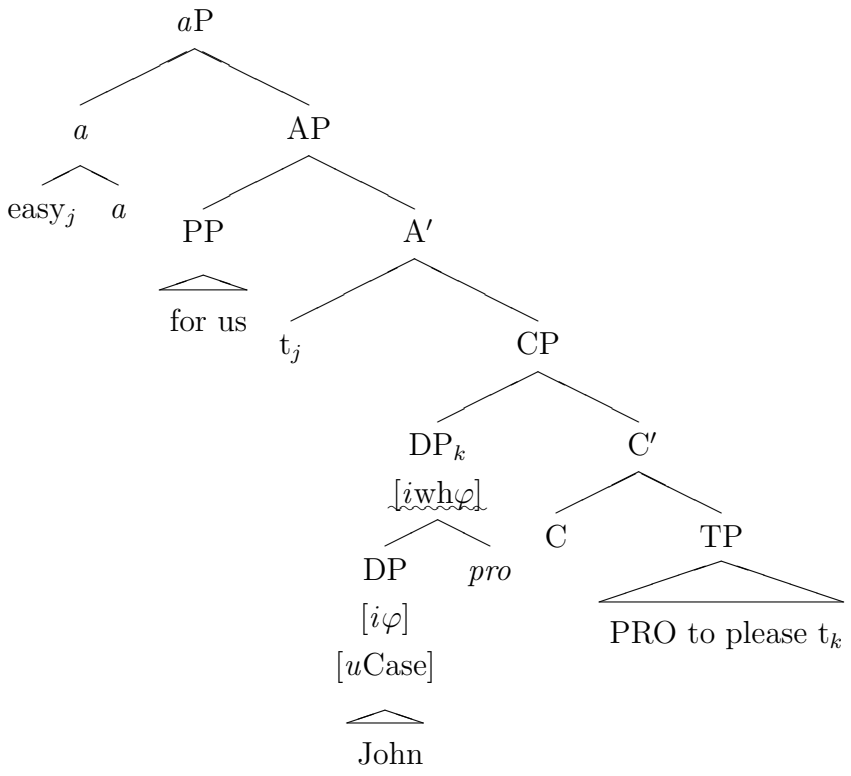
[uEPP] on C drives movement of the complex 0-operator into the phase-edge position SpecCP, which once again allows [uCase] on *John* to escape Transfer to Σ and Φ.

(11)



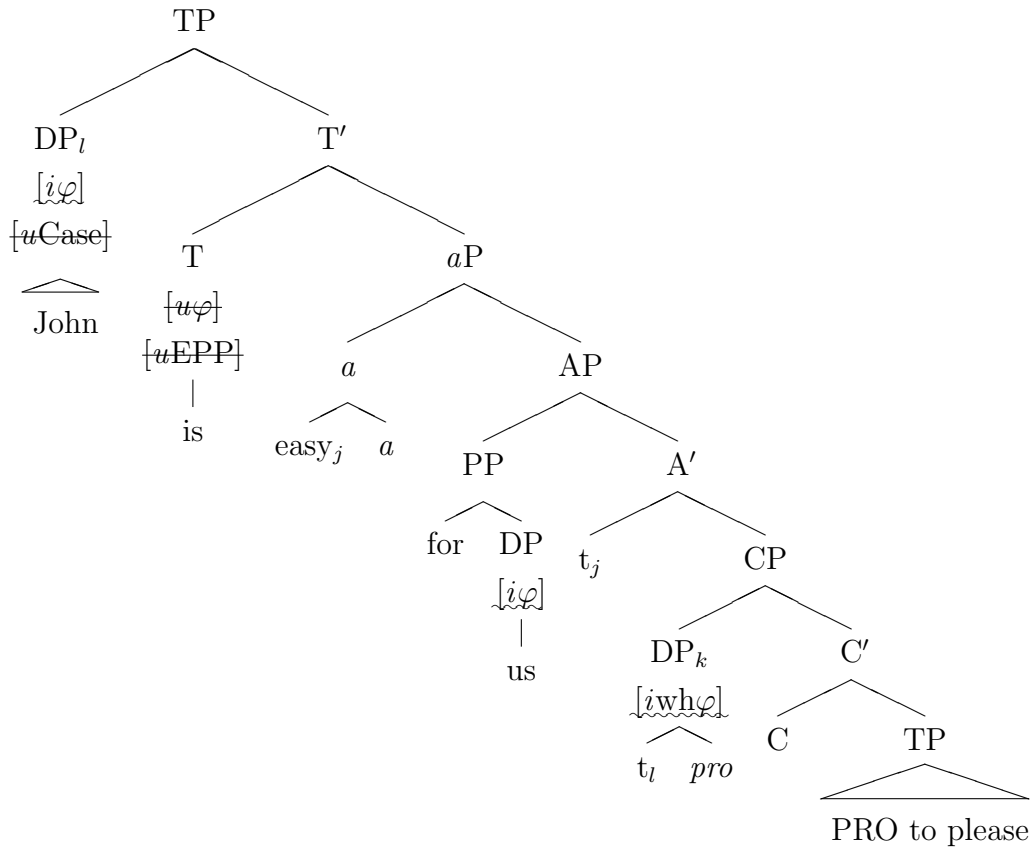
We may now proceed to the derivation of the matrix clause. Following the proposals for first-Merge positions outlined in § 3.1, I assume that the infinitival CP in (11) merges with A (*easy*), followed by Merge of the PP experiencer *for us* at SpecAP. Furthermore, I assume the presence of a 'light' a, which merges with AP. As *tough* predicates assign no external θ-role, aP has no Specifier.

(12)



We may assume that T merges with aP. Finite T, bearing $[u\varphi]$, probes for $[i\varphi]$, in turn assigning nominative Case to the goal, which must also move to SpecTP to satisfy [uEPP]. The only $[i\varphi]$ set remaining active in the derivation is that on *John* in SpecDP of the complex 0-operator. Provided that locality conditions are satisfied by Agree between T and *John*, $[u\varphi]$ and [uEPP] on T are checked, as is [uCase] on *John*. Thus, as is required, all of the uninterpretable features remaining in the derivation are eliminated at the TP projection, and the terminal phase of the derivation converges:

(13)



5.4 Further theoretical concerns

Although the proposed analysis and sample derivation appear to be largely compatible with the set of minimalist assumptions I adopt, there remain certain important theoretical issues which may be seen as potentially problematic and which merit further explanation.

5.4.1 Improper Movement

One of the more desirable aspects of this analysis is that it accounts for the intuition that the *tough* subject appears to have undergone both A′-movement and A-movement, yet crucially, without violating Improper Movement, which is inescapable in the analyses of Brody (1993) and Hornstein (2000). The complex 0-operator containing the (eventual) *tough* subject undergoes movement to an A′-position, while the *tough* subject itself moves independently of the 0-operator into an A-position later in the derivation. The Improper Movement violation

is circumvented by proposing that different constituents (one merged within the other) undergo A- and A′-movement respectively. However, it is not entirely clear that the SpecDP position inside the complex 0-operator (from which the *tough* subject A-moves to SpecTP) is in fact an A-position. If it is in fact an A′-position, this movement to matrix SpecTP is A′-A movement: another configuration which is traditionally considered to constitute Improper Movement. Regardless of the A/A′ status of the SpecDP position within the complex 0-operator, I suggest below that this movement is compatible with current assumptions.

It is important to note that Minimalism dispenses with precisely the sort of conceptually unmotivated configurational stipulations involved in the typological A/A′ distinction at the heart of Improper Movement: Chomsky (2001b:9, note 30) asserts that "no principles can be formulated in terms of the A-A′-distinction".[13] Since Minimalism requires all locality conditions to be relativised not to syntactic positions but rather to syntactic features, the burden of empirical explanation previously borne by the generalised ban on Improper Movement must be reapportioned to the feature-checking system. Accordingly, Bruening (2001) proposes a minimalist account for Improper Movement based on the timing of feature deletion. My assumptions are sufficiently different from Bruening's for me to rework this account considerably, yet the basis of this account should be attributed to Bruening. DPs which move into A′-positions (typically Spec$v$P and SpecCP) must bear some variety of [$u$wh] feature. When both [uCase] and [$u$wh] on this DP are checked, the φ-features of this DP are rendered inactive. Thus, a category which has moved into an A′-position in order to get its [$u$wh] checked is inaccessible to a higher [$u\varphi$] probe, ruling out A-A′-A movement (as φ-agreement is required to feed A-movement). However, a DP which does not bear [$u$wh] but which is simply first-merged in an A′-position does remain active to a [$u\varphi$] probe, as its [uCase] remains unchecked. This account for Improper Movement (as well as Bruening's, on which it is based) permits A′-A-movement in cases where the category occupying the A′-position is first-merged there.

Even if SpecDP within the complex 0-operator is an A′-position, the analysis of TCs proposed in this chapter is thus compatible with Improper Movement. By moving (as part of the complex 0-operator) to each phase-edge, the *tough* subject, whose [uCase] is unchecked, can move an unbounded distance: [$i\varphi$] on the *tough* subject remains active until the crucial point where it is probed by [$u\varphi$]

[13]For simplicity, I continue to refer to A-/A′-positions, aware that the A/A′ distinction must now be derived from independent principles.

on the matrix T. Note, however, that under the A-A′-A-movement analyses of Brody (1993) and Hornstein (2000), Improper Movement is still violated as [$i\varphi$] on the *tough* subject would be rendered inactive (and hence invisible to matrix T) upon completion of the infinitival CP phase, as all of its uninterpretable features would be checked. A feature-based account of Improper Movement – motivated on independent grounds – permits the proposed analysis of TCs without predicting an Improper Movement violation, yet does not save previous accounts from such concerns.

5.4.2 θ-theory

Another important implication of first-merging the *tough* subject in a non-θ-position inside the complex 0-operator concerns θ-theory. The proposed analysis is informed by Brody's (1993) intuition that the θ-role assigned by the embedded verb (*please*) seems to be shared between the 0-operator and the *tough* subject, while the only plausible first-Merge position for each is the embedded object position. The simple explanation is that in some respects both DPs do originate in the same position, while the *tough* subject and *pro* do not constitute distinct arguments, but two components of a single argument.

Under Chomsky's (2000) revision of θ-theory, only arguments may first-merge in (vP/aP/nP-internal) θ-positions. If we suppose that a DP which first-merges with the sister of V (*please*) is to be assigned a theme/patient θ-role, then (as Kayne 2002 argues for his equivalent complex antecedent-pronoun DP) it is not simply *pro*, but the whole complex DP including its Specifier which is assigned the relevant θ-role. From the perspective of θ-theory, my analysis diverges from Kayne's in the crucial respect that I suggest that the category in the Specifier of the complex 0-operator is not required to be assigned any other θ-role.[14]

If a DP's argument status is dependent on its receiving a θ-role, the *tough* subject is thus not strictly an argument per se. We might well wonder what the implications of proposing a non-argument subject might be. Clearly, expletives are not standardly considered arguments, and may occur in subject position in order to satisfy [uEPP] on T, so it is not true that only θ-marked categories may occupy SpecTP. However, the *tough* subject *John* is also required to φ-agree with T, which

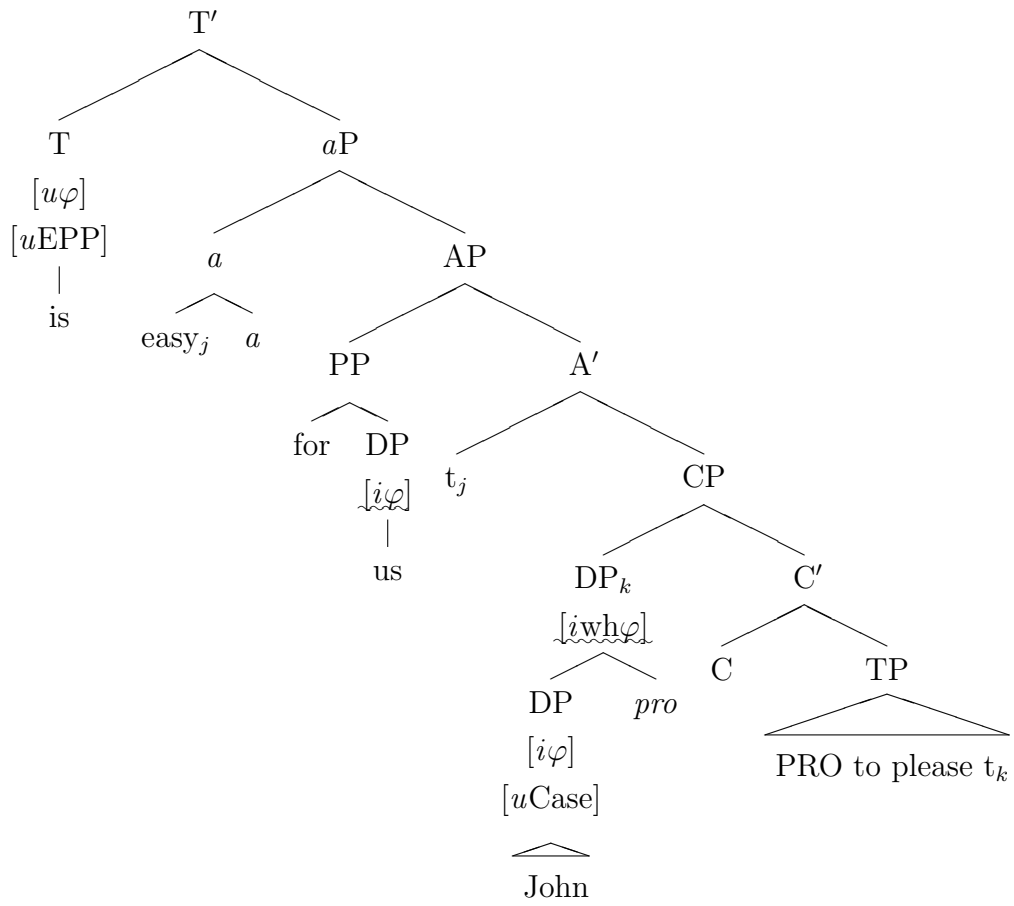
[14]Kayne in fact claims that it is this DP's requirement for a θ-role which motivates its movement out of the complex DP; this is not consistent with my assumptions, however.

generally does appear to be restricted to arguments: expletives themselves do not check [$u\varphi$] on T. I suggest that rather than stipulate an unexplained restriction that only arguments may agree with T, it is theoretically more desirable to state that any category may agree with T provided that feature-matching requirements and economy conditions are satisfied, as I assume them to be in the proposed analysis of TCs. Thus, even as a non-argument, the *tough* subject may agree with T and move to SpecTP.

5.4.3 Inactive φ-features and intervention effects

The analysis of the antecedent-pronoun complex proposed by Kayne (2002) and modified for the proposed analysis of 0-operators in TCs raises further interesting questions for the system of Agree (feeding Move) proposed by Chomsky (2001a). This primarily concerns the domain in which a probe may seek a goal and the relevance of inactive features which intervene between probe and goal. As demonstrated in (14), at the stage where matrix T probes [$i\varphi$] on *John* inside the complex 0-operator, two sets of inactive φ-features are present in positions between T and *John*:

(14)



The relevant question is whether φ-agreement of T with *John* is predicted to be blocked by intervening inactive φ-features, as a locality violation. However, the precise role of inactive φ-features in intervention effects is not entirely clear under the current framework. The intermediate φ-features on the PP experiencer argument are rather reminiscent of raising constructions: if we assume (as Holmberg and Hróarsdóttir 2002 do for Icelandic, and as Anagnostopoulou 2003 does for Greek) that in English, experiencer arguments of raising predicates occupy SpecVP, then we may suppose that the PP experiencer does not give rise to a locality violation in the equivalent raising construction. In (15), for example, φ-agreement is established between matrix T and *John* in the embedded clause across the PP experiencer *to me*, yet the sentence is, of course, perfectly acceptable:

(15) [$_{\text{TP}}$ John$_i$ seems to me [$_{\text{TP}}$ t$_i$ to be perfect for the job]]

We may assume, on this evidence, that the PP experiencer in TCs does not intervene for the purposes of φ-agreement, though the consequences of the inactive

[$i$whφ] on the complex operator DP are yet to be explored. At the very least, we should perhaps not consider this variety of agreement/movement implausible: Kayne (2002) (in his analysis of antecedent-pronoun complex DPs), who claims to adopt the broad minimalist approach taken by Chomsky in recent revisions of the framework, requires an almost identical application of Move from within a DP whose φ-features are inactive. Furthermore, as it is only (φ-) features, and not categories which have active or inactive status, there is no reason to assume that the [$u\varphi$] probe on matrix T cannot search within an inactive DP: it does not seem inconceivable that these intervening inactive features are simply invisible to the [$u\varphi$] probe (and hence ignored), just as seems to be the case with the inactive φ-features on the PP experiencer. Clearly, the configuration in (14) is a rather unfamiliar one, but one which I claim to be available under minimalist assumptions: as argued in § 5.3, each stage of the derivation on the way to (14) is consistent with the assumptions of the theoretical framework. Pending further investigation into the role of inactive φ-features in intervention effects, I assume the agreement operation in (14) to be permitted, satisfying all other locality conditions (essentially the PIC).

5.4.4 Clausal *tough* subjects

Another potential problem for the agreement between matrix T and the *tough* subject concerns cases where the *tough* subject is clausal:

(16) [$_{\text{CP}}$ That Paul could ever beat anyone at snooker] was difficult to believe

An interesting point arises here concerning the featural specification of CPs. In order that clausal subjects may agree with T (and hence move to SpecTP), it must be assumed that CPs bear some sort of interpretable φ-features capable of checking [$u\varphi$] on T. However, if CPs are not assigned Case (or rather do not bear an uninterpretable Case feature which must be checked), then it is not clear what makes [$i\varphi$] on CPs active to the [$u\varphi$] probe. This is in fact no more a problem for TCs than for any other construction in which CPs occur in subject position, and hence I do not provide a full explanation here.[15]

[15] I believe that the explanation may lie in some null D head merged with CP which is responsible for clausal subjects' endowment with both [$i\varphi$] and [uCase], broadly as suggested by Hicks (2000).

5.4.5 Coreference of *pro* and the *tough* subject

The internal structure of the complex 0-operator may also raise some objections. Notably, it appears to violate the 'i-within-i' condition, which rules out the following structural configuration:

(17) *The i-within-i condition*
"*[$_\gamma \ldots \delta \ldots$], where γ and δ bear the same index."
(Chomsky, 1981:212)

This rules out cases where a DP occurs within a DP with which it is coreferent, which is precisely the case for the proposed complex 0-operator. Although the minimalist framework has no place for representational filters such as (17), as Chomsky (1981) suggests, there may well be a deeper explanation for it, so should perhaps not be immediately dismissed on theoretical grounds. However, in light of evidence from relative clauses which appears to contradict the i-within-i condition as stated in (17), Chomsky in fact suggests that (17) is perhaps too restrictive, suggesting that it holds "unless δ is coindexed with the head of γ" (Chomsky, 1981:229). Adopting this, the complex 0-operator is immune to i-within-i: γ in (17) corresponds to the whole complex 0-operator DP, headed by the 0-operator *pro*. δ corresponds to the category in SpecDP coindexed with *pro*. The complex 0-operator structure proposed in this chapter therefore represents a case where δ is coindexed with the head of γ, and so even under GB assumptions it should perhaps not be ruled out by the i-within-i condition.

Thus far, I have remained noticeably cautious on the matter of how the obligatory coreference between the *tough* subject and *pro* is established. To some extent, I will remain so. On an intuitive level, it seems plausible that the configuration internal to the complex 0-operator phrase has some interpretative effect which ensures coreference. This is essentially what Kayne (2002) assumes in his equivalent proposal. It appears then that some variety of agreement holds between the pronominal head and the DP in its Spec. However, as Chomsky's (2001a, 2001b) recent work advocates the elimination of Spec-head agreement from the system, such a view is not entirely compatible with the current direction of the framework. As the *tough* subject obligatorily moves to a position c-commanding the 0-operator, coreference may, of course, be established in a purely configurational relationship, i.e. *pro* control, as might be assumed for other NOCs. This does not

seem at all intuitive though, in light of the fact that both the pronominal head and its Specifier are assigned a shared θ-role upon first-Merge with V. I think it reasonable to assert, following Kayne, that some relationship established upon first-Merge of *pro* and its Specifier can be assumed to account for coreference of these two categories, yet I leave this matter without explicit formulation, with the precise theoretical workings yet to be formulated.

5.5 Theoretical adequacy of the proposed analysis

With such a radical departure from conventional approaches to the 0-operator, it seems inevitable that certain details of the analysis pursued in this chapter will remain to be fully explored, though I believe that, by and large, the analysis is consistent with current thinking in the minimalist framework. Furthermore, the proposed analysis of TCs has several important advantages over previous analyses. First, the Case-mismatch of A(-A′-A)-movement analyses does not arise under this account. The *tough* subject within the complex 0-operator is not in the required configuration for accusative Case-assignment upon first-Merge. The requirement that its [*u*Case] remain unchecked until the derivation proceeds to the matrix clause receives an elegant explanation under the complex 0-operator analysis. Second, the theoretical and empirical shortcomings of the raising analysis are circumvented without having to resort to θ-role assignment of the *tough* subject by the *tough* predicate, which would be in contradiction with the most fundamental assumption about *tough* predicates adopted in this dissertation. Thus, unlike *tough* deletion and versions of the classic 0-operator analysis (e.g. Chomsky 1977, Browning 1987) there is no θ-criterion violation under the current version of θ-theory. Finally, unlike the analyses of Brody (1993) and Hornstein (2000) which also assume an application of A′-movement followed by A-movement, I contend that the analysis proposed here does not violate Improper Movement, if we follow Bruening (2001) in formulating this principle in a manner compatible with minimalist assumptions.

Such theoretical assumptions permit an analysis of TCs which is not only plausible from empirical and theoretical perspectives, but (I believe) also intuitively attractive. From a more informal perspective, one interesting and surely desirable feature of this analysis is that it accounts for the observation that TCs

share otherwise contradictory properties of both control constructions and raising constructions. Much research has shown that TCs sit comfortably in neither camp, yet exhibit certain properties consistent with each: this receives a natural explanation under the proposed analysis. Like control-/deletion-based accounts of TCs, a DP headed by an empty category merges with the embedded infinitival verb and receives a θ-role from it; just like raising constructions, on the other hand, the motivation for the *tough* subject moving out of the embedded infinitival into matrix SpecTP is essentially the satisfaction of matrix T's EPP-feature coupled with the fact that [uCase] on the raised DP would otherwise remain unchecked.

However, this innovative approach to the 0-operator in TCs, although attractive, is not without further consequences. Some theoretical implications have been explored in this chapter, yet potentially the most interesting consequence concerns the syntax of related constructions involving 0-operators, to which I briefly turn in the following chapter.

Chapter 6

Extensions and consequences

This chapter introduces a set of constructions collectively termed Null Operator Constructions (NOCs, including TCs), to which I have only made passing reference thus far. Given the failure of the vast majority of analyses of TCs to explain why TCs should be exceptional with respect to other NOCs,[1] I adopt a radically different methodology, proposing that the complex 0-operator in TCs is not the exception, but the rule: I tentatively suggest that 0-operators in other NOCs might merit a similar treatment to that proposed for TCs. This is argued to be desirable in light of of both empirical and theoretical concerns. TCs share many common characteristics with the majority of other NOCs, yet the analysis of TCs proposed in chapter 5 forces a rather unappealing requirement for two types of 0-operator, with different (EPP-)feature-specifications. A treatment of the other NOCs along the lines suggested in the previous chapter is claimed to provide more of an understanding of the role of 0-operators, which effectively serve to establish otherwise ill-formed object-raising configurations (TCs) or object-control configurations (other NOCs). With TCs integrated into a unified analysis of 0-operators, the mystery previously surrounding TM evaporates.

[1] In that only TCs bear any similarity to A-movement (raising) constructions.

6.1 The complex 0-operator and issues concerning other NOCs

For our purposes thus far, it has been adequate simply to recognise the existence of an important set of constructions which are also standardly assumed to involve 0-operators and occasionally, to compare specific properties with those of TCs. These constructions include *pretty* constructions, Degree Specifier Clause (DSC) constructions involving *too/enough*, purpose clauses, and relatives (here, infinitival), as shown below:[2]

(1) John$_i$ is handsome [Op$_i$ PRO to look at t$_i$]

(2) John$_i$ is too weasel-faced [Op$_i$ PRO to find t$_i$ attractive]

(3) I bought this book$_i$ [Op$_i$ PRO to read t$_i$ on the train]

(4) Mary bought [some music$_i$ [Op$_i$ PRO to dance to t$_i$]]

A significant shortcoming of the complex 0-operator analysis of TCs is that it predicts the syntax of the 0-operator in TCs to be entirely differently from other NOCs, which are not considered to share a complex internal structure. Under the standard analysis assumed for other NOCs, the 0-operator (*pro*) is simply coreferent with (or controlled by) a c-commanding category; there is no recourse to A-movement because in all other NOCs, the constituent coreferent with *pro* is assigned a θ-role by the matrix clause predicate. The reasons for wishing to rectify the current situation whereby 0-operators must come in complex and non-complex varieties are both empirical and theoretical.

6.1.1 Empirical properties of TCs and other NOCs

TCs and the other NOCs in (1) to (4) form a natural class in that they all exhibit common empirical characteristics. Interestingly, many of these empirical characteristics are not attested in cases of overt *wh*-movement, which itself provides some indication that 0-operators in these related constructions should not simply

[2]I follow Stowell (1986) in not including finite relatives in this class of NOCs, as they exhibit empirical properties consistent with overt *wh*-movement, and not with other NOCs. Presumably the same should apply to cleft constructions, for example. Parasitic gap constructions (PGCs) are also omitted from Stowell's analysis of NOCs; see Contreras (1993) for ways in which PGCs differ from other NOCs.

be treated as non-overt *wh*-phrases but rather as categories with somewhat different syntactic properties. Stowell (1986) notes some of the most significant of these: unlike overt *wh*-movement constructions, 0-operators cannot originate in any position in a finite clause[3] or in subject and adjunct positions in infinitival clauses (effectively imposing a strict object orientation on 0-operators). Another interesting empirical property of NOCs is that unlike overt *wh*-movement constructions, they do not give rise to Weak Crossover (WCO) violations, as demonstrated in § 4.3.2 for TCs and below for DSCs.

(5) Gareth$_i$ is too noisy [$_{\text{CP}}$ Op$_i$ for his$_i$ neighbours to put up with t$_i$]

Since Lasnik and Stowell (1991) (building on an observation by Sportiche 1983) noticed that the distribution of Weak Crossover effects correlates very neatly with the quantificational nature of the operator, it seems to have been generally assumed that the absence of WCO in NOCs is somehow related to the fact that 0-operators do not range over any variable as such (obligatorily inheriting the reference of their antecedents), unlike overt *wh*-movement constructions.

As the focus of this dissertation is on TCs in particular, it is largely outside its scope to attempt to account for the shared characteristics of NOCs,[4] whose explanation clearly must be sought at some more general level than a study of TCs in relative isolation could hope to examine. In fact, the explanation for each of these common properties is not at all obvious, and as such constitutes a valuable avenue for future research.[5] For the purposes of this chapter, it is

[3] *Contra* Stowell, I suggest that this requirement appears to constrain not the first-Merge position of the 0-operator, but rather the finiteness of the highest embedded clause (of which the 0-operator is assumed to move to SpecCP), as (i) appears to be acceptable, despite the 0-operator first-merging in an embedded finite clause.

(i) Mary is tough for me to believe that John would ever marry

(Kaplan and Bresnan 1982)

As Nanni (1978) notes, speakers vary in their degrees of acceptance of the sort of sentence in (i); Grover (1995) reports that grammaticality judgements for these sentences also vary greatly in the literature. I tend to agree with Kaplan and Bresnan's (1982) grammaticality judgement above, consistent with Calcagno's (1999) claim that there are certain clearly acceptable cases of such sentences. Furthermore, if some speakers find these sentences mildly ungrammatical, we might reasonably invoke Jacobson's (1992) observation that the acceptability of movement from more deeply embedded clauses tails off more quickly with TM than with overt *wh*-movement.

[4] The reader is referred to Lasnik and Fiengo (1974), Cinque (1990) and Grover (1995) for further empirical characteristics common to the various NOCs.

[5] Although an examination of the differences may be equally valuable. While many empirical characteristics are common to the NOCs studied in this section, it is rarely noticed that the

sufficient to simply outline the close similarity between TCs and other NOCs, which is to some degree unexplained if we assume that two very distinct varieties of 0-operator are found in TCs and the other NOCs.

6.1.2 Theoretical issues relating to TCs and other NOCs

From a theoretical perspective, too, it is evident that an approach to 0-operators that can account for both TCs and other NOCs is desirable, as two potential theoretical difficulties remain. First, the syntactic mechanisms underlying coreference of *pro* and its antecedent differ in TCs from other NOCs, assuming that coreference is established within the 0-operator in TCs, but configurationally (by c-command) in other NOCs. Second, the EPP-feature on (*pro*) which is claimed to motivate Merge of the antecedent in SpecDP in TCs is rather *ad hoc*, in light of the fact that *pro* in other NOCs does not bear [*u*EPP] (as it does not project a Specifier).

6.2 Application of the complex 0-operator to other NOCs

Evidently, there is good reason for treating the 0-operator in TCs as identical to that in all other NOCs. The standard approach taken in the literature is that TCs should involve the sort of 0-operator found in other NOCs coupled with some sort of exceptional operations. However, I have suggested above that TM motivates a conception of 0-operators in TCs which is fundamentally different from the standard analysis of 0-operators: as shown in chapters 4 and 5, without the complex 0-operator TCs do not receive a theoretically plausible explanation. We may now approach the problem of two distinct 0-operators from the opposite perspective, a methodology inspired by Chomsky's (1993) motivation for reintroducing Generalized Transformations into the syntactic framework, which is itself based on

slightest scratch of the surface of these constructions reveals a baffling array of complex variation. For example, TCs and DSCs both license unbounded dependencies, yet only in DSCs is a resumptive pronoun acceptable in the embedded object position. *Pretty* constructions, on the other hand, are like TCs in not permitting resumptives, yet do not license unbounded dependencies. However, as we have seen, both DSCs and *pretty* constructions are alike in that in both the matrix predicate assigns a θ-role to the matrix subject, unlike TCs. The situation is complicated further by the (perhaps predictable) fact that many of the more complex examples of NOCs are subject to a high degree of speaker variability.

evidence from TCs (see note 6, chapter 4). Chomsky permits *tough* subjects to be introduced into the derivation by an operation of GT, faced with the problem that TCs do not otherwise receive a plausible analysis. However, once GTs are present in the syntactic framework, it is no more theoretically costly (perhaps indeed less so) to assume that GTs are not the exception to the rule, but the rule itself. The GT operation thus applies in all cases where syntactic structure is built up, with consequences which of course extend far beyond the analysis of TCs.[6] Similarly, if a complex 0-operator must be available to the syntax, we may as well extend the complex 0-operator analysis to other NOCs, allowing us to eliminate altogether the non-complex 0-operator *pro* without a Specifier filled with a coreferent category.

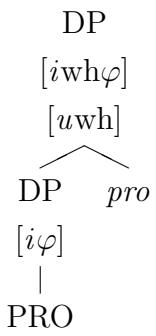
This new approach to 0-operators has interesting consequences, notably for our understanding of the motivation for the occurrence of a 0-operator. Under the analysis outlined in chapter 5, the presence of the 0-operator in TCs essentially allows the DP which eventually becomes the *tough* subject to move close enough to the matrix clause for it to enter into agreement with matrix T. We can thus view TM as object-raising, made possible by the initial A′-movement. Crucially, I suggest that in the other NOCs something rather similar motivates the requirement for 0-operator movement. Rather than object-raising, in these cases 0-operator movement is required in order for object-control[7] to be established with a constituent in the matrix clause: in each of the 'object-control NOCs' in (1) to (4), for example, the closest c-commanding DP controls the 0-operator, similarly to the subject PRO-control configuration. Whereas 0-operators effectively license object-raising in TCs, they license object-control in other NOCs.

A rather elegant conception of 0-operators emerges. Effectively, 0-operators represent a strategy for establishing the control and raising dependencies – familiarly associated with embedded subjects – with embedded objects: constituents which locality conditions would otherwise render unable to enter into any sort of syntactic relationship with the matrix clause. This unified explanation for the appearance of 0-operators strongly supports the view that the complex 0-operator might be extended to other NOCs. Given the analysis of TCs, I tentatively suggest that in object-control NOCs, PRO is simply the Specifier of a complex 0-operator headed by *pro*:

[6]Effectively, this motivates the abolition of D-structure from the framework.

[7]That is, control *of* an object, not control *by* an object.

(6)



Thus it is not *pro* which is controlled by a DP in the matrix clause in object-control NOCs, but PRO, which (by the same interpretative mechanisms tentatively suggested for the complex 0-operator in TCs in § 5.4.5) is understood as coreferent with *pro*.[8]

6.3 Wider implications

The rather tentative suggestions made in the previous section are not intended primarily as an analysis for object-control NOCs, but rather concern an innovative methodology for future approaches the syntax of TCs and NOCs. There may be numerous shortcomings of (6),[9] yet it is necessary to leave remaining theoretical issues aside here, as, of course, they extend well beyond the scope of the dissertation. The important point for our purposes here is that however curious and difficult to analyse TCs may prove to be from the point of view of the syntax, speakers' consistent grammaticality judgements of TCs as perfectly acceptable and their regular production in spontaneous speech indicate that TCs cannot be considered in any way exceptional or marginal.[10] Whereas extending a plausible analysis of object-control NOCs to TCs has proved rather fruitless, extending a plausible analysis of TCs to object control NOCs has been shown in this chapter to be rather enlightening, allowing us to better understand the motivation for 0-operators as a strategy for making possible certain (otherwise non-local) syntactic dependencies.

[8]Note that this also allows us to dispense altogether with *pro*-control in English syntax.

[9]For example, PRO in (6) is not required to φ-agree with any category, hence it cannot be assigned null Case, which is generally assumed in Minimalism to be a requirement of PRO (since Chomsky and Lasnik 1993). I envisage two possible solutions: we could return to the GB view of PRO whereby PRO receives no Case (or in our terms bears no [*u*Case]), or we could suppose that PRO is unlike other DPs in that it bears a valued (null) Case feature upon entering the derivation.

[10]Unlike PGCs, for example.

Chapter 7

Conclusions

The proposed analysis of TCs has been argued to be compatible with the full set of core conditions concerning Case, θ-theory, and movement. As is required by any analysis of TCs, this is based on a particular lexical argument structure for *tough* predicates, motivated by a range of empirical and theoretical evidence provided in chapter 2. Essentially, it was shown that the claim that *tough* predicates in TC contexts differ syntactically and semantically from those in non-TC contexts is untenable: although allowing the *tough* predicate to assign an external θ-role in TCs solves certain problems by assimilating TCs to object-control NOCs, about which more is thought to be understood, empirical support for this (particularly in the form of systematic interpretative differences between TCs and non-TCs) is somewhat lacking. With a specific and independently motivated lexical argument structure of *tough* in mind, in chapter 4 I evaluated each of the general approaches to TCs reported in the generative literature, for both empirical and theoretical adequacy. Working within a set of minimalist assumptions based on recent revisions to the syntactic framework (especially Chomsky 2000; 2001a), I demonstrated that each analysis could be shown to suffer from significant shortcomings; even with modifications suggested by the theoretical framework, each was untenable on the grounds that it contradicted one or more core theoretical assumptions concerning Case, movement, or θ-theory. While recent analyses involving both A-movement and A$'$-movement operations were argued to represent a significant step forward in our understanding of the properties of *tough* movement, such analyses could still not be maintained without significant cost to fundamental aspects of current syntactic theory.

The analysis proposed in chapter 5 took somewhat of a reductionist view in attempting to reduce several unexplained theoretical issues related to TCs (including the *tough* subject's Case-mismatch and why apparent A-movement exhibits empirical characteristics of A′-movement) to a single factor: the internal structure of 0-operators. This innovative conception of 0-operators was based on Kayne's (2002) analysis of pronouns and antecedents: essentially, a complex 0-operator was argued to consist of a null pronominal D head, *pro*, and a coreferent DP (or potentially CP) in its Specifier. The whole complex 0-operator was assumed to undergo successive-cyclic A′-movement through each intermediate phase-edge position, thereby avoiding the illegal Transfer to the phonological and semantic components of the *tough* subject's remaining unchecked [*u*Case]. It was suggested that once the *wh*-movement of the whole 0-operator phrase terminates upon checking of the 0-operator's uninterpretable *wh*-features, the DP coreferent with *pro* is in a position in which its φ-features can be probed by the matrix T and from which it can subsequently raise to SpecTP. In this way, TM's unusual properties of both A-movement and A′-movement receive a natural explanation. The discussion of various potential objections to the complex 0-operator analysis also showed it to be largely compatible with the theoretical assumptions of the current framework.

Chapter 6 briefly introduced arguments in favour of extending the complex 0-operator analysis to object-control NOCs. This was considered desirable, as the proposed analysis of TCs required a fairly fundamental syntactic distinction between the type of 0-operator in TCs and that in other NOCs (under standard analyses of these NOCs), despite a range of empirical characteristics common to both. I demonstrated that an account whereby these NOCs involve an occurrence of PRO in the Specifier position of a complex 0-operator has potentially interesting consequences. Viewed in this way, TCs and other NOCs bear striking similarities to (subject) raising and control constructions respectively, the difference being that object-raising and object-control involve initial A′-movement of a complex 0-operator, pied-piping a DP in its Specifier which is either raised (as in TCs) or controlled (as in other NOCs). A general motivation for 0-operators was thus proposed: locality conditions on agreement cannot be satisfied between an object DP in an embedded clause and the relevant element of the matrix clause unless this DP can get a 'free-ride' into a higher position by occurring inside a complex 0-operator which itself merges as the object in the embedded clause.

7.1 Implications for minimalist theory

Since the foundation of generative syntactic theory, *tough* constructions have proved somewhat mysterious, for reasons which are now familiar. The somewhat exceptional status of TCs in syntactic theory is of considerable importance, representing one of the few constructions which appears incompatible with the most fundamental aspects of the syntactic framework. Moreover, as this situation has obtained throughout various syntactic frameworks (and particularly since the GB framework of Chomsky 1981), the stakes are high for any theoretical framework which can claim to offer an account of TCs compatible with its assumptions. The principal aim of this dissertation has thus been to provide evidence for the recent developments to the minimalist framework proposed by Chomsky (2000; 2001a), demonstrating that such modifications allow us to provide an account for a syntactic construction which has proved particularly problematic for syntactic theory.

I hope to have proposed an analysis which may offer new insight into TCs, compatible both with empirical concerns and with the core theoretical principles of Case, movement, and θ-theory: I consider this to represent an improvement upon the analyses reviewed in chapter 4. Crucially, the proposed analysis is largely dependent on recent minimalist reformulations of the relevant theoretical principles, notably concerning the independently motivated theories of Improper Movement based on feature-checking, and Case-assignment as a reflex of φ-agreement. If, as I suggest, the theoretical problems traditionally associated with TM may in fact be overcome by a new analysis made available by the current syntactic framework, considerable empirical support is lent to this version of the framework. However, the true implications of the analysis for minimalist theory depend ultimately on the adequacy of the proposed analysis; time, as ever, will tell.

The secondary purpose of this dissertation is to explore the extent to which TCs suggest modifications to the current minimalist framework. The theoretical principles of the minimalist framework have developed rapidly during its relatively short history and continue to do so, perhaps most significantly in response to conceptual concerns; the adequacy of the framework can thus only be independently evaluated with respect to explanation of empirical facts. It seems in fact that the proposed analysis of the complex 0-operator by and large needs no recourse to further modifications to the framework. The only significant point of departure from the assumptions of Chomsky (2000; 2001a;b) concerns the potential permission

of some variety of Spec-head agreement in certain cases: Spec-head agreement within the complex 0-operator might plausibly provide an explanation for coreference between *pro* and its Specifier. Similarly, the analysis as it currently stands requires that [*u*EPP] on the *pro* head of the complex 0-operator may be checked by first-Merge of a category in its Specifier (thus in the Spec-head configuration), *contra* Chomsky's (2001b) assertion that [*u*EPP] may only be checked as a reflex of movement into a Specifier.

7.2 Beyond the analysis of TCs

I have argued above that an innovative analysis of the 0-operator in English is to be adopted on the grounds that it provides the most minimal explanation for a number of empirical and theoretical issues relating to the syntax of TCs. Many issues remain, however. Notably, the requirement that the *tough* infinitival not have an overt complementiser or subject is unexplained, as well as certain issues relating to the complex interaction between TM and overt *wh*-movement (see, e.g., Jacobson 2000). Finally, I have not dealt with the set of empirical characteristics exhibited across full the range of NOCs (including TCs). I do not doubt that an analysis which could explain some of the more perplexing characteristics of TCs would be extremely desirable, nor that these merit further research. However, it has not been the aim of this dissertation to deal directly with occasional empirical anomalies, because even the most fundamental issues concerning the syntax of TM have long proved mysterious; it is this situation which I have attempted to address in this dissertation.

In addition to the proposed analysis, I have demonstrated that its extension in order to accommodate other object-control NOCs (whose related properties are also not entirely understood) may in fact be instructive in working towards a deeper understanding of 0-operators and their function. This unified account for 0-operators is by no means intended as a complete analysis of object-control NOCs, yet should be taken as indicative of the potential implications of refusing to accept the standard methodology for analysing TCs with respect to other NOCs. Although tentative, the extension of the complex 0-operator has significant consequences, challenging the common view that the status of TM in the syntactic framework is somehow 'exceptional' (which, of course, is in contradiction with speakers' grammaticality judgements). Viewed in this new light, the operations

involved in *tough* movement need no longer be considered in any way exceptional or anomalous: syntactic theory at last has a place for the *tough* construction.

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