

Null Arguments in English Registers

A Minimalist Account

A thesis presented by

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Contents

Statement of Authorship.....	iii
Abstract.....	iv
Acknowledgements.....	v
List of Symbols and Abbreviations.....	vi
Chapter 1. Introduction.....	1
Chapter 2. Previous Analyses.....	3
2.1 Non-Overt Subjects in Diaries.....	3
2.1.1 A Null Topic Analysis	6
2.1.2 Non-Overt Subjects in Early Child Speech	8
2.1.3 The Fine Structure of the Left Periphery	13
2.1.4 Haegeman's (1996, 1997) Analysis	15
2.2 Non-Overt Arguments in the Instructional Register	16
Chapter 3. A Brief Overview of Minimalism	20
3.1 Guiding Assumptions	20
3.2 The Computational Component.....	21
3.3 Bare Phrase Structure.....	24
3.4 The Operation Attract/Move.....	26
3.5 Checking Theory	27
3.6 The Structure of VP	29
3.7 Functional Categories and the Status of Agr	29
Chapter 4. A Minimalist Solution.....	32
4.1 Simple Constructions	33
4.2 <i>ec</i> in Subordinate Clauses.....	36
4.3 <i>ec</i> and <i>wh</i> -Movement.....	36
4.4 <i>ec</i> with Other Preposed Material	38
4.4.1 Preposed Adverbials to the Right of Top ⁰	39
4.4.2 Preposed Adverbials in [Spec, Top]	41
4.4.3 The Argument/Adjunct Asymmetry with Preposed Material	44
4.5 Non-Overt Arguments in the Instructional Register	45
4.6 Summary	49
Chapter 5. Implications for the Theory of Language	51
5.1 The Truncated Register.....	51
5.2 Colloquial Null Subjects	55
5.3 Non-Linguistic Processes	57
5.4 The Identification of <i>ec</i>	59
5.5 Concluding Remarks	61
References.....	63

Statement of Authorship

I certify that the attached document is my original work. No other person's work has been used without due acknowledgement in the text of the document.

Except where reference is made in the text, this document contains no material presented elsewhere or extracted in whole or in part from a document presented by me for another qualification at this or another institution.

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Abstract

The syntax of null arguments in the diary and instructional registers of English is investigated in a Minimalist framework. The first unified analysis of null arguments in the two registers is given.

Following Haegeman (1996, 1997) and Rizzi (1997) the null argument in these registers is analysed as an antecedentless nonvariable DP (*'ec'*) which is licensed only in the leftmost position of the clause. In clauses with such null arguments, a TopP (topic phrase) is posited as the highest projection. The head of this projection is taken to have a [D-] feature. The licensing requirement of *ec* ensures that it must raise to check the [D-] feature of the topic head, enabling *ec* to be identified with the discourse topic; if there is any closer [D] feature, then *ec* will not raise and it will fail to be licensed, causing the derivation to crash. It is shown that the distribution of *ec* in diaries and instructions can be captured on these assumptions. In each case where *ec* is ungrammatical, it is shown that some element with a [D] feature intervenes between *ec* and TopP, preventing *ec* from raising to a position where it can be licensed.

Telegraphese, note-taking and headlines, other registers of English which also exhibit null arguments, are then investigated to see if the analysis also extends to these cases. It is argued that the analysis cannot fully account for null arguments in these registers. However, subject drop in colloquial speech is demonstrated to be an instance of the same phenomenon, suggesting that null arguments, and in particular null subjects, are a general possibility in English rather than a marked phenomenon.

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Unfortunately, these people do not wish to be blamed for any remaining errors or omissions.

List of Symbols and Abbreviations

+	indicates adjunction (thus $\alpha + \beta$ indicates α is adjoined to β)
%	indicates a construction which is grammatical in some dialects
a	anaphoric (feature used in the classification of DPs)
AgrP	agreement phrase
Agr _O P	object agreement phrase
Agr _S P	subject agreement phrase
Agr _{Top} P	agreement phrase dominating TopP
A-P interface	articulatory–perceptual interface
C _{HL}	computational component of human language
C-I interface	conceptual–intentional interface
CP	complementiser phrase
DP	determiner phrase
<i>ec</i>	null constant, a null DP with the feature matrix $[-a, -p, -v]$
ϕ -features	person, number and gender features
F, <i>f</i>	feature
FF[α]	formal features associated with the element α
FI	Full Interpretation, the principle requiring economy of representation
FinP	finiteness phrase
FocP	focus phrase
ForceP	illocutionary force phrase
H(K)	head of K
I-language	internalised language, as represented in the mind of a speaker
imp	features associated with an imperative verb form
IP	inflection phrase
LF	Logical Form level of representation
LI	lexical item
N	numeration, the set of lexical choices entering into a computation
Obj	object
Op	null operator
p	pronominal (feature used in the classification of DPs)
PF	Phonetic Form
PF[α]	phonological features associated with the element α
<i>pro</i> _{Res}	<i>pro</i> used as a resumptive pronoun, specified as $[-a, +p, +v]$
Q	null <i>wh</i> -operator, such as occurs in <i>yes–no</i> questions
SD	structural description
SF[α]	semantic features associated with the element α
<i>Subj</i>	null subject in imperatives

TOp	null topic operator
TopP	topic phrase
TP	tense phrase
v	variable (feature used in the classification of DPs)
ν	light verb morpheme (see also νP)
Vb	abbreviation for the structure consisting of ν with V adjoined, [ν V + ν]
νP	Larsonian 'light' verb phrase dominating VP
X^0	a head of category X (possibly with elements adjoined)
X^{0max}	the maximal zero-level projection of X^0
X^{max}	the maximal projection of X
X^{min}	terminal element with no categorial parts

1. Introduction

It is commonly said that finite clauses in English, with the exception of imperatives, require overt subjects. This observation is found in various forms in traditional and generative grammars alike.¹ In this respect, English is contrasted with *pro*-drop languages such as Italian, where the subject may be non-overt.

Several linguists have observed, however, that in certain circumstances English does allow non-overt subjects in finite clauses other than imperatives. For example, Haegeman (1990a) notes that 1st person subjects are typically non-overt in diaries. Non-overt subjects are also found in note-taking (Janda 1985), telegrams (Barton 1998), newspaper headlines (Simon-Vandenberg 1981) and colloquial speech (Thrasher 1977). The instructional register (which includes recipes, instruction manuals, and so on) exhibits not only non-overt subjects, but also non-overt objects (Haegeman 1987a, Massam & Roberge 1989).

This thesis will begin by investigating the syntax of non-overt subjects in diaries, using the Minimalist framework of Chomsky (1995). Previous accounts of the phenomenon have used the earlier Principles-and-Parameters framework, and these accounts do not carry over to the new framework without substantive revision. The analysis I develop is more elegant than previous analyses and of greater generality in that in addition to accounting for the diary data it also naturally accounts for the phenomenon of non-overt arguments in instructional registers. Having provided a single account covering these two registers, we will then investigate if other registers which exhibit non-overt arguments can be given a similar analysis. While not all cases of non-overt arguments will fall within our analysis, the conclusion will

¹ Examples from traditional grammars include Curme (1931: 18), Huddleston (1984: 65) and Poutsma (1928: 129); examples from generative grammars include Cook (1988: 38–39), Ouhalla (1994: 275) and Roberts (1997: 149–150), although Cook does mention the ‘performance tendency’ to omit sentence-initial words, including subjects, in casual speech.

be that non-overt arguments are a general possibility in English, and that far from being a 'marked' phenomenon, it is perhaps the overt expression of the subject which is the marked option. This conclusion will follow in particular from consideration of the data on colloquial speech.

The thesis is laid out as follows. Chapter 2 gives a review of previous work dealing with non-overt arguments in the diary and instructional registers of English, and introduces the important data. Chapter 3 provides an explanation of some relevant aspects of the Minimalist framework. The main syntactic analysis is developed in Chapter 4. Here I give an analysis of the diary data, and show that this analysis also accounts naturally for null arguments in instructional registers. In Chapter 5 we step back to consider the broader implications of this analysis, looking in particular at whether non-overt arguments in other registers may be analysed in the same way. The considerations in Chapter 5 will lead us to a radical reinterpretation of important aspects of register variation and the grammar of English.

2. Previous Analyses

This chapter will review the relevant literature on non-overt arguments in the diary and instructional registers of English. This will provide us with an overview of the data relating to non-overt arguments in these registers, as well as introducing a range of proposals to account for these data.

2.1 *Non-Overt Subjects in Diaries*

We start by looking at non-overt subjects in diaries. Several attempts have been made to account for this phenomenon. Haegeman (1990a, 1990b) gives the first detailed account within the Principles-and-Parameters framework.²

The phenomenon is characterised by examples such as (1).

- (1) a. Saw no one
b. Hurt myself when trying to cut the roses
c. Left the party exhausted
(Haegeman 1990a: 161)

Haegeman argues that the subject of such sentences while non-overt is nevertheless syntactically represented. She argues this on the basis of the following evidence. The non-overt subject (henceforth *ec*) is assigned the external θ -role of the verb (as in (1a), for example, where *ec* is understood as EXPERIENCER of *see*). Also, *ec* can bind a reflexive anaphor, as in (1b). Finally, the *ec* can take a predicative adjective such as *exhausted* in (1c). These three properties of *ec* would require that it is syntactically represented. To show this, Haegeman contrasts these properties with the properties of a true null argument, the understood external argument in passives, which is taken to

² This is also commonly referred to as the Government-Binding framework. For an introduction, see Haegeman (1994).

be syntactically unrepresented (except when it appears in an optional *by*-phrase).

- (2) a. They sold the book
 a'. The book was sold
 b. They sold the book to themselves
 b'. *The book was sold to themselves
 c. Keen to make money they sold the book
 c'. *Keen to make money the book was sold

Unlike the non-overt subject in diaries, the understood argument in passives (*they* in (2a')) is not assigned the external θ -role of the verb (in this case AGENT). Neither can the understood argument of a passive bind a reflexive anaphor (2b'). Finally, the understood argument of a passive cannot be interpreted as the subject of the predicate *keen to make money* (2c'). Haegeman concludes that the non-overt subject in diaries is syntactically represented by an empty category, *ec*.

Principles-and-Parameters theory provides a typology of overt and non-overt DPs (which until the late 1980s were analysed as NPs) and constraints on their distribution and interpretation. The basis for this typology are the features $[\pm a(naphoric)]$ and $[\pm p(ronominal)]$. The possibilities are summarised in table 1.

Type	OVERT	NON-OVERT
[+a, -p]	reflexives, reciprocals	DP-trace
[-a, +p]	pronouns	<i>pro</i>
[-a, -p]	R-expressions	<i>wh</i> -trace
[+a, +p]	—	PRO

Table 1.

Typology of DPs.

Haegeman notes that the non-overt subject in diaries is usually the 1st person author of the diary, but that 1st person plural and 3rd person subjects can also be non-overt, as in (3).

- (3) a. *ec* saw no one after we had left the party³
 b. Can I describe Old Kot yesterday. *ec* had hurt himself while trying to cut the roses
 (Haegeman 1990a: 165–166)

Haegeman also observes some syntactic constraints on the distribution of non-overt subjects in diaries. They do not occur in subordinate clauses (4a), with object topics (4b) or with *wh*-movement (4c). The non-overt subject is not restricted to the first position of the clause, however (4d).

- (4) a. *I/*ec* wonder when *ec* will see her again
 b. *This book, *ec* did not approve of
 c. *When will *ec* be able to meet him?
 d. So *ec* shall stop writing for a day
 (Haegeman 1990a: 163–4)

Haegeman (1990b) also points out that *ec* does not occur with *yes-no* questions (5).

- (5) *Will *ec* be able to meet him?
 (Haegeman 1990b: 169)

In addition to syntactic constraints, Haegeman notes a pragmatic one. The referent of *ec* must be recoverable from the context: only subjects that are discourse topics can be omitted. This observation leads Haegeman to propose that diary sentences with non-overt subjects involve some form of topicalisation. Let us look at Haegeman's proposal in more detail.

³ The person and number features of *ec* are ambiguous in this example (they may be 1st or 3rd person singular or plural). The important point, however, is that the features are not restricted to 1st person singular.

2.1.1 A Null Topic Analysis

Given the syntactic constraints on its distribution, Haegeman (1990a, 1990b) argues that *ec* must be some kind of *wh*-trace. The other possibilities are ruled out. *ec* cannot be PRO, since unlike *ec* PRO does not occur in finite clauses and is in complementary distribution with overt DPs. The distribution of *ec* also indicates that it cannot be *pro*. In those languages where it is licensed, *pro* is not restricted to matrix clauses and can occur with *wh*-movement. The possibility that *ec* is a DP-trace is also ruled out. DP-traces do not alternate with overt DPs, and there is no DP-antecedent in the sentence of which *ec* could be the trace.

Haegeman argues that *wh*-trace is a more likely candidate. *wh*-traces are left by elements which undergo movement to an A'-position. Topicalisation structures have been analysed as involving movement to a pre-sentential A'-position (6a), and in certain languages such as Portuguese a non-overt topic operator can undergo such movement (6b). Haegeman proposes that diary sentences with non-overt subjects similarly involve movement of a non-overt topic operator, as in (6c).

- (6) a. Bill Jones_i [I saw *t_i* on television last night]
 b. TOp_i [a Juana viu *t_i* na televisao ontem a noite]
 'Juana saw him/her/it on television last night'
 c. TOp_i [*t_i* left at twelve]
 (Haegeman 1990a: 175–176)

The constraints on the distribution of *ec* provide further support for it being a *wh*-trace. Like *ec*, the *wh*-trace left by overt topicalisation cannot occur in the subject position of a subordinate clause after *whether* or *after*.

- (7) a. * He wonders whether *ec* will see him again
 a'. * Which man_{*i*} do you wonder whether *t_i* will return?
 b. * He left after *ec* had seen him
 b'. * Which man_{*i*} did you leave after *t_i* came in?
 (Haegeman 1990a: 174)

Haegeman (1990a, 1990b) proposes that there is only one pre-sentential A'-position available for *wh*-movement, [Spec, CP]. This explains why *ec* is not compatible with an overt topic or with *wh*-movement, both of which require movement to the same position as *ec*. Haegeman (1990b: 169) suggests that the prohibition on *ec* occurring with *yes-no* questions could be similarly accounted for if it is assumed that these constructions have a non-overt *wh*-operator in [Spec, CP].

There is, however, a problem with this analysis, as Haegeman points out. If the non-overt subject is the trace of a null topic operator, there is no reason why the phenomenon should be restricted to subjects. Indeed, the null topic operator in Portuguese can occur in object position as well as subject position, as can be seen in (6b). But in diaries, non-overt objects do not occur, as can be seen in (8).

- (8) *Bill did not greet *ec*

Haegeman's analysis also raises another problem. Although she analyses *ec* as the trace of a null topic operator, the non-overt subject in diaries does not always have a null-topic interpretation. In the following examples, we see that the null subject can receive a quasi-argument or expletive reading (9), whereas topicalisation of quasi-arguments or expletives is not possible, as can be seen in (10).

- (9) a. *ec* rained in the night, wind, rain, and hail
 b. *ec* isn't much we can do about it
 (Haegeman 1996: 13)

- (10) a. * It, at lunch-time, was raining very heavily
 b. * There, last week, was no chance to talk

These two problems are addressed by Rizzi (1994), who in an influential paper proposes a somewhat different analysis from that of Haegeman. Rizzi's analysis gives a unified account of non-overt subjects in early child speech and in adult diaries, and shows why non-overt objects are not possible.

2.1.2 *Non-Overt Subjects in Early Child Speech*

Rizzi (1994) notes that children of around age 2 years freely drop subjects, irrespective of whether the language they are acquiring is a null subject language. Children at this age also drop determiners and auxiliary verbs, but objects are not freely dropped.

The production of such 'early null subjects' has been interpreted as the effects of an early positive setting of the null subject (or *pro*-drop) parameter (see Hyams 1986 and much subsequent literature). On this view, children acquiring non-*pro*-drop languages correct their mis-setting of the parameter a few months after their second birthday and hence stop producing sentences with non-overt subjects.

Rizzi observes, however, that some of the structural properties of early null subjects suggest that the phenomenon is very different from subject-drop in a *pro*-drop language such as Italian. Early null subjects rarely occur after a preposed *wh*-element, but often occur in *wh*-in-situ constructions, suggesting that the phenomenon is not sensitive to the status of the sentence as a question. Furthermore, early null subjects are limited to main clauses. Thus, Rizzi notes, early null subjects seem to be limited to the first position in a structure. There are no such limitations on *pro*, on the other hand, which can occur after preposed *wh*-material as well as in subordinate clauses. The

closest analogue to early null subjects, Rizzi notes, is the non-overt subject in diaries, for which Haegeman proposed a null topic operator analysis.

Rizzi suggests a different analysis, which avoids the problems of Haegeman's null topic operator analysis. Rizzi's analysis draws on work by Lasnik & Stowell (1991), who observe that certain constructions with null operators (11a) differ significantly at the interpretive level from ordinary operator–variable constructions such as questions (11b).

- (11) a. John is easy Op_i to please t_i
 b. John wonders who_i to please t_i

Ordinary operator–variable constructions involve quantification ranging over a possibly non-singleton set, but in the case of constructions such as (11a) the null element has its reference fixed to that of the antecedent.

Lasnik & Stowell point out that this interpretive difference correlates with sensitivity to crossover effects. While both kinds of A'-binding show sensitivity to strong crossover (12), only genuine quantification is sensitive to weak crossover effects (13).

- (12) a. * Who_i did you get him_i to talk to t_i ?
 b. * $John_i$ is easy for us Op_i to get him_i to talk to t_i
- (13) a. * Who_i did you get his_i mother to talk to t_i ?
 b. $John_i$ is easy for us Op_i to get his_i mother to talk to t_i

Lasnik & Stowell make a distinction between the two types of A'-bound traces: only the trace bound by a genuine quantifier is a variable; the trace bound by the non-quantificational empty operator is not, it is a *null constant*. The null constant is a non-variable R-expression, which can be considered a null epithet or more generally a null definite description. Lasnik & Stowell claim that weak crossover is a property of variables, which is why null constants are exempt. As Principle C of Binding Theory is a property of

all R-expressions, the homogenous behaviour with respect to strong crossover is accounted for.

In light of Lasnik & Stowell's discussion, Rizzi proposes that empty categories have a feature $[\pm v(\text{variable})]$, in addition to the features $[\pm a]$ and $[\pm p]$ (see table 1 on p. 4). This gives rise to eight cases, summarised in table 2 below.

Type	[+v]	[-v]
[+a, -p]	—	DP-trace
[-a, +p]	pro_{Res}	pro
[-a, -p]	wh -trace	null constant
[+a, +p]	—	PRO

Table 2.

Typology of Non-Overt DPs (revised).

The two cases with [+a, +v] Rizzi assumes to be excluded by the inherent impossibility of a variable anaphor: anaphors are by definition non-variable, since they are referentially dependent on an antecedent. Given that $[+a, -p, -v] = \text{DP-trace}$, $[-a, +p, -v] = pro$, $[-a, -p, +v] = wh\text{-trace}$ and $[+a, +p, -v] = \text{PRO}$, this leaves two new cases, $[-a, +p, +v]$ and $[-a, -p, -v]$. Rizzi proposes that the former characterises pro when it is used as a resumptive pronoun (see Rizzi 1982, ch. 2) and that the latter is the null constant.

Rizzi then follows Lasnik & Stowell in proposing that like all non-pronominal empty categories the null constant must satisfy an identification requirement, imposed by the Empty Category Principle as follows.

(14) *Empty Category Principle (identification)*

Non-pronominal empty categories must be chain connected to an antecedent.

Rizzi accounts for the diary and early child speech data by proposing that the null constant itself is in the specifier of the root in such constructions. To

avoid a violation of the identification requirement, Rizzi extends (14) as follows.

(15) *Empty Category Principle (identification)*

Non-pronominal empty categories must be chain connected to an antecedent *if they can be*.

This has the effect of exempting the specifier of the root from the identification requirement, leaving it available for discourse identification. As Rizzi points out, however, A'-positions are not suitable hosts for the null constant (or the other null elements PRO, DP-trace, etc.), the feature system being taken to define only elements in A-positions. This means that a null constant is only possible if the specifier of the root is an A-position. To account for this, Rizzi proposes that in diaries and early child speech CP is optionally not projected, so that a null constant in the specifier of the root IP is licit.

To explain why CP need not be projected in certain contexts, Rizzi (1994: 162–164) invokes a principle which states that the root must be CP. Children who produce sentences with *ec* have not yet acquired this principle, allowing roots other than CP. Rizzi suggests that this principle is weak, in that it may be 'turned off' in adult speech in certain situations. Haegeman (1997: 245) suggests an alternative explanation. She proposes that CP anchors a clause to context by mediating in all discourse relations. In the registers which allow *ec*, the discourse context is restricted, allowing CP-mediated discourse relations to be dispensed with.

Rizzi then turns to the problem of null expletive subjects. Recall that one problem with Haegeman's null topic operator analysis is that while expletive subjects cannot be topicalised, they may nevertheless be null in diaries. On Rizzi's analysis, the problem is whether an expletive subject can be a null constant. Rizzi notes that this is not necessarily problematic. In principle,

nothing prevents expletives from being null, and indeed in some languages *pro* may function as an expletive. There seems no reason to suppose that *ec* may not also function as a null expletive.⁴

This analysis accounts in a natural way for the lack of non-overt objects in diaries, and also for the fact that expletives may be null, two problems raised by Haegeman's null topic account. But Rizzi's analysis raises a problem of its own. Since *ec* is licensed only in the specifier position of the root, which is the leftmost position in the clause, Rizzi's analysis predicts that *ec* must always occupy the leftmost position in the clause. But this prediction is not correct. As the following examples illustrate *ec* can co-occur with preposed constituents, in both diaries (16) and early child speech (17).

- (16) a. So *ec* parted...
 b. At night *ec* sent a packet to London
 (Haegeman 1996: 27)
- (17) a. encore *ec* veut jouer (Augustin 2.2.13)
 again want play
 b. A la poste *ec* a aussi magasin (Augustin 2.9.2)
 at the post office has also shop
 (Haegeman 1996: 23–24)

ec cannot, however, occur with overt argument topicalisation, as can be seen in (18).

- (18) *John, *ec* don't like

To address the problem of preposed material, Haegeman (1996, 1997) develops a revised analysis which draws on research by Rizzi (1995, 1997) into the structure of CP. Before reviewing Haegeman's revised analysis, let us look briefly at Rizzi's research.

⁴ The same explanation could also be given for null quasi-arguments such as 'weather' *it*.

2.1.3 *The Fine Structure of the Left Periphery*

Rizzi (1995, 1997) argues that CP is not a single projection, but is in fact made up of separate functional projections each encoding a distinct aspect of the syntax. Rizzi develops his argument by initially looking at the kinds of syntactic information encoded by CP.

First, Rizzi notes that CP acts as an interface between propositional content (the IP) and the superordinate structure (a higher clause, or some representation of discourse). Complementisers encode something about the nature of the IP, *finiteness*, as well as encoding the *force* of the sentence (whether it is a declarative, exclamative, and so on). In addition, CP can have other functions. Examples given by Rizzi include the topic–comment structure (19) and the focus–presupposition structure (20). In the latter case, the preposed element, bearing focal stress, introduces new information.

(19) Your book, you should give *t* to Paul (not to Bill)

(Rizzi 1997: 285)

(20) YOUR BOOK you should give *t* to Paul (not mine)

(Rizzi 1997: 285)

Rizzi proposes that such structures involve a kind of ‘higher predication’, with a Foc^0 (or Top^0) head taking the focus (or topic) as its specifier and the presupposition (or comment) as its complement. Some justification for postulating topic and focus projections comes from the fact, noted in Rizzi (1997: 287), that Top^0 and Foc^0 morphemes are overt in a range of languages (Rizzi gives the example of Gungbe, which has been analysed as having an overt Foc^0 morpheme).

Rizzi then assumes that the force–finiteness system is always projected (except in special contexts such as child speech and diary registers), whereas the topic–focus system is projected only as required. Rizzi notes that if the topic–focus system is activated, it must be sandwiched between force and

finiteness. This is because force, as the assumed interface between the clause and superordinate structure, must be the highest projection in the clause; similarly finiteness, which is the interface with IP, must immediately dominate IP. Rizzi thus proposes to decompose CP into the following hierarchy of functional projections.

(21) Force ...(Topic) ...(Focus) ...Finiteness ...

Rizzi then gives some examples from Italian which indicate that while there can only be one structural focus position in a clause (22a), there can be as many topics as are consistent with the topicalisable arguments and adjuncts of a clause (22b). Furthermore, topics can occur to the left or to the right of focus (23).

- (22) a. * A GIANNI IL LIBRO darò (non a Piero, l'articolo)
 “To JOHN THE BOOK I'll give, not to Piero, the article”
 b. Il libro, a Gianni, domani, glielo darò senz'altro
 “The book, to John, tomorrow, I'll give it to him for sure”⁵
 (Rizzi 1997: 290)

- (23) A Gianni, QUESTO, domani, gli dovrete dire
 “To John, this, tomorrow, you should tell him”
 (Rizzi 1997: 291)

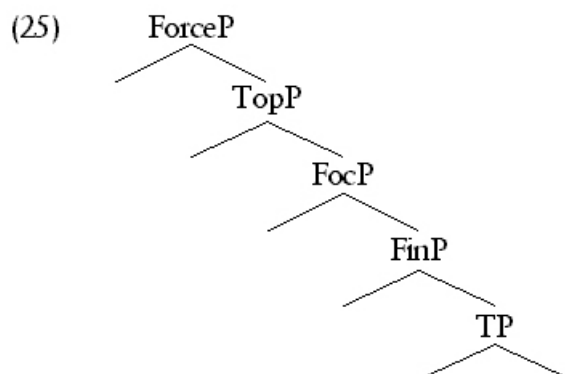
These observations lead Rizzi to propose that the full structure of CP is as follows.

(24) ForceP ...(TopP)* ...(FocP) ...(TopP)* ...FinP ...

⁵ In English, multiple topicalisations seem more awkward, as indicated by the unacceptability of the English glosses to (22b) and (23). Multiple topicalisations are not impossible, however, as examples such as (ii) appear to be quite acceptable.

(ii) John, these days, I disapprove of
 Thanks to Peter Kipka for this example.

Thus, for example, the structure of a clause with one topic and one focus, where the topic is to the left of the focus, would be as follows.



Rizzi considers a number of pieces of evidence in support of the structure in (24). The reader is referred to Rizzi's papers for further elaboration.

2.1.4 Haegeman's (1996, 1997) Analysis

Let us now look at Haegeman's revised analysis, presented in Haegeman (1996, 1997). She follows Rizzi (1997: 321) in assuming that certain functional heads, including Top^0 , can be associated with Agr specifications in the form of a dominating Agr projection. To explain the possibility of *ec* occurring with preposed adjuncts, Haegeman proposes that *ec* moves from [Spec, IP] to [Spec, $\text{Agr}_{\text{Top}}\text{P}$], over the topicalised adjunct in [Spec, TopP]. This puts *ec* in the specifier of the root, allowing it to be identified.

The incompatibility of *ec* with preposed *wh*-material then follows. Haegeman follows Rizzi (1997) in proposing that *wh*-movement targets [Spec, FocP] to check the *wh*-feature of Foc^0 . Then Foc^0 will agree with its *wh*-specifier, and thus will have different features from *ec* and will not be coindexed with it. Foc^0 cannot then act as a governor for the trace of *ec* in [Spec, IP], which will thus fail to be licensed.

The incompatibility of *ec* with overt topicalisation also follows. The topicalised argument will be in [Spec, TopP], and thus Top^0 will agree with this

argument via spec–head agreement. The features of Agr_{Top} will by definition match those of Top^0 (since Agr_{Top} is taken to encode the agreement properties of Top^0). *ec*, however, will have different features (agreeing with neither Top^0 nor Agr_{Top}). *ec* is thus prevented from raising to $[\text{Spec}, \text{Agr}_{\text{Top}}\text{P}]$ and hence cannot fulfil its licensing requirement.

Haegeman’s revised analysis thus manages to account for the data on non-overt subjects in diaries.

2.2 Non-Overt Arguments in the Instructional Register

Recall that Haegeman’s original null topic analysis wrongly predicts that null objects should be possible in diaries in addition to null subjects. In fact, however, there is a register which exhibits null objects alongside null subjects: the register of instructional writing used in cookbooks and other instruction manuals. This register is characterised by imperative sentences with non-overt objects, as in (26a), but also commonly contains sentences (other than imperatives) with non-overt subjects (26b).

- (26) a. Take 6 eggs. Beat *ec* well
 b. *ec* serves ten people

Not surprisingly then, a null topic operator analysis has been proposed to account for the presence of non-overt arguments in this register.

The first analysis was presented in Haegeman (1987a, 1987b). Haegeman (1987b) begins by showing that the phenomenon is not akin to indefinite object drop, the process illustrated in (27) whereby a transitive verb may lack an object, with an indefinite object being understood.

- (27) a. This analysis led the students [PRO to the conclusion that...
 a'. This analysis led [PRO to the conclusion that...
 b. They are eating baked beans and toast
 b'. They are eating
 c. Sheila paints landscapes in her spare time
 c'. Sheila paints in her spare time
 (Haegeman 1987b: 235–236)

Haegeman notes that only a relatively small set of verbs undergo indefinite object drop, a set which is lexically governed. Thus verbs which are closely related in their semantics, such as *eat* and *devour*, contrast in their ability to undergo indefinite object drop (compare (27b') and (28)).

- (28) *They are devouring
 (Haegeman 1987b: 236)

There does not seem to be any constraint on which verbs may occur with non-overt objects in recipes. Haegeman (1987b) also argues that non-overt objects in the instructional register are syntactically represented, since they can control PRO (29a) and may be modified by adjunct clauses (29b), properties which implied indefinite objects do not share (30).

- (29) a. Allow the mixture/*ec* [PRO to set]
 b. Serve the chicken/*ec* [covered by the vegetables]
 (Haegeman 1987b: 237)

- (30) a. This leads people [PRO to conclude that...
 a'. * This leads [PRO to conclude that...
 b. In general that famous artist paints women dressed in black
 b'. In general that famous artist paints dressed in black
 (Haegeman 1987b: 237)

where *dressed in black* can modify either *that famous artist* or *women* in (30b), but only *that famous artist* in (30b').

In light of this evidence that the non-overt object is syntactically represented, Haegeman (1987b) proposes that there is an empty category in object position in such clauses.⁶ She proposes that the empty category is a *wh*-trace left by the movement of a null topic operator.

In support of her analysis Haegeman observes that as with other *wh*-movement, the non-overt object in instructional registers is sensitive to NP [or DP] islands⁷ and adjunct islands, as can be seen from the unacceptability of the examples in (31).

- (31) a. ?Lift the chicken pieces out of the wine, preserving [_{DP} the mixture
[in which you have marinated *ec*]]
b. ?Boil eggs for the salad while you roast *ec*
(Haegeman 1987b: 240)

Another possible analysis for non-overt objects in this register is presented in Massam & Roberge (1989). While also discussing the possibility of a null topic operator analysis, Massam & Roberge note that *ec* could instead be a DP-trace. The moved element in this case would be a non-overt discourse topic (rather than an operator).

None of the analyses discussed in this chapter, however, are able to capture the obvious similarities between missing arguments in the diary register and in the instructional register. An important observation is that the null arguments in these registers are identified with the topic of the text—in the case of diaries the author of the diary, unless another referent is specifically

⁶ Haegeman (1987a) argues for a PF-deletion analysis of missing objects in the instructional register. Subsequent work by Haegeman does not adopt such a proposal, and I shall not go into the details of the PF-deletion analysis here.

⁷ This is Ross's 'Complex NP Constraint'. See Ross (1967).

signalled in the preceding discourse; in the case of instructions, the topic of the instructions. In the absence of strong evidence to the contrary, a unified analysis is desirable. But as we have seen, a null topic operator analysis for the diary data is unable to account for the fact that non-overt objects are not found in that register, and are in fact ungrammatical.

In the chapters which follow, I will develop an analysis which accounts for the data from both the diary and instructional registers.

3. A Brief Overview of Minimalism

Before embarking on any analysis it may be useful to give a brief overview of the Minimalist framework. This will provide the broad theoretical base on which the following chapters will build. It will not only give the non-specialist reader some necessary background, but will also introduce a number of key ideas which will be of importance in the subsequent analysis.

It is not my intention here to give any of my own interpretations of Minimalism, or propose any modifications; I merely wish to summarise some basic tenets of the theory. To that end I will rely almost exclusively on the material presented in Chomsky (1991, 1993, 1994 and 1995), particularly the most recent of these, turning occasionally to other sources where clarification or further elucidation is necessary. It should be noted, however, that the framework is a recent one, and many of the details still need to be worked out. For concreteness I have often had to choose one of several alternative definitions for certain key concepts, but I have made a note of this where the choice has significant consequences.

3.1 Guiding Assumptions

A language (strictly, an I-language) is a procedure which generates structural descriptions (SDs) in the form of a pair (π, λ) . π is a PF representation, which consists of objects that can receive an interpretation (perhaps as gibberish) at the articulatory–perceptual (A-P) interface. λ is an LF representation, which consists of objects that can receive an interpretation (again, perhaps as gibberish) at the conceptual–intentional (C-I) interface. A representation which consists solely of such interpretable objects satisfies the condition of Full Interpretation (FI).

The language L determines a set of computations or *derivations*. A derivation *converges* if it yields a representation satisfying FI at both interface levels; otherwise it *crashes*.

Not all convergent derivations determined by L yield linguistic expressions of L . To be a linguistic expression of L a convergent derivation must also be *optimal*, satisfying certain natural economy conditions.

Let us now look more closely at the computational system C_{HL} that derives (π, λ) .

3.2 The Computational Component

Take the array of lexical choices which enters into a computation to be a *numeration* N , a set of pairs (LI, i) where LI is a lexical item and i is its index (the number of times it is selected). Then C_{HL} maps $N \rightarrow (\pi, \lambda)$. For example, the sentence in (32a) would have been derived from the numeration (32b).

- (32) a. The man bit the dog
 b. $\{(the, 2), (man, 1), (bite, 1), (dog, 1)\}$ ⁸

Consider just the computation $N \rightarrow \lambda$ at a particular stage, which we can take to be represented by a set $\{SO_1, \dots, SO_n\}$ of syntactic objects. One of the operations of C_{HL} is *Select*, a procedure that selects a lexical item LI from the numeration, reduces its index by one, and introduces it into the derivation as SO_{n+1} . A computation constructed by C_{HL} only counts as a derivation if all indices are reduced to zero.

A second operation is *Merge*, which takes a pair of syntactic objects (SO_i, SO_j) and combines them to form a new syntactic object SO_{ij} . A deriva-

⁸ For simplicity, I have not included various features of the lexical items (such as Case, number, and so on). These features are taken to be specified for an item when it is selected for the numeration, except for inherent features specified in the lexical entry for that item.

tion converges only if Merge has applied often enough to leave a single object, also exhausting the initial numeration.

The numeration N also serves to determine the reference set for the purposes of selecting the optimal derivation. At a given stage Σ of a derivation, the reference set is the set of possible convergent ‘continuations’ of Σ , given what remains of N .⁹ C_{HL} chooses an operation such that Σ will lead to the optimal convergent derivation in the reference set.

A condition on the computation $N \rightarrow \lambda$ is that it merely rearrange the features of the lexical items, and not add any new elements. The operation Delete α , prima facie a violation of the condition, is assumed to mark an object invisible at the interface, leaving it accessible to C_{HL} , and hence not violating this condition.

At some point in the computation $N \rightarrow \lambda$ the operation Spell-Out applies to the structure Σ already formed. Spell-Out strips away from Σ those elements relevant only to π , leaving the residue Σ_L which is mapped to λ .

The subsystem of C_{HL} that maps $\Sigma \rightarrow \pi$ is known as the *phonological component*; the subsystem that maps $\Sigma_L \rightarrow \lambda$ is known as the *covert component*; and the subsystem that maps $N \rightarrow \Sigma_L$ is known as the *overt component*.

Two (disjoint) sets of lexical features are distinguished: (i) phonological features and (ii) semantic and formal features. Phonological features are those which receive an interpretation only at the A-P interface. Semantic features are those which receive an interpretation only at the C-I interface and formal features are those such as $[\pm N]$ or $[\pm \text{plural}]$ which are accessible

⁹ Chomsky (1995: 348) also considers the possibility of defining the reference set as the set of possible ‘next steps’ from Σ , given what remains of the numeration N . This idea is taken up in Collins (1997), though following this path leads to significant revision of several aspects of the Minimalist framework, and would thus be difficult to integrate into the current overview.

in the course of the computation. Phonological features are invisible to overt operations.

A formal feature may or may not be strong (this is one element of language variation). Strong features must be eliminated before Spell-Out, otherwise the derivation crashes.¹⁰ Thus a strong feature forces an overt operation to eliminate it. Strong features are eliminated by *checking* (see section 3.5 below). Feature strength is restricted by (33).

(33) If F is strong, then F is a feature of a nonsubstantive category and F is checked by a categorial feature.

where the substantive categories are taken to be noun, (main) verb, adjective and particle.

Thus, nouns, main verbs, adjectives and particles do not have strong features, and a strong feature always calls for a certain *category* (rather than some other kind of feature) in its checking domain.¹¹ It follows that overt movement of β to α to form [Spec, α] is possible only when α is nonsubstantive and a categorial feature of β is involved in the operation. Thus the Extended Projection Principle (which forces the presence of a subject) plausibly reduces to a strong D-feature of the Tense projection T, and overt *wh*-raising plausibly reduces to a strong D-feature of C.

The general principle of derivational economy is Procrastinate, expressed as follows.

¹⁰ Chomsky (1995: 233, 234 ex. 3) states that if a strong feature is not eliminated, the derivation is *cancelled*. Kitahara (1997: 3–4) makes a similar claim in his summary of the Minimalist framework. Both of these authors appear to in fact mean that under these circumstances the derivation *crashes*. Cancellation, as defined in Chomsky (1995: 309) is a much stronger notion than crashing: if a derivation cancels, no convergent but less economical alternative can be chosen instead. The presence of a strong feature, on the other hand, forces a less economical alternative to be chosen (namely, a derivation with an overt operation which eliminates the strong feature but violates Procrastinate). Procrastinate will be discussed shortly.

¹¹ 'Checking domain' will be defined in section 3.3 below.

(34) *Procrastinate*

Do not move overtly unless necessary for convergence.

Strong features, in forcing overt movement, cause Procrastinate to be violated. Strong features also induce cyclicity: a strong feature cannot be ‘passed’ by α that would satisfy it, and later be checked by β , as this would allow Relativised Minimality violations (in the sense of Rizzi 1990). Thus in (35), α cannot raise to f , passing the strong feature F , even if there is some β which could then raise to check F .

(35) ... f ... F ... α ... β ...

This property of strong features follows from a constraint (derived by Chomsky 1995: 234–235) which forces a strong feature of a head H to be eliminated before H is embedded in a distinct category (i.e., one not headed by H).

3.3 Bare Phrase Structure

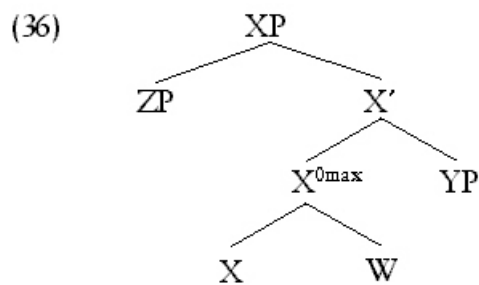
Minimalism eliminates X' -theory, deriving the required properties from more basic principles.

X^{\max} and X^{\min} are the only projections accessed by the C-I interface. These are relational properties of categories, not properties inherent to them: a category that does not project any further is X^{\max} (XP), and a category that is not a projection at all is X^{\min} ; any other projection is X' , invisible at the interface and for computation.

A category X^{\min} is a terminal element with no categorial parts. The term *head* is restricted to terminal elements. An X^0 category is a head or a category formed by adjunction to a head X , which projects. The maximal zero-level projection of the head X is referred to as $X^{0\max}$.

We are now in a position to give the formal definition of checking domain. We first need to define some more basic graph-theoretic notions. Take all relations to be irreflexive unless otherwise stated. Assume the standard (reflexive) notion of dominance. Given the pair (δ, β) , δ a segment of category K , then K *includes* β if every segment of K dominates β , and K *contains* β if some segment of K dominates β . Suppose α is a feature or an X^0 category. Then $\text{MAX}(\alpha)$ is the smallest maximal projection including α . The *domain* $\text{DOM}(\alpha)$ of α is the set of categories included in $\text{MAX}(\alpha)$ that are distinct from and do not contain α . Let the *complement domain* of α be defined as the subset of $\text{DOM}(\alpha)$ reflexively dominated by the complement of the construction. The remainder of $\text{DOM}(\alpha)$ is the *residue* $\text{RES}(\alpha)$ of α . Now define the *minimal residue* $\text{MIN}(\text{RES}(\alpha))$ of α as the smallest subset K of $\text{RES}(\alpha)$ such that for any $\gamma \in \text{RES}(\alpha)$, some $\beta \in K$ reflexively dominates γ . $\text{MIN}(\text{RES}(\alpha))$ corresponds to the *checking domain* of α .

Informally, we can say that the checking domain of a head X consists of $[\text{Spec}, X]$ and any category adjoined to X (but not categories adjoined to XP). Consider the following structure.



Here the checking domain of X consists of the set $\{W, YP, ZP\}$. Note, however, that the categories dominated by these three elements are not part of the checking domain.

3.4 The Operation Attract/Move

Movement is driven by the requirement that some feature F must be checked. On Minimalist assumptions, then, only F is required to move, not the category K of which F is a feature. F carries along with it just enough material for convergence: in the case of overt movement, the category K (since the category must remain intact for phonological interpretation); in the case of covert movement, F carries along just its formal features $FF[F] = FF[LI]$. If an operation applies and K projects, we say that K is the *target* of the operation.

A more natural interpretation of the operation is in terms of attraction, as in (37).

- (37) K *attracts* F if F is the closest feature that can enter into a checking relation with a feature f contained within $H(K)^{0max}$, the maximal zero-level projection of the head of K .

We will return to consider the precise meaning of ‘close’ below.

If K attracts F then α merges with K and enters its checking domain, where α is the minimal element including $FF[F]$ that allows convergence. The operation forms the chain (α, t) with a condition on the operation that α must c-command its trace in the chain formed. This rules out operations which would lower α , or move it “sideways”.

Closeness is defined as follows. For K a category c-commanding α , β

- (38) β is closer to the target K than α if β c-commands α .¹²

¹² Chomsky (1995) also suggests a more complex alternative. If β c-commands α then for K a category and τ a target position for raising

(iii) β is *closer to* K than α unless β is in the same *minimal domain* as
(a) τ or (b) α .

3.5 Checking Theory

As noted above, movement is always driven by the need to check some morphological feature. The checking relation is defined as follows.

A feature F can enter into a checking relation with a head H (or a feature contained within $H^{0\max}$) if F is in the checking domain of H , defined as $\text{MIN}(\text{RES}(H))$. Note that the following principle follows from the definition of checking domain.

(39) α adjoined to nonminimal K is not in the checking domain of $H(K)$.¹³

We have so far considered only elements entering the checking domain through movement. But elements may also be introduced by Merge alone. We assume that only nonarguments, and those arguments which head nontrivial chains, can enter the checking domain through merger. Such a restriction is natural if Attract F is the formal expression of the feature-checking property of language. It is empirically motivated by a number of considerations. Thus, without this restriction, the subject would be assigned accusative Case and would take on the object-agreement features of a transitive main verb when inserted in [Spec, V].

The checking of features has an effect on those features as follows.

(40) A checked feature is deleted when possible.

where α, β are equidistant from K if α and β are in the same minimal domain. The minimal domain $\text{MIN}(\text{DOM}(\alpha))$ of α is the smallest subset K of $\text{DOM}(\alpha)$ such that for any $\gamma \in \text{DOM}(\alpha)$, some $\beta \in K$ reflexively dominates γ . I will use the more simple formulation of closeness, given in (38), which is clearly to be preferred if tenable, though Chomsky notes that there are some apparent counterexamples.

¹³ Note that this principle bars all adjunction (by Move) except adjunction of α to an X^0 , where α is a feature, or in the overt syntax an X^0 . Independent considerations also rule out adjunction by Merge for a wide range of cases (see Chomsky 1995: 329–332). There is considerable empirical justification for barring all YP adjunction to XP, though it is possible that this is allowed in a limited range of circumstances, in which case (39) would have to be weakened (perhaps by defining the checking domain of α as the positions contained in, rather than included in, $\text{MAX}(\alpha)$). See Chomsky (1995: 317–323) for further discussion.

Possibility here is to be understood relative to other principles. Thus, deletion is not possible if it violates principles of UG, specifically the principle of recoverability of deletion.

Features may be interpretable or uninterpretable. Interpretable features include categorial features ($\pm N$, $\pm V$, D, T, etc.), the ϕ -features of nouns (person, number, gender) and the $[+wh]$ feature of a *wh*-phrase.

Uninterpretable features include the Case features of N, the agreement and Case features of V and T, any strong features, and any other features not listed above as interpretable.

Note that since they receive an interpretation at the C-I interface, interpretable features cannot delete even if checked. It follows that interpretable features need not be checked, since they survive to LF in any case.

Note that the definition of Attract F given in (37) above has nothing to say about the case where there is a mismatch of features. The following principle covers such cases.

(41) Mismatch of features cancels the derivation.

Cancellation of a derivation should be distinguished from nonconvergence. The latter permits a different, convergent derivation to be constructed if possible, but cancellation of the derivation cannot be avoided by overt movement (in violation of Procrastinate) or other devices. If the optimal derivation crashes (say, because of a mismatch), we are not permitted to pursue a nonoptimal alternative.

Continuing to look at the matching of features, suppose that K attracts F, which raises, pied-piping α and adjoining to K (where α consists of at least FF[F]). Each feature of α is in the checking domain of each feature f contained within $H(K)^{0max}$. We now say that

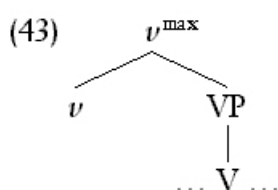
- (42) Feature F' of α is in a *checking configuration* with f , and F' is in a *checking relation* with f if, furthermore, F' and f match.

where F' and f *match* if they contain a common feature and do not conflict on this feature.

Note that mismatch is distinguished from nonmatch, the case where F' and f fail to have features in common. Unlike mismatch, nonmatch does not cancel the derivation.

3.6 The Structure of VP

If a verb has more than one internal argument then we postulate a so-called 'Larsonian shell', as in (43).



where v is a light verb to which V overtly raises. For motivation of such an analysis, see Larson (1988, 1990).

The internal arguments occupy the positions of specifier and complement of V . The external argument is in [Spec, v]. The v -VP configuration shown in (43) assigns the AGENT role to the external argument. This reasoning is extended to transitive verb constructions generally, assigning them the Larsonian shell structure in (43). Unergatives are analysed as hidden transitives (following Hale & Keyser 1993a), so only unaccusatives lacking agents are analysed as simple VP structures, without a Larsonian shell.

3.7 *Functional Categories and the Status of Agr*

Functional categories have a central role in the Minimalist framework. They are the locus for feature checking, and hence drive the operation Attract F. We are concerned with (at least) the following five functional categories: C(omplementiser), T(ense), D(eterminer), Agr(eement) and ν (the light verb).

There is strong motivation for postulating C, T and D. These three have interpretable features (illocutionary force, finiteness¹⁴ and specificity, respectively) which receive interpretation at LF. Agr and ν , however, receive no interpretation at the interface, and their postulation relies on theory-internal arguments.

The justification for postulating ν relies on the fact that if, as assumed, all nonterminal nodes are binary branching, multiple argument verbs require the postulation of a Larsonian shell to accommodate raising of V, as discussed in section 3.6 above.

The postulation of Agr receives no such justification, however. The empirical data which led to the postulation of various Agr elements (Agr_s, Agr_o, etc.) can be accounted for in a Minimalist framework without the need to postulate Agr projections. Overt object raising is accounted for by postulating a strong [nominal-] feature of ν , which triggers overt raising of the object

¹⁴ Finiteness as such would not normally be considered as interpretable. But if the interpretable feature of T is considered to be tense, this would have the unwanted implication that non-finite T (as well as finite T in imperatives) is uninterpretable, hence unmotivated. If we interpret the term 'finiteness' as referring to temporality in general, including lack of a tense distinction, then this problem is avoided.

to [Spec, v], with the subject then being merged in an outer Spec.¹⁵ Other such phenomena are similarly accounted for, and Agr is eliminated entirely from Universal Grammar.

¹⁵ It is necessary that overt object raising occurs before the subject is merged, since the subject must c-command the raised object, in order for the subject to be able to subsequently raise to T. Multiple specifiers must thus be allowed, at least in certain cases.

4. A Minimalist Solution

In Chapter 2 we looked at Haegeman's (1996, 1997) proposal to account for null subjects in diaries, so far the best account available. This proposal was couched in the classical Principles-and-Parameters framework. The development of this framework along Minimalist lines has led to significant revision of many fundamental aspects. These revisions mean that analyses within the Principles-and-Parameters framework often require substantial reanalysis before they can be stated in a Minimalist framework. It is important to investigate, then, how Haegeman's proposal fares in the Minimalist framework set out in Chapter 3.

Recall that Haegeman's analysis rested on a number of basic proposals:

- (44) a. The CP projection is decomposed into a number of functional projections: ForceP – (TopP)* – (FocP) – (TopP)* – FinP.
- b. The non-overt subject in diaries is an antecedentless nonvariable empty category (*ec*), licensed only in the leftmost position of the clause.
- c. In the diary register (as in early child speech) the root may be truncated, so that ForceP is not projected.
- d. TopP can be dominated by an Agr projection, and *ec* can move to the Spec of this projection from canonical subject position as a 'last resort' to be licensed.

Let us follow Haegeman in adopting proposals (44a–c). There is no immediate problem in incorporating them into a Minimalist framework, and we have seen that there are empirical motivations behind them.

Proposal (44d), on the other hand, is clearly problematic now that Agr has been eliminated from the repertoire of functional projections (see section 3.7 above). Under a Minimalist analysis, then, we are forced to reject proposal (44d).

Let us consider an alternative proposal. One of the assumptions in both Haegeman's (1997) and Rizzi's (1997) analyses has been that the *ec* is identified with the discourse topic. This is necessary so that the *ec* can receive an interpretation at LF, given that it has no (clause-internal) antecedent. It is natural to propose that identification with the discourse topic is mediated by the Top projection, just as discourse specification of illocutionary force is taken (Rizzi 1997) to be mediated by ForceP. We can formalise this proposal as follows.

(45) *ec* forces Top⁰ to appear in the numeration with the feature [D-].¹⁶

This ensures that there will be a Top projection, and that it will be able to attract *ec*, allowing *ec* to be identified with the discourse topic.

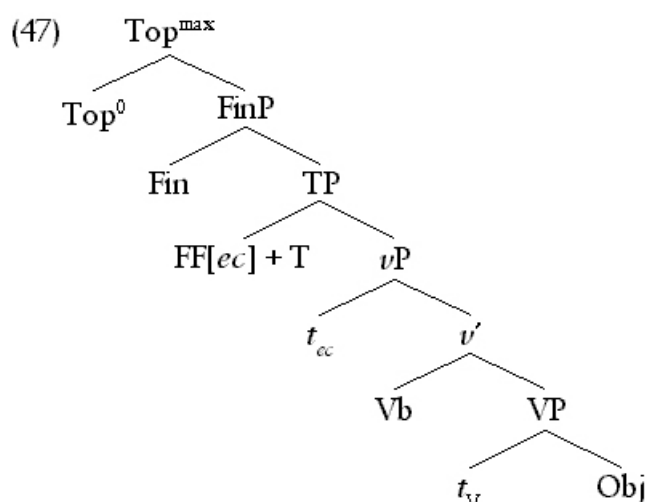
Let us investigate how (44a–c) and (45) account for the core cases involving *ec*. We will see that our proposal has no difficulty in handling simple cases of *ec* in subject position, in predicting that *ec* does not occur in subordinate clauses, or in predicting the incompatibility of *ec* with *wh*-movement. Cases involving preposed adverbials can also be handled, given plausible assumptions as to their structure. Finally, we will see that the analysis we develop also extends naturally to null objects (as well as null subjects) in instructional registers.

4.1 Simple Constructions

Consider a simple example such as (46), when the derivation has reached the stage indicated in (47).

(46) *ec* saw John

¹⁶ I will regularly refer to the Top head as 'Top⁰' to avoid confusion with the topic itself (the specifier of Top⁰). I have not followed this convention with other heads, since no similar confusion seems to arise in these cases.



FF[ec] has raised overtly to T to check the strong [D-] feature of T.¹⁷ This represents a departure from the standard analysis of Chomsky (1995), which would see the entire category *ec* moving if the operation is overt. From a Minimalist perspective, overt movement of a feature F of a category α is seen as more costly than covert movement, since it requires the pied-piping not only of FF[α], but rather the entire category α . The reason for this is that the PF component is assumed to be unable to process “isolated features and other scattered parts of words” (Chomsky 1995: 262–263). Such an argument does not apply, however, to a non-overt element. Since it is non-overt, such an element is by definition invisible at PF, so that such concerns do not arise. Let us propose, then, that Attract F may apply overtly to phonologically null elements.¹⁸ This proposal allows the overt attraction of phonologically null elements by both weak and strong features. It implies that in all such cases, the formal features of the null element raise to adjoin to the

¹⁷ Following standard usage, I shall speak of F *raising to* K, which should more properly be stated in terms of F raising to adjoin to K^{0max}.

¹⁸ Roberts (1998) also proposes, for independent reasons, that Attract F may apply overtly.

attracting head. For ease of exposition, however, I shall continue to speak of *ec* raising, rather than $FF[ec]$.¹⁹

Now consider the next step in the derivation. Recall that by (45) Top^0 has a [D-] feature which, being uninterpretable, must be checked and deleted (see section 3.5 above). This feature may be checked by application of either Attract or Merge.

Suppose that Merge applies, targeting the root and introducing a DP into [Spec, Top]. DP is in a checking relation with Top^0 , so the [D-] feature of Top^0 is checked and deleted. *ec*, however, is not licensed since it is not in the leftmost position of the clause, so the derivation crashes. More generally, we can see that if such a construction contains *ec* then the derivation will crash whenever Merge applies to satisfy the [D-] feature of Top^0 .

Now suppose that Attract applies to (47) rather than Merge. Top^0 attracts the nearest [D-] feature, that of *ec*, which raises and adjoins to Top^0 , pied-piping $FF[ec]$. In this configuration the [D-] feature of Top^0 is checked and deleted. Being in the leftmost position of the clause is sufficient to allow *ec* to be licensed, given the licensing requirement on nonpronominal empty categories given in (15) (see section 2.1.2 above). Hence the derivation converges.

Thus, a Minimalist analysis incorporating proposals (44a–c) and (45) is able to account for the simple case.

¹⁹ It seems that in any case $FF[ec] = ec$, since *ec* has no phonological features, and as it does not refer directly, no semantic features either. None of my arguments will rest on this point, however.

4.2 *ec* in Subordinate Clauses

The assumptions we have made also account naturally for the fact that *ec* does not occur in subordinate clauses. The restriction applies whether the subject of the matrix clause is overt or null, as can be seen in (48).

- (48) a. *I/*ec* wonder when *ec* will see her again
 b. *I/*ec* thought *ec* would see her again

We can see that the subject of the matrix clause, whether overt or null, will always intervene between a matrix TopP and the *ec* in the subordinate clause, preventing the lower *ec* from fulfilling its licensing requirement. This is true regardless of whether there is a distinct Top projection for each instance of *ec* or not, since one of the *ecs* will always fail to be the leftmost element in the clause. The derivation thus crashes, the correct result.

4.3 *ec* and *wh*-Movement

Next consider the incompatibility of *ec* with *wh*-movement. This is illustrated by the contrast in (49).

- (49) a. what will I buy?
 b. *what will *ec* buy?

Consider (49b) when the derivation has reached the stage given in (50).

(50) [Top⁰ [what will [_{TP} *ec* + T [_{VP} *t_{ec}* buy *t_{wh}*]]]]

As before, the [D-] feature of Top⁰ will have to be checked by application of Attract, otherwise *ec* will not be licensed and the derivation will crash. But Top⁰ will attract the closest [D-] feature, which in this case is the [D-] feature of *what*. This means that *ec* will not be licensed and the derivation will again crash.

We can thus explain the prohibition on *ec* occurring with *wh*-DPs, but what about other *wh*-XPs? As can be seen from (51), these are also prohibited from occurring with *ec*.

- (51) a. $[_{pp} \text{Where}]_i$ will I go t_i ?
 a'. * $[_{pp} \text{Where}]_i$ will *ec* go t_i ?
 b. $[_{AP} \text{How big}]_i$ shall I build the boat t_i ?
 b'. * $[_{AP} \text{How big}]_i$ shall *ec* build the boat t_i ?

In the Minimalist framework *wh*-movement is taken to be driven by a [D-] feature of C. In the case of English and other languages with overt *wh*-movement, this feature is assumed to be strong (see, for example, Chomsky 1995: 232), which explains the overt nature of the movement. Prima facie, however, this does not explain movement of *wh*-XPs which are not DPs, such as those in (51). Explanations for this invoke the property of *feature percolation*, which allows the minimal YP containing a *wh*-DP to inherit the [*wh*] feature of this DP (see Horvath 1997: 548; a more detailed account is given in Webelhuth 1992: 115–158).²⁰

This enables us to explain the paradigm observed in (51). If the [*wh*] feature is taken to be a variant of [D], as Chomsky (1995: 289) suggests, so that [D-] can attract [*wh*], then the movement of the range of *wh*-XPs can be accounted for by postulating that (interrogative) C bears a [D-] feature. Since a raised [*wh*] feature can be attracted by [D-], it will intervene between Top⁰ and *ec* to prevent *ec* from raising, and cause the derivation to crash. We thus derive the prohibition against *ec* occurring with a raised *wh*-XP.

²⁰ Webelhuth's account is somewhat more restrictive than the one I have given here. He proposes that feature percolation from DP to YP can occur just in case DP is the specifier of YP, or DP is the complement of a PP. This does not affect our argument, since as Webelhuth shows, the more restrictive account can still cover all the relevant cases. Importantly, though, it does rule out potential counterexamples. For example, it explains why the *wh*-feature can percolate to PP in the configuration $[_{pp} \text{to whom}]$ but not to VP in the configuration $[_{vp} \text{see whom}]$. See Webelhuth (1992: 135–142) for further discussion.

Haegeman (1990b) also observes that the prohibition on *ec* occurring with *wh*-movement extends to *yes-no* questions.

(52) *Will *ec* be able to meet him?

(Haegeman 1990b: 169)

If we adopt the standard proposal that *yes-no* questions involve a null *wh*-operator (Q) in [Spec, C],²¹ then these examples can also be accounted for: if Q is to the left of Top⁰, it will create a potential antecedent position for *ec*, so the derivation will crash; if Q is to the right of Top⁰, Q and not *ec* will be attracted to Top⁰, preventing *ec* from being licensed and again causing the derivation to crash.²²

4.4 *ec with Other Preposed Material*

An important observation made in Haegeman (1996, 1997) is that while *ec* does not co-occur with preposed *wh*-constituents, it does co-occur with certain other preposed material.²³ Haegeman observed that there is an argument/adjunct asymmetry with this phenomenon, as the contrast in (53) illustrates.

(53) a. In afternoon, *ec* see John

b. * More problems, *ec* don't need

²¹ The original proposal was put forward in Katz & Postal (1964: 68), and was developed by Baker (1970). For more recent discussion, see Chomsky (1995: 289–294), Radford (1997: 145–146) and Roberts (1993: 79 fn. 22). The same proposal has been made within a different framework (Optimality Theory) by Ackema & Neeleman (1998: 472–473) and Grimshaw (1997: 380).

²² Haegeman (1990b: 169) suggests that the presence of Q in *yes-no* questions might explain the restriction on *ec*, though her analysis is obviously different to the one I develop here.

²³ Note that while I follow Haegeman in using the standard term 'preposed' here, in doing so I do not commit myself to a movement analysis for such constructions. In fact, we will see later that a 'base-generation' analysis of this material is preferable.

Let us now examine how the proposals (44a–c) and (45) can account for the co-occurrence of *ec* with preposed adjuncts.

There are two kinds of potentially problematic cases. (i) If the preposed adverbial occurs to the left of Top^0 it will interfere with the licensing of *ec*. (ii) If the preposed adverbial occurs to the right of Top^0 (specifically, between Top^0 and T) it may block the movement of *ec* to Top^0 . Let us consider each of these problems in turn.

4.4.1 *Preposed Adverbials to the Right of Top^0*

First consider the case where the adverbial is between Top^0 and T (adjoined, or in the specifier of some intermediate functional head). The adverbial will only interfere with movement of *ec* to Top^0 if the adverbial has a [D] feature (that is, if it is a DP). In all other cases, Top^0 will not attract the adverbial, and the [D] feature of *ec* will be attracted to Top^0 , checking the [D-] feature of Top^0 and allowing the *ec* to be licensed. As we will see, however, there is evidence to suggest that adverbial DPs should be analysed as PPs. If this is the case, then our analysis correctly predicts that *ec* can co-occur with adverbial XPs between Top^0 and T.

Let us look more closely, then, at adverbial DPs. While they seem to be rare in diary contexts, they are not ungrammatical, as the following examples indicate.

- (54) a. Today, *ec* am in sunny Sydney (*What Katya Did Next*, p. 145)
 b. Mid-afternoon, *ec* decide to beat my blind date to it by reneging on him first (*What Katya Did Next*, p. 206)
 c. Last week *ec* denounced Johnnie Cochran (Haegeman 1997: 248, citing the *Guardian* newspaper)

Adverbials such as those in (54) present some problems for syntactic analysis in any case. In particular, as non-arguments there seems to be no way in

which these DPs could receive Case, something which all overt DPs are required to have.

McCawley (1988) proposes an analysis along the following lines. He notes that the distribution of adverbial NPs (i.e. DPs) is the same as that of PPs when used adverbially. For example, only adverbs (55a) and not PPs (55b) can normally precede a [+V] head; this restriction also applies to adverbial DPs (55c).

- (55) a. John *carefully* opened the window
 a'. John opened the window *carefully*
 b. *John *with care* opened the window
 b'. John opened the window *with care*
 c. *John *that way* opened the window
 c'. John opened the window *that way*

In addition, McCawley observes that adverbial DPs behave semantically like PPs, as can be seen from (56).

- (56) I am going to Sydney [next Tuesday/ %Tuesday/ on Tuesday]

The DP (*next*) *Tuesday* receives a semantic interpretation of the same type as the PP *on Tuesday*. That is, if we take prepositions to specify a relation between an event and an entity (the DP complement of P), this relation is similar with the DP adverbials and the PP adverbials, as would be expected if the DP adverbial was actually headed by a preposition.

McCawley accounts for these (and other) facts by proposing that DP adverbials are in fact PPs headed by a null preposition. This analysis would explain why DPs and PPs appear to have the same distribution when used as adverbials. It would also explain the semantic similarity: whatever semantic mechanism is posited to interpret PPs would also presumably apply to PPs headed by a null P. In addition, since like all prepositions the null head of

such a PP would assign Case to its DP complement, this would avoid the problem of where the DP gets Case.²⁴

Let us accept McCawley's analysis and treat adverbial DPs as being in fact PPs; such adverbials now present no special problems for our analysis of *ec* constructions. Since DP adverbials are analysed instead as PPs, they will not be attracted by Top^0 , as they do not have a [D] feature. The DP complement of P will not be closer to Top^0 than the [D] feature of *ec* adjoined to T, since it does not c-command *ec*.

4.4.2 *Preposed Adverbials in [Spec, Top]*

We have considered the possibility that preposed adverbials occur to the right of Top^0 , something which our analysis has been able to account for. In fact, however, there is strong evidence to suggest that preposed adverbials are located in [Spec, Top]. We must therefore also consider this possibility.

Let us look at some of the evidence in favour of such a proposal. Consider an example such as the following.

(57) Today, I am in sunny Sydney (not in Melbourne as usual)

Firstly, we can see that a structure such as (57) is similar to a topicalisation structure, in that *I am in sunny Sydney* introduces new information about the preposed element *today*. The adverb also has the 'comma intonation'

²⁴ Larson (1985) gives a different analysis of DP adverbials. He proposes that certain nouns have a feature, [+F], which optionally assigns oblique Case to the NP they project. The only obvious advantage of such an analysis is that it appears to account for the fact that only a restricted class of head nouns can occur in these adverbials, something not predictable from the semantics of the noun, as can be seen by the contrast in (iv).

(iv) a. Katya has been to Melbourne *many times*
 b. *Katya has been to Melbourne *many occasions*

McCawley's (1988) analysis is not able to account for this. As McCawley points out, however, Larson's solution is not in any case empirically adequate on this point, since other factors such as choice of determiner also appear to have an influence, suggesting that the restrictions on this construction do not come down to a single property of the head noun. In addition, Larson's analysis does not account for the distribution or interpretation of adverbial DPs. The reader is referred to McCawley (1988) for further discussion.

typical of topicalised constituents. A simple way to account for this would be to adopt Rizzi's (1997: 300) proposal that, like other topics, such adverbials are located in [Spec, Top].

Rizzi provides empirical support for such a proposal. He observes that in English a preposed adverb can intervene between *that* and the subject (58a, a'), but not between *for* and the subject (58b, b').

- (58) a. ..that John will leave tomorrow
 a'. ..that, tomorrow, John will leave
 b. ..for John to leave tomorrow
 b'. * ..for, tomorrow, John to leave

Rizzi takes *for* to be the head of FinP and *that* to be the head of ForceP. If so, then the contrast in (58) can be explained on the assumption that *tomorrow* is in [Spec, Top]: a TopP cannot be projected to the right of Fin (58b'), but may be projected to the right of Force (58a').

Cinque (1990: 89–94) also provides several arguments for a base-generation analysis (rather than a movement analysis) of preposed adverbials. He suggests TopP as a likely position. One of the arguments Cinque gives in favour of base-generation is as follows. Scope relations are normally preserved under movement, but preposed adverbs do not have the same scopal properties as their non-preposed counterparts. This can be seen from the contrast in (59).

- (59) a. To amuse myself, I went to Coney Island
 b. I went to Coney Island to amuse myself
 (Cinque 1990: 90)

As Cinque notes, (59a) comments on how I amused myself (namely, by going to Coney Island, rather than staying home and listening to music), whereas (59b) comments on why I went to Coney Island (namely, to amuse

myself, rather than to visit relatives). Cinque links this distinction to the different structural position of the adverbial, which c-commands the entire clause in (59a), and only the verb phrase in (59b). The reader is referred to Cinque's work for a more detailed discussion.

In light of this evidence we would like our analysis to be able to handle the possibility that preposed adverbials are base-generated (or more accurately in the current framework, merged) in [Spec, Top].

Consider the implications. We continue to adopt McCawley's (1988) analysis of DP adverbials, taking them to be PPs headed by a null preposition. When an adverbial XP is merged in [Spec, Top] then since $X \neq D$ the [D-] feature of Top^0 will not be checked. This allows *ec* to be attracted, checking the [D-] feature of Top^0 . But *ec* will not be licensed, given that there is now a potential antecedent position, [Spec, Top]. The derivation will crash.

Let us investigate this more closely, however. Firstly, we need to revise our earlier assumption (45), to take account of the fact that adverbial XPs may be topicalised. Since these XPs will need to be hosted by a Top projection, the following revision seems to be natural.

(60) An XP topic forces a distinct occurrence of Top^0 to appear in the numeration with the feature [X-].²⁵

We now have the basics of an explanation for why *ec* can occur with preposed adverbials in [Spec, Top].

Consider a derivation which includes an *ec* subject and a preposed adverbial XP, at the stage when Top_1^0 , the lower of the two Top^0 heads, is about to be

²⁵ In the case of a DP topic (*ec*, for example), the [X-] feature is [D-]. In the case of lexical categories [X-] may either be a single feature ([$\pm N$] or [$\pm V$]) or more than one feature (so that, for example, [P-] would in fact be made up of two features, [$-N$, $-V$]). Though the choice could have empirical consequences, I do not go into this matter here.

merged. At this point *ec* will be adjoined to T, having raised to check the strong [D-] feature of T. The structure is given in (61).

$$(61) [_{TP} \text{ } ec + T [_{VP} \text{ } t_{ec} \text{ } Vb]]$$

We then have two options: either merge the Top^0 with the [D-] feature, or merge the Top^0 with the [X-] feature. If the *ec* is to be licensed, then the outer Top^0 must have the [D-] feature, forcing the Top^0 with the [X-] feature to be merged first. The adverbial XP is then merged in the specifier position of this Top^0 , checking its [X-] feature. Next the second Top^0 is merged, and the *ec* attracted to check its [D-] feature. In this position *ec* fulfils its licensing requirement and the derivation converges.

We have thus accounted for the observed occurrence of *ec* with preposed adverbials. But this only explains one half of the argument/adjunct asymmetry observed in (53). We also need to account for the prohibition on preposed arguments occurring with *ec*.

4.4.3 The Argument/Adjunct Asymmetry with Preposed Material

It is straightforward to account for the prohibition on preposed arguments. The classic analysis of argument topicalisation was put forward by Chomsky (1977). Adapting this analysis slightly to the current framework, we might propose the following. In topicalisation structures with an overt topic, the topic is merged in the specifier of a Top projection, and there is movement of a null operator from the position in which the topic is interpreted to a scope position. This explains the presence of a gap in the clause. Thus (62a) would have the structure (62b).

- (62) a. Your book, you should give to Paul
 b. $[_{TopP} \text{ } Your\ book_i \text{ } Top^0 [Op_i [_{TP} \text{ } you\ should\ give\ t_i \text{ } to\ Paul]]]$

Given that *wh*-movement is driven by a strong [D-] feature in English, *Op* must raise before Top^0 is merged. This is because, as Chomsky (1995: 235)

notes, a strong feature must be checked before Merge applies to form a distinct larger category (see section 3.2 above). If we consider the structure (62b) with a non-overt subject *ec* in place of *you*, we can see that the [D-] feature of Op will be closer to Top^0 than *ec*, preventing *ec* from raising to satisfy its licensing requirement, and causing the derivation to crash. This explains the prohibition on *ec* occurring with topicalised arguments.

4.5 *Non-Overt Arguments in the Instructional Register*

The analysis we have been developing also accounts naturally for missing objects found in the instructional register of English. This is generally considered in the literature to be a distinct phenomenon, since while null arguments in both diaries and instructions have been analysed in terms of a null topic operator, if they are taken to be instances of the same phenomenon, it is difficult to explain why null objects are not found in diaries along with null subjects. This problem is overcome in the present analysis.

Consider the case of missing objects in recipes. A typical example is (63).

(63) Take six eggs. Beat *ec* well.

Note that as with non-overt subjects in diaries, the *ec* here corresponds to the discourse topic (fixed in this case by the preceding sentence). An important observation is that such *ec* objects occur only in sentences without an overt subject, such as imperatives. Massam & Roberge (1989: 135) note that it is unclear whether the important factor which allows *ec* to be licensed is the imperative nature or the no-subject nature of such constructions. This is clarified in the present analysis, which shows that it is the no-subject (or, rather, the null-subject) aspect which is crucial.

First, let us consider what structure should be assigned to imperative clauses. In general, these clauses may or may not have an overt subject, as can be seen in (64).

- (64) a. Shut the window
 b. Someone shut the window
 c. Don't shut the window
 d. Don't you shut the window

In their analysis of the imperative in English, Beukema & Coopmans (1989) argue for the following structure for the subjectless imperative (modified slightly here in line with the current framework).²⁶

- (65) [..._{TP} *Subj* T [_{VP} V^[+imp] Obj]]

where *imp* is a cover term for whatever features are associated with an imperative verb. That is, they suggest that subjectless imperatives have the structure of normal clauses, with a phonologically null but syntactically represented subject (henceforth '*Subj*').

Beukema & Coopmans base their argument on a number of points. Firstly, they note that *Subj* can act as the binder of a reflexive anaphor (66a), an indication that it is syntactically represented. Passives, taken to lack an external argument entirely, do not allow such binding (66b).

- (66) a. Tell a story about yourself
 b. *A story was told about themselves

Subj can also control the understood subject (*e*) of a *without*-adjunct clause (67a), another diagnostic for syntactically represented arguments. Again, this is not possible with passives (67b).

- (67) a. Visit London [without *e* going to Soho]
 b. *London was visited (by him) [without *e* going to Soho]

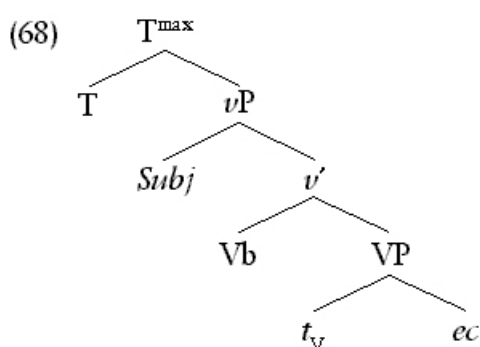
²⁶ The actual structure proposed by Beukema & Coopmans was [_{IP} NP I [_{VP} V^[+imp] NP]].

This evidence provides strong support for an analysis of *Subj* as being syntactically represented.

Another important question is the status of T in imperative clauses. Since Beukema & Coopmans were working in the days of a unified Infl projection, they proposed that in imperatives Infl was specified as [–Tense; +Agr]. But what structure might we propose on the Minimalist assumption that Infl is merely T, a head with (inter alia) tense and Agr features? The most obvious possibility, and the one I have assumed in giving the structure of (65), is that in imperatives T is projected with Agr features but no tense feature.²⁷

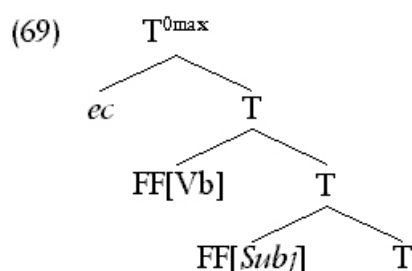
This is a similar situation to that of non-finite clauses, where T would presumably lack both tense and Agr features. Chomsky & Lasnik (1993: 119–120) propose that the PRO subject of non-finite clauses bears null Case which is checked by a minimal T lacking tense and Agr features. Chomsky & Lasnik used this account to capture the distribution of PRO.

Let us propose something similar for the non-overt subject in imperatives: *Subj* bears null Case, which must be checked by a tenseless T head. This allows us to account for the observed distribution of object *ec*. Consider the structure in (68), an imperative with a null subject and *ec* in object position.



²⁷ As pointed out by Peter Kipka (p.c.), this is in line with French and Italian imperative morphology.

T has a strong [D-] feature, which must be checked before T is embedded in a distinct projection. The nearest [D] feature is that of *Subj*. Since *Subj* is non-overt, the [D] feature pied-pipes only FF[*Subj*], the minimum required, and adjoins to T.²⁸ Top⁰ is then merged. At this point Spell-Out can apply, and the derivation enters the covert component. Next FF[Vb] raises to T, to check the weak [V-] feature of T. *ec* then raises to T to check Case and ϕ -features with Vb. FF[*Subj*] does not prevent raising of *ec* to T, for the following reason. *ec* is attracted by T^{0max}, which contains the [D-] feature of V, embedded within Vb. By the definition of closeness given in (38), since T^{0max} does not c-command FF[*Subj*], and FF[*Subj*] does not c-command *ec*, movement of *ec* is not blocked. T^{0max} will then have the following structure.



Now *ec* is closer to Top⁰ than FF[*Subj*], so that *ec* can raise to check the [D-] feature of Top⁰ and fulfil its licensing requirement.

Consider what would happen if the subject were overt, however. The subject would still raise to check the strong [D-] feature of T, this time moving to [Spec, T]. Now when *ec* subsequently raises to T it will be further away from Top⁰ than the subject, and will hence be stranded and unable to fulfil its licensing requirement. The derivation will crash.²⁹

²⁸ If, like *ec*, *Subj* lacks semantic features in addition to phonological features, then FF[*Subj*] = *Subj*. This seems less clear than in the case of *ec*, however, since *Subj* does seem to have the same semantic content as an overt *you*.

²⁹ If this analysis is correct, then it suggests that *ec* should be able to occur in the object position of non-finite clauses. Such cases appear to be marginal in English, though Culy (1996: 110) notes the following example.

We thus derive the prohibition on *ec* occurring with an overt subject.

4.6 Summary

The analysis given in this chapter has unified two phenomena, null subjects in diaries and null objects (as well as null subjects) in the instructional register.

We followed Haegeman (1996, 1997) in adopting the following proposals: (i) that CP is properly regarded as a number of functional projections, including a topic projection dominated by ForceP; (ii) that the null subject in diaries is an antecedentless empty category (*ec*) licensed only in the leftmost position of the clause; and (iii) that in certain contexts (such as diaries and the instructional register) ForceP is optionally not projected. We further assumed that (iv) an XP topic forces a distinct occurrence of Top⁰ to appear in the numeration with the feature [X-].

We can then account for the distribution of *ec* in both diaries and the instructional register, by proposing that in those constructions where *ec* is restricted from occurring, some other element with a [D] feature intervenes between Top⁰ and *ec*, preventing *ec* from raising to Top⁰ so that *ec* fails to satisfy its licensing requirement. In embedded contexts, a DP in the matrix clause will intervene. In cases of *wh*-movement, the [*wh*] feature of the *wh*-XP, taken to be a variant of D, intervenes. In cases of argument topicalisation, the null operator posited in such constructions will have a [D] feature and will intervene.

-
- (v) Stir and toss well together the flour, bran, baking powder, salt, cinnamon, and nutmeg to mix well

In other languages, null objects can occur in the object position of a non-finite verb. In French and German recipes, for example, the null object occurs more frequently with infinitives than imperatives (see Massam & Roberge 1989: 135 fn. 1; Haegeman 1990a: 196–197 fn. 21). Note, however, that while the verb form in such cases is non-finite, the sentences still have the force of imperatives. Further research is needed to clarify whether the French and German data provide support for the analysis developed here.

ec is not, however, prohibited from occurring with preposed adverbials. Only preposed DP adverbials could potentially intervene, and we saw that there is good evidence in favour of interpreting such DPs as being PPs headed by a null preposition. Neither is *ec* prohibited from occurring in the object position of an imperative clause with a null subject. The reason for this is that *ec* must raise to adjoin to T after *Subj* has done so, putting it in a position where it c-commands *Subj*, allowing *ec* to raise to adjoin to Top^0 and fulfil its licensing requirement. If on the other hand, the subject of the clause is overt, it must raise to [Spec, T], with *ec* subsequently raising to adjoin to T. In this position *ec* is c-commanded by the subject, which thus prevents *ec* from raising to adjoin to Top^0 . The derivation then crashes.

Our analysis can thus account for the observed distribution of *ec* in diaries and the instructional register. In the next chapter, we will investigate if our analysis can also account for cases of null arguments in other registers of English. This question turns out to have significant implications for the nature of English syntax.

5. Implications for the Theory of Language

In this chapter I would like to broaden the discussion by looking at some other registers of English which exhibit null arguments, in particular those registers used in note-taking, telegrams and newspaper headlines. We will see that there are significant syntactic differences between these registers and those which were discussed in Chapter 4, and this will lead us to conclude that these registers cannot be readily analysed in the same terms as instructional and diary registers. I will argue, however, that the phenomenon of topicalised null arguments as analysed in Chapter 4 is not restricted to marginal registers of the language. It is in fact extremely common in colloquial speech in general, perhaps even to the extent that overt expression of the subject could be regarded as the marked option.

5.1 *The Truncated Register*

In their discussion of the various kinds of linguistic variation, Zwicky & Zwicky (1982) note that different varieties of language (including different styles, registers and dialects) come about via processes of three main kinds.

- (70) a. *excluding* certain standard features, so that the variety in question can be described as a *restricted* form of language;
b. *including* certain non-standard features, so that the variety in question can be described as showing special *freedom*;
c. *favouring* certain forms over certain others, so that the variety in question can be described as showing certain *statistical* preferences.

The grammar is concerned with (70a, b); (70c), on the other hand, is a question of language use, and could be taken to reflect properties of the various performance systems within which the language faculty is embedded.

From our analysis in Chapter 4 it seems that in terms of (70a, b) there is no difference between the 'diary register' and the 'instructional register'. Both of these registers differ from the standard language in the same way: they both allow truncation of ForceP, a freedom in the sense of (70b). Such freedom is also allowed in early child speech. The ability for *ec* to occur in these contexts is a result of this basic property of allowing ForceP to be truncated.

These registers (and early child speech) also show other syntactic differences from the 'standard' language: they exhibit null copulas, null auxiliary verbs and null determiners. While it is necessary to investigate these matters more fully, it appears that this too is the same phenomenon in each of these contexts. There is no reason to suppose that a single analysis cannot be given which accounts for the omission of these functional elements in diaries, instructions and child speech.

We could thus tentatively propose the following hypothesis: what have hitherto been regarded as distinct registers are in fact instances of a more general register which I will refer to as the 'truncated register'. Other differences, such as the prevalence of imperatives in instructions or distribution of specific lexical items, are of a statistical nature and reduce to questions of style, something presumably to be explained by the various performance systems of language and not by the grammar itself.

One obvious question to be addressed is what allows ForceP to be truncated. Adapting an idea from Haegeman (1997: 245), we might propose that there is a general principle requiring that ForceP be projected. This principle effectively requires that utterances must be anchored in discourse, and since ForceP mediates between the clausal structure and the discourse (see p. 13 above), it is required that ForceP be projected. In certain registers (diaries, instructions, and so on) such anchoring is not required, since the discourse context is inherently restricted by the nature of the register. In these situations, ForceP may be truncated.

If the instructional register and the diary register are syntactically the same, in the sense that they are generated by the same grammar, the question arises whether other registers could similarly be seen as instances of a more general truncated register. Let us consider some obvious possibilities.

First take the register of note-taking. Janda (1985) describes the register used by university students to take lecture notes, which he does by comparing notes taken by US students with tapes of the original lecture; this allows easy identification of ellipted material. Janda notes several important syntactic features of this register. Like the truncated register, the note-taking register is characterised by null subjects and null objects as well as null copulas, null determiners and null auxiliaries. (It also shows statistical tendencies in the use of certain syntactic constructions.)

On closer inspection, however, several differences between this register and the truncated register become clear. For example, we find null subjects co-occurring with *wh*-movement, as in (71).³⁰ This is something which is ungrammatical in the truncated register, as we have seen.

(71) What Ødid was take “sha” and... [Ø= ‘she’]
(Janda 1995: 445)

We also find null objects co-occurring with overt subjects, as exemplified by (72). This is also ungrammatical in the truncated register.

(72) Room acoustics make Ødifferent [Ø= ‘it’]
(Janda 1995: 446)

Examples such as these suggest that missing arguments in this register are a distinct phenomenon from those in the truncated register.

³⁰ I will indicate ‘missing’ arguments with ‘Ø’, leaving their precise nature open. I do not indicate other missing elements such as determiners and auxiliaries.

Next consider ‘telegraphese’. Barton (1998) describes and analyses the syntax of the register used in telegrams, on the basis of a large corpus of elicited material in English. The register is typified by the omission of 1st person subject pronouns, as well as determiners and auxiliaries. As with note-taking, however, we find structures which are ungrammatical in the truncated register.

- (73) a. Øregret Øcannot attend
 b. Øregret Øunable to give paper as scheduled...
 (Barton 1998: 54)

Here we have examples of null subjects in embedded clauses, a phenomenon which is ungrammatical in the truncated register, as we saw earlier.

Lastly consider ‘headlinese’, the register of newspaper headlines. Simon-Vandenberg (1981: 305) notes that this register also exhibits null subjects, null determiners, null copulas and null auxiliaries. Simon-Vandenberg gives no examples of null subjects occurring with *wh*-movement, in embedded clauses, or in other constructions where they would be ungrammatical in the truncated register. It should be noted, however, that questions and embedded clauses are extremely rare in headlines in any case. It is thus not clear whether headlinese can be assimilated with the truncated register. In fact, other considerations suggest that such an assimilation is not warranted. Consider some examples of subjectless headlines.

- (74) a. Økilled on railway
 b. Øfound dead on Arran hills
 c. Øsuffocated by gas
 (Simon-Vandenberg 1981: 243)

As Simon-Vandenberg (1981: 178) notes, in such cases the subject is interpreted as arbitrary: ‘someone’ whose identity is not relevant enough to be mentioned in the headline. This is very different from the interpretation

given to missing arguments in the truncated register, where they receive a specific reference in the form of an entity salient in discourse. For this reason, I will not consider headlines to be included in the truncated register.

5.2 *Colloquial Null Subjects*

Let us now look at one other phenomenon which appears to be similar to that of null arguments in the truncated register. This is the extremely common phenomenon, termed ‘prosiopesis’ by Jespersen (1922: 273), whereby certain sentence-initial material is null in colloquial speech. This phenomenon was studied in detail by Thrasher (1977), who gives examples such as the following.

- (75) a. Øglad to see John’s looking better
 b. Øreally appreciate the help
 c. Øperjured himself again last night
 d. Øshouldn’t leave that purse unattended
 e. Øprobably rain tomorrow
 f. Øno way I can help you³¹
 (Thrasher 1977: 37, 53, 56)

As with the truncated register, colloquial speech exhibits null subjects, null determiners, null copulas and null auxiliaries. Furthermore, in the case of

³¹ As (75e, f) indicate, expletives and quasi-arguments may also be null in colloquial speech (as they can be in diaries and early child speech—see Haegeman 1997: 240 and Rizzi 1994: 167). There are two obvious possibilities here. Either we allow expletive and quasi-argumental *ec*, or we analyse cases of null expletives and null quasi-arguments as a distinct phenomenon. As Rizzi (1994: 167–169) points out, expletive *pro* is a possibility in some languages, and we might propose that *ec* may also be expletive. On our current analysis, however, this would require allowing a null expletive to undergo topicalisation, something overt expletives cannot do (see pp. 7–8 above). There is some evidence in favour of analysing null expletives such as those in (75e, f) as a distinct phenomenon. As Rizzi (1994: 168) observes, some languages allow only expletive null subjects, and not referential null subjects. This is the case with colloquial French. It should be noted, however, that such expletive null subjects appear to have the same syntactic distribution as *ec*: they do not occur with preposed *wh*-elements or in embedded clauses. Further research is needed to settle this matter.

null subjects, the same constraints seem to apply as in the truncated register. Consider the following examples.

- (76) a. Øthought I heard something
 b. *I thought Øheard something
 c. *Are Øgonna be busy tomorrow night?
 d. When you get a minute, Ølike to have a word with you
 e. This time next month, Øwon't be able to buy beef at any price
 (Thrasher, 1977: 12, 77)

Like the truncated register, a null subject is ungrammatical in embedded clauses (76b) or in questions (76c), but is possible with preposed adverbials (76d, e). As with the truncated register the null subject is not given an arbitrary interpretation, but is identified with an entity salient in discourse.

Given the evidence, it seems natural to assimilate this type of colloquial speech with the language of diaries and instructions.³² The implications of this move are profound. We started this investigation by looking at null subjects in diaries, an apparently non-standard possibility in a particular register. We now see that far from being a highly restricted possibility, such omission of the subject is possible in a wide range of circumstances, and is an option generally available in colloquial speech. The omission also extends to objects in certain circumstances.³³ In fact, it begins to look as if this possibility is standard, with overt expression of the subject required only in

³² I stress again, however, that the truncated register is a single register only in the sense that it is generated by a single grammar. Statistical and other variations may still be discerned, and it may still be desirable to recognise individual registers for the purposes of stylistic or other kinds of analysis.

³³ If we see colloquial speech as included in the truncated register, this predicts that null objects in colloquial imperatives should be allowed. In fact, however, these do not seem to occur, though further investigation would be needed to confirm this. There are a number of possible explanations for why objects cannot be dropped in colloquial English imperatives. One possibility is that objects are not normally contextually salient enough to allow them to be non-overt, except in special contexts such as written instructions where the topic of the instruction is obvious. Note, however, that non-overt objects do occur in colloquial Dutch (see Visser 1996), and are subject to the constraint that the dropped object be prominent in discourse or physically present. Further research is necessary to clarify this matter.

marked contexts. Such marked contexts include formal situations or situations where the referent of the subject is not contextually salient for all parties, as could be the case with communication at a distance.

5.3 Non-Linguistic Processes

There are independent reasons to expect a difference between colloquial speech and the language of instructions and diaries on the one hand, and note-taking, telegraphese and headlines on the other. If we consider carefully the situations in which note-taking, telegraphese and headlines are used, we can see that processes external to the grammar are plausibly involved.

In note-taking, telegraphese and headlines there are strong pressures on the writer to be brief. In note-taking, there are severe time pressures; in telegraphese, financial considerations dictate brevity; and in headlines, constraints on the amount of space available impose a similar pressure. In instructions, diaries and colloquial speech there are normally no such strong constraints. It is not surprising then that lecture-notes, telegrams and headlines exhibit different properties from those of the truncated register.

We may tentatively propose the following account. In telegrams and lecture-notes there is the possibility for ForceP to be truncated. Telegrams are very much like diaries in that the author is known, so that the referent of 1st person subject pronouns will be recoverable from context. Lecture notes are informal (the audience is oneself), and there seems to be no need to syntactically anchor clauses in discourse. So we would expect to find that arguments can be non-overt in these situations, just as they can be in diaries and instructions. This much is correct. But we also find non-overt arguments in structural positions where they could not be non-overt in the truncated register. These are the result of other processes, probably ones not involving the grammar proper, a result of the various pressures mentioned above.

There is some evidence to support this view. If we remove the time and cost pressures in the above situations, we find that the truncated register is used. This is true of postcards, which are much like telegrams in that they are a means of communication from one person to another across a distance, but which do not have the cost pressures associated with telegrams. Haegeman (1990b: 168) notes that postcards exhibit the same syntactic properties as diaries. The same is true of short informal notes, which use the truncated register when the extreme time pressures of lecture-note writing are removed (see Haegeman 1987: 237).

Further evidence that people writing under such pressures are making non-standard innovations comes from the fact, noted in Janda (1985: 444), that people taking lecture notes employ non-standard abbreviations as a means of saving time.³⁴ The possibility that they are using non-standard means to shorten sentences is also plausible.

The possible exception to this account is headlines. There are reasons to suspect that this is not part of the truncated register. The first piece of evidence is that, as we saw above, the null subject in headlines is interpreted differently to null arguments in the instructional register. This suggests that headlines are not to be analysed as an instance of the truncated register with additional processes added on. And in fact this seems plausible. The reader of a headline is not normally able to supply the referent of the subject from context, for the simple reason that not having read the news article yet, they do not know what the context is. This would suggest that the only null subjects possible in headlines are those with arbitrary reference. This seems to be the case.

³⁴ Non-standard lexical abbreviations are not normally found in telegraphese, but this is probably due to the fact that the cost of telegrams is calculated per word, not per character, so there is no incentive to shorten the individual words when composing a telegram.

5.4 *The Identification of ec*

More needs to be said about the processes that govern which entity is regarded as salient in a given context, for the purposes of providing a referent for the null argument (*ec*). While a full consideration of this question would be impossible here, a few comments are in order.

In diaries, the events are described from the viewpoint of the writer, and so null subjects are identified as 1st person pronouns, unless something in the immediately preceding discourse signals that someone else is being discussed. In recipes, the referent of a null argument is similarly constrained: it refers to some relevant ingredient or culinary preparation salient at that particular point in the recipe. The same is true, *mutatis mutandis*, for other kinds of instructions. Colloquial speech is used in informal situations, and in many cases the salient entity will be obvious to all participants in a conversation, allowing the subject to drop.

The precise form of a theory that could identify which element in a given context is chosen as salient remains uncertain. We have talked fairly loosely up to now about ‘topic’, but it seems clear that the entity with which a null argument (*ec*) is identified need not have been mentioned in previous discourse.

Consider the following examples, (77a) uttered by a customer at a clothing stall who is holding a garment, and (77b) by someone standing in front of a vending machine.

- (77) a. *ec* feels like real silk
 b. *ec* must be broken
 (Thrasher 1977: 19)

These sentences could be used discourse-initially, so that the referent of *ec* would not be salient in previous discourse, but must be salient instead in the context in which the utterance is made.

There are two related problems here. The first problem is to explain how *ec* is identified. Identification is the process whereby *ec* is coindexed³⁵ with some expression, which may be a pronoun (such as *I*, *you*, *it*), an epithet (such as *Mr Muscle*) or any other kind of definite description (such as *the man with a red beard*). The second problem is to explain how *ec* is semantically interpreted (i.e. assigned a referent) once it has been identified. Clearly this second problem is a general one, since it applies not only to *ec*, but to pronouns and definite descriptions generally. The only special problem raised by *ec*, then, is identification.

How can such identification be achieved? In certain instances, syntactic mechanisms will suffice. For example, if *ec* binds the reflexive *myself*, *ec* will be identified as *I*. In other cases, such as the examples we looked at in (77), the process will not be syntactic, but will rely on the context of the utterance (so that in (77), for example, *ec* will presumably be identified with *it*, and the referent of *it* will be supplied by whatever semantic mechanisms are used in interpreting pronouns).

What we would seem to need is a general theory of salience which takes both previous discourse and extra-linguistic context into account, as well as perhaps other factors. The problems of developing such a theory have been widely advertised in cognitive science. What we are faced with is an instance of the more general 'frame problem' of McCarthy & Hayes (1969) (see also Fodor 1987 for discussion). In essence the frame problem is this: How does

³⁵ Coindexation may be the syntactic process (such as when an anaphor is coindexed with its antecedent), or the semantic process (whereby semantic values for variable-reference terms such as pronouns and definite descriptions are contextually determined by assigning them a numerical index equal to the index of their referent in an infinite sequence of entities). See Larson & Segal (1995: 201–206) for discussion of the latter process.

an organism decide which subset of the total information at its disposal should enter into a particular mental process? Or, in the present context: For a given instance of *ec*, how do we select the set of entities over which the interpretation of *ec* could possibly range, and how is the most plausible candidate chosen from that set?

While a theory able to address these questions is a long way off, some idea of what this theory might look like is provided by the model of cognitive relevance outlined in Sperber & Wilson (1986). While in certain instances the identity of *ec* may be recoverable from the syntax, in other instances the identity will have to be recovered from context. Some theory of the sort put forward by Sperber & Wilson is required to give a complete account of how *ec* is identified in such situations.

5.5 Concluding Remarks

Contrary to much received wisdom, English speakers regularly drop subjects (and objects) in a variety of situations. They do it when they are children acquiring the language. They do it as adults whenever they speak informally (i.e. most of the time). They also do it in a number of more formal contexts: in instructions, in diaries. And yet English is described as a language where the subject must be overt.

This thesis has given a syntactic analysis of the phenomenon of null arguments in these contexts. The difference between these particular contexts and those where the subject must be overt appears to reduce to a single property of the grammar: in the former, but not the latter, the clause may be truncated so that the highest functional projection, ForceP, is not projected (an option also available in early child speech). This is possible because in these situations the discourse context is restricted, so that ForceP is not required to mediate discourse relations. In a Minimalist framework, all

the observed distributional constraints on these null arguments follow from this single basic property.

The grammar does not necessarily provide identification for the null argument in such circumstances. Instead, the null argument may have to be identified with some entity salient in the context of the utterance. The cognitive mechanisms underlying this identification are somewhat mysterious, and will likely remain so until far more is understood about cognitive processes in general. But it is clear that such mechanisms must exist, for we use and understand these contextually identified elements very commonly.

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