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The Lexical Interface:

Closed class items in South Slavic and English

Andrew David Caink

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Submitted in partial fulfilment of the degree of Doctor of Philosophy

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The Lexical Interface: closed class items in South Slavic and English

Andrew David Caink

This thesis argues for a minimalist theory of dual lexicalization. It presents a unified analysis of South Slavic and English auxiliaries and accounts for the distribution of South Slavic clitic clusters. The analysis moves much minor cross-linguistic variation out of the syntax into the lexicon and the level of Phonological Form.

Following a critique of various approaches to lexical insertion in Chomskyan models, we adapt Emonds' (1994, 1997) theory of syntactic and phonological lexicalization for a model employing bare phrase structure. We redefine 'extended projection' in this theory, and revise the mechanism of 'Alternative Realization', whereby formal features associated with (possibly null) XP may be realised on another node. Pronominal clitics are one example of Alternative Realization.

We claim that the Serbian/Croatian/Bosnian clitic cluster is phonologically lexicalized on the highest head in the extended projection. The clitic auxiliaries in SCB are not auxiliaries, but the alternative realization of features in I^0 without categorial specification, hence the distribution of the clitic cluster as a whole. We show how a verb's extended projection may be extended by 'restructuring' verbs, allowing clitic climbing. In Bulgarian/Macedonian, the clausal clitic cluster appears on the highest [+V] head in the extended projection, determined by the categorial specifications of the auxiliaries. In the DP, the possessive dative clitic forms a clitic cluster with the determiner, its distribution determined by the realization of the D^0 feature. SCB and Bulgarian clitic clusters require a phonological host in the domain of lexicalization: phonological lexicalization into the Wackernagel Position occurs as a 'last resort'.

The treatment of auxiliaries and restructuring verbs in English and South Slavic derives from their lexical entries. Dual lexicalization and bracketing of features in the lexicon allows variation in trace licensing, optional word orders, and minor language-specific phonological idiosyncrasies.

No part of this thesis has previously been submitted for a degree at the University of Durham or any other university.

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For my teachers

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0. Introduction: motivating the investigation

In South Slavic syntax, much debate in recent years has focused on the unstressed auxiliary verbs and unstressed pronominal morphemes that are collectively termed a 'clitic cluster'. The problem centres around what has informally been termed the 'second position' effects. Descriptive grammars have documented how in Serbian/Croatian/ Bosnian (SCB), the clitic cluster appears to follow either the first phonological word (the 'Wackernagel Position') or the first syntactic constituent, and can appear no lower in the clause. The Bulgarian clitic cluster may follow more than one constituent, but often also appears in the Wackernagel position. In both cases, the clitic cluster is barred from appearing in the first position in the sentence (the 'Tobler-Mussafia Law' in Romance languages). Interestingly, Macedonian – a language very closely related to Bulgarian – has no such restriction.

Such minor but persistent language-specific variation, together with some degree of optionality, causes major difficulties for current syntactic theory, not least because the descriptive notion 'second position' means in SCB that the clitic cluster can appear in an apparent variety of positions.

Debate within a 'Government & Binding' (henceforth GB) framework over clitic placement in South Slavic is polarised between purely syntactic accounts that stipulate a syntactic position for cliticization (e.g. Rivero 1993, Wilder & Ćavar 1994, Bošković 1995, Franks 1998) and analyses that modify the syntactic representation via 'Prosodic Inversion' (Halpern 1995, Schütze 1994, King 1996).

In this thesis, I propose a third alternative whereby the clitic cluster is lexicalized at PF (Phonological Lexicalization) within a minimalist theory of lexicalization that is an adaptation of the theory of Deep and Phonological Lexicalization of Emonds (1985, 1994). Suppletive forms, clitic-hood, 'second position' effects and restrictions on trace licensing are argued to follow from the late insertion of the clitic cluster.

First, following Emonds (1997), I assume that pronominal clitics are just one example of 'Alternative Realization'. Alternative Realization allows an XP

to be null if the formal feature(s) associated with this XP are realised by a closed class morpheme on the head of a node in a sisterhood relation to the original XP. Pronominal clitics are not therefore unique in their behaviour. For example, Romance verbal clitics behave in the same way as, say, the ‘semantic’ case endings in a language like Finnish, which are the alternative realization of empty P, realized on the DP sister to P (Nikanne 1993). Similarly, the agreement endings in I⁰ are the alternative realization of ϕ -features of a subject.

However, SCB pronominal clitics are often not in a sisterhood relation to the associated null argument. I therefore adapt Alternative Realization as follows: it is proposed that UG requires a formal feature to be alternatively realized by a closed class morpheme not via sisterhood, but within the same extended projection. This is a minimal extension of Alternative Realization, and accounts for why phrases may be alternatively realized as clitics higher than on the head of a sister. Language-specific and item-specific contextual restrictions make further restrictions as to the insertion site for alternatively realized morphemes.

Second, this thesis argues that Phonological Lexicalization is subject to an economy restriction essentially similar to that which tends to limit Attract to the covert syntax. Phonological Lexicalization of the closed class items associated with a particular extended projection are inserted into the derivation via a cyclic, bottom-up process. Just as with Attract in the computational component, it is ‘cheaper’ for this mechanism to occur later within an extended projection. We therefore assume a form of global Economy, as in Collins (1997). In terms of the lexicalization of the clitic cluster, if no further language-specific restrictions apply, such as the Romance specification of a clitic's host as +__V, it is most economic for the cluster to be inserted as late as possible within the extended projection. This we see most clearly in SCB, where the cluster appears on the highest head available, a head position which can vary according to the construction. Consequently, I argue against the widely held position that the SCB clitic cluster always appears in C⁰. Bulgarian and Macedonian clitics are further specified to appear on the highest [+V] head.

More generally, it has been widely observed that clitic systems in the world's languages tend to be relatively promiscuous in terms of hosts, like Germanic and some Slavic languages, whereas the Romance clitic systems differ in having the contextual restriction +__V. In this system, such cross-linguistic variation stems from a single lexical entry +__V for Romance clitics.

The question remains as to why there is this difference in host specification between languages. In order to answer this for the South Slavic languages, we need to look more closely at the auxiliaries in these languages.

It has been observed that SCB exhibits two forms of the auxiliary 'be' and the modal 'will', but the distinction between the two forms has remained a mystery in generative accounts to date. The full, stressed form appears always in I^0 . I claim that the unstressed form appears along with the pronominal clitics on whatever is the highest head of the extended projection. I maintain that the unstressed clitic auxiliary in the clitic cluster is not in fact an auxiliary verb but the alternative realization of I^0 features on the highest head. This may be C, as can be seen also in dialects of Dutch (Zwart 1996). The 'clitic auxiliary' is not therefore a member of one of the major classes N, A, V, and P and has no categorial specification [+/-N,+/-V]. The lack of any class feature in the clitic cluster means that the cluster as a whole is inserted in the highest head position of the extended projection, regardless of the categorial specifications of that head. The fact that it is the highest head follows from the economy restriction on Phonological Lexicalization. Hence, in a CP, they appear on C^0 , in an IP, on I^0 , and in demonstrable cases of bare VPs (e.g. gerund clauses), they appear on V^0 .

The Bulgarian/Macedonian clitic auxiliary 'be' has only a superficial similarity to the SCB clitic auxiliary 'be'. The Bulgarian and Macedonian auxiliary is a true auxiliary verb, hence specified [-N,+V], and appearing in I^0 .

In this account, the 'clitic cluster' is treated as an abstract entity, whose maximum membership is in (1), orderings varying slightly cross-linguistically.

(1) clitic cluster[auxiliary - accusative - dative - reflexives]

Usually only some of the members listed in (1) are present in a construction, depending on the tense and language-specific employment of the Alternative Realization mechanism made available by UG. The clitic cluster in (1) is inserted as a single unit at PF. In terms of categorial specifications, it is the nature of the clitic auxiliary that prescribes the nature of the whole clitic cluster. That is, in Bulgarian/Macedonian, the [+V] feature on the auxiliary in those languages means that the whole clitic cluster is [+V], even in the absence of the auxiliary in a given construction. This class feature restricts the range of possible heads to those specified as [+V]. In SCB, however, the absence of a class feature on the so-called 'clitic auxiliary' leads to an absence of any class feature on the clitic cluster. Consequently, the clitic cluster is not restricted to any particular head. In a sense, the SCB clitic cluster exhibits the default setting for UG and Phonological Lexicalization: in the absence of any additional language-specific conditions on, say, the categorial status of the host head.

Turning to the Bulgarian/Macedonian clitic cluster inside DP, a similar story occurs. The clitic cluster consists of maximally the clitic determiner/demonstrative followed by a dative possessive clitic. If the feature in D^0 is lexicalized by a demonstrative, the cluster appears on the highest [+N] head, this being D^0 . The clitic determiner is the alternative realization of the D^0 feature, appearing on the head of the complement to D^0 whatever that may be. This is in accordance with J.Emonds' original formulation of Alternative Realization via sisterhood (Emonds 1987). The DP clitic cluster as a whole follows the Alternative Realization morpheme, in the same way as the SCB clausal clitic cluster follows the clitic auxiliaries.

The class restrictions in Bulgarian/Macedonian combine with the last resort 'highest head' insertion mechanism to ensure that the clausal clitics appear on the highest [+V] head in the clause, and the DP clitic cluster appears on the highest [+N] head (if the D^0 feature is not alternatively realized). Crucially, both C and P are specified as [-N,-V], hence cannot host either clitic cluster in Bulgarian/Macedonian.

The clitic auxiliaries in Bulgarian/Macedonian and the SCB clitic auxiliaries, now analysed as the alternative realization of I^0 , do not appear in the

syntax. Lacking any purely semantic feature, they are phonologically lexicalized. A fact previously unaccounted for in the literature is that these late inserted items are unable to license a movement trace. In contrast, the stressed full form auxiliaries in SCB can license a movement trace. I argue this is related to the respective absence and presence of these forms in the syntax. We assume that a trace must be head-governed at PF (Aoun et al. 1987) prior to the level of phonological lexicalization. Consequently, the clitic auxiliaries cannot license a trace, whereas full form SCB auxiliaries can. I relate this inability to license traces on the part of the clitic auxiliaries to a similar restriction on English clitic auxiliary forms.

Returning to the subject of clitic clusters, SCB displays a form of clitic climbing, where the pronominal clitics associated with an embedded verb may appear in the matrix clause. On a par with Restructuring Verbs in Italian and Spanish (Rizzi 1978), we argue that a certain closed class of verbs in SCB optionally allow the entire derivation to constitute the extended projection of the lower lexical verb. This is shown to follow from the optional syntactic or Phonological Lexicalization of the so-called Restructuring Verb. We relate Rizzi's restrictions on VP movement in clitic climbing contexts to the trace licensing restrictions of auxiliary verbs in English and South Slavic.

Finally, this thesis argues for a theory of lexicalization that is compatible with Bare Phrase Structure in the Minimalist Program. Assuming economy to be a general feature of the system, I argue that Select, the mechanism that takes lexical items from the numeration for Merge, is rather Select F, on a par with Chomsky's (1995) move from Attract to Attract F. Select takes only the formal syntactic features of a lexical item, unless it is forced to pied-pipe further phonological and semantic features on account of interface requirements. In this way, the X-bar tree is constructed cyclically through the derivation by Merge and the projection of syntactic features in the standard minimalist way. For certain closed class items, however, the phonological features remain in the numeration for lexicalization at PF. It is the lack of a purely semantic feature in the feature matrix of the lexical item that allows such feature dissociation to occur.

In the opening chapters, we review the various approaches to lexicalization within Chomskyan grammars and establish the semi-postlexicalist model used in this thesis, mainly with reference to English. Chapter 1 reviews lexicalization in the earliest Chomskyan model, the ((Revised) Extended) Standard Theory and Principles and Parameters Theory and covers a number of significant side-issues, including weak and strong lexicalism, the generative semantics approach to the lexicon, and issues centring around lexicalization in the Minimalist Program. We particularly note any usage of 'late lexical insertion' in these models and its effects on the system as a whole. In chapter 2, we focus on recent models in which lexical insertion occurs uniformly at a post-syntactic level. We critique theories of postlexicalism (Zwart 1996; Halle & Marantz 1993) and examine Anderson's (1996) approach to SCB clitic placement within an Optimality Theoretic framework. In chapter 3 we consider Emonds' theory of Deep and Phonological Lexicalization (Emonds 1985, 1994, 1997) and approaches taken towards the notion of 'extended projection' in Grimshaw (1991) and van Riemsdijk (1990, 1997). In chapter 4, we adapt Emonds' theory for a model employing Bare Phrase Structure and outline the nature of an 'extended projection' in this model, and the mechanism of phonological lexicalization. We briefly consider the implications of cyclic numeration (Chomsky 1998) for this model and outline an interpretation of Aoun *et al.*'s (1987) PF head licensing via consideration of clitic and full form auxiliaries in English.

In chapters 5 - 9, we turn to the South Slavic clitic cluster. Unlike most other treatments of the clitic cluster, we distinguish between the nature of the auxiliary verbs first, before turning to the complete clitic clusters. In chapter 5, we focus on the full and clitic forms of 'be' and 'will' in SCB. All significant distinctions between these forms are shown to stem from their differing lexicalization procedures; the full forms are lexicalized in the syntax and the clitic forms are Phonologically Lexicalized. In chapter 6, further evidence is found in support of Phonological Lexicalization of the clitic auxiliary, and a further distinction is drawn between the [-PAST] and [+PAST] forms, again derived from distinct levels of lexicalization. In both chapters, the trigger for

syntactic lexicalization is derived from the independently established contents of the lexical entries for full form auxiliaries, the [+PAST] form of the Bulgarian auxiliary, and the English emphatic *do*.

In chapter 7, we review approaches to pronominal clitics in generative grammar and argue against purely syntactic accounts based both on *in situ* and movement analyses. In the final section, we consider pronominal clitics as the 'alternative realization' of (possibly null) argument XP (Emonds 1997). In chapter 8, we consider specifically the case of South Slavic pronominal clitics. I argue that the crucial descriptive generalization, modulo language-specific specifications outlined above, is the notion of 'highest head'. Bulgarian and Macedonian clitic clusters appear on the highest [+V] head in the extended projection of V, and on the highest [+N] in the extended projection of N. In SCB, the clitic cluster appears on the (unspecified) highest head in the clause. In chapter 9, we adapt Alternative Realization to our model and demonstrate how this accounts for South Slavic clitic clusters in a parsimonious way. In Bulgarian and Macedonian, the clausal clitic clusters consist of alternatively realised pronominal clitics and auxiliary verbs. In SCB, the clitic cluster consists of alternatively realized pronominal clitics and the alternatively realised features in I^0 , previously regarded as 'clitic auxiliaries'. In the latter part of the chapter, we treat the clitic climbing constructions in SCB and Romance using the system that has been established.

1. The Role of Lexical Insertion in the history of Generative Grammar

1.1. Introduction

The purpose of this chapter is two-fold. It serves as a brief introduction to, and account of, the Chomskyan research programme in linguistics and the major models adopted and revised since 1957. We come at these models from a particular angle however. In each model, we consider the way in which the model interfaces with the lexicon and discuss some of the significant empirical effects this has on the grammar as a whole.

It is often suggested that in order to understand a particular theory or movement, one must appreciate the paradigm against which it has pitted itself. In section 1.2, we open with a brief consideration of the shift from structuralist to generative linguistics and the system proposed in Chomsky (1957), observing how the swing to a syntax-centred framework influences the generation of lexical items. Section 1.2.1. focuses on D-structure insertion in the Standard and Extended Standard Theories of Chomsky (1965, 1972), which involved a diminution of the work done by the syntax in terms of generating lexical items. The 'lexicalist hypothesis' of Chomsky (1970) is introduced and a distinction drawn between derivational and inflectional morphology. In section 1.3, we briefly consider the generative semantics approach to lexical insertion and review some of the arguments in the literature at the time against the generative semantics position. Section 1.4 turns to the Principles and Parameters framework of Chomsky (1981, 1986) and the role that 'late lexical insertion' plays in the 'Government & Binding' model. In section 1.5, we consider the strong lexicalist approach taken in the Minimalist Program development of the Principles and Parameters framework (Chomsky 1995). Section 1.6 provides a summary of the chapter with conclusions.

1.2. American Structuralism and early Chomskyan models

Syntax, or the way in which words are combined into sentences, was a relatively insignificant part of the science of linguistics called structuralism that stemmed from de Saussure's *Cours de Linguistique Générale* (1916). This tendency may result partly from the nature of the system that de Saussure proposed. He divided grammar into *langue* and *parole*: *langue* was essentially a lexicon, or list of signs, each word consisting of a 'sound-image' (the *signifiant*) and the concept to which it referred (the *signifié*). *Parole*, on the other hand, was speech, or the way in which these signs are used in the world. Chomsky (1972b) notes that the characterisation of *langue* as an inventory of lexical items in de Saussure's framework implies that the combinatorial property of language, syntax, properly falls within the scope of *parole*. For Chomsky, however, a syntactician's focus is the abstract system underlying language, the speaker's *competence* (Chomsky 1965) or 'I-language' (Chomsky 1985), rather than a speaker's use of language, his or her *performance* or 'E-language'. In more recent years, Chomsky has gone further and suggested that the term 'E-language' has no scientific meaning at all. If this is true, and if syntax is an aspect of *parole*, then syntax evidently does not form part of the Saussurean linguist's field of inquiry at all.

But more significantly, the tendency to neglect syntax in structuralist linguistics was a reflection of a 'bottom-up' methodology. The structuralist sought to establish the smaller units before embarking on describing the units of which the smaller units are composed. For example, only once one has determined the phones can one turn attention to the morphs, and only then could one turn to 'words' as combinations of morph(eme)s. Not surprisingly, few structuralists got round to focusing on syntax.

When syntactic research was considered, it was in the belief that precisely the same tools of discovery and classification that were used at, say, the phonetic level could be employed to establish the morphemes and their configurations. In other words, the devices of morphotactics (a structuralist term for the internal syntax of words) were deemed capable of syntactic analysis. Harris (1946), for example, claims to demonstrate how repeated substitution

could be utilized to establish the morpheme categories of English and Hidatsa. He closes the article by suggesting that once such a syntactic analysis has been completed, then precisely the same procedure could be used in the analysis of the 'utterance level'¹.

Employing identical tools for different levels of linguistic data is appropriate if language is just one of many behavioural habits displayed by the human being and embodies no unique structures (Bloomfield 1933, chapter 2).

This is in stark contrast to the mentalist approach to language championed in the Chomskyan paradigm in the late fifties and onwards. For a mentalist, the language faculty is unique, crucially because of its 'discrete infinity' (its possibility for endless recursion). On account of this uniqueness, it might well consist of fundamentally distinctive components, such as phonology and syntax. Components that employ distinct primitives and mechanisms may well demand distinct diagnostics, or tools, with which to examine its workings².

Besides this, in early generative research, a shift towards what Jackendoff (1997: section 1.3) has termed a 'syntactocentric' position occurred. Instead of syntax waiting in the wings for future analysis, it took centre stage. For the Chomskyan linguist, the fundamental component of the language faculty was (and still is) the syntax, whilst the phonological and semantic components play an 'interpretive' role. To a very large extent, the generativist's approach to semantics was taken over from American structuralism; Bloomfield regarded the science of semantics at the time to be of little use to the linguist, and rigorous scientific analysis should avoid having recourse to it. The focus on syntax and marginalisation of morphology, however, reflects the shift of focus onto the universal and discrete infinity reflected most clearly in the generation

¹ Halliday's Systemic Functional Grammar attempts just this, but rejects the need for a 'bottom-up' approach prior to analysing the 'utterance level' (Halliday 1985: chapter 1). See particularly the contrast between 'minimal' and 'maximal' bracketing (Halliday 1985: 22-6).

² By no means all linguists working within (the now broad church of) 'Chomskyan linguistics' share Chomsky's claim that language is a reflection of psychobiological structures in the brain. See Katz & Postal (1991) for a critique of Chomsky's position, and in defence of linguistic 'realism': that natural language sentences (and numbers in mathematics) are abstract objects, not dependent on mind/brains for their existence.

of sentences. In other words, Chomsky's 'revolution' was partly a rejection and partly a continuation of the structuralist paradigm. Syntactocentrism is a reflection of both.

Jackendoff (1997:16) suggests this move was also partly motivated by a desire to avoid redundancy. The syntax-centred view sees discrete infinity as arising from a single module, embodied initially in recursive Phrase Structure Rules and later the X-bar framework. Recursion in more than one module involves redundancy, hence recursion in the phonological or semantic module must simply be a reflection of recursion in the syntax. Also, Jackendoff sees marginalisation of phonology and semantics as partly an artifact of the serial algorithms common at the time. Syntactic operations moved step by step; any other component such as the phonology or semantics must either come before or after³.

In this syntactocentrism, much morphology was subsumed under syntax, for syntactic rules could combine morphemes into words just as they composed words into sentences. In Chomsky (1957), for example, English verbal inflection results from the syntactic rule (1) which combines a verb stem and its inflectional morphology.

(1) Let *Af* stand for any of the affixes *past*, *S*, *en*, *ing*. Let *v* stand for any Modal or V, or *have* or *be*. Then:

$$Af + v \rightarrow v + Af\#$$

where # is interpreted as word boundary.

Chomsky (1957:39)

This results in the derivation in (2a-b):

³ These two points concerning the syntactocentric nature of generativism reflect Jackendoff's own agenda in arguing for a tripartite model of the language faculty, discussed in 2.4 below.

- (2)a. *The + man + S + have + en + be + ing + read + the + book*
 b. *The + man + have + S # be + en#read + ing#the + book*
 c. *The man has been reading the book*

Chomsky (1957:40)

In (b), *read* combines with the affix *-ing* to its left, *be* with *-en* to its left, and *have* with the abstract 3rd person singular morpheme *S* to produce *has*. In Newmeyer's (1980:25) opinion, it was this analysis of the morphemics of the English auxiliary system in *Syntactic Structures* that won over many of the earliest supporters to generativism.

The derivation of inflectional morphology via syntactic rules has remained a strong theme throughout generative research, playing a particularly significant role in the late eighties⁴. Initially, derivational morphology was also dealt with via syntactic rules. A notably extreme case was that of Lees (1959) where, for example, the lexical item *snowman* was derived from *the man which is made of snow*. As Chomsky later suggested, the framework at the time allowed no alternative option (Chomsky 1970a/1972:17).

In Chomsky (1957), lexical items were introduced into trees via Phrase Structure Rules that expanded a terminal node, such as *N*, into words (*N* → *snowman*, *bush*, etc.). In a sense, one could say that lexical insertion was 'post-syntactic', and that the battery of syntactic operations was extensive. Clearly Lees' noun *snowman* can only expand a node that has been previously generated by the powerful syntactic rules proposed.

C

⁴ See, for example, the discussion of Baker's (1985) Mirror Principle within 'Government & Binding' version of Principles & Parameters Theory in section 1.4.1.

1.2.1 The Lexicalist Hypothesis in the (Extended) Standard Theory

An alternative approach to, at least, derivational morphology was made available in Chomsky (1965) by the introduction of syntactic features [+/-N] and [+/-V] in the grammar. Rather than attempting to capture all lexical derivations via syntactic rules, the presence of such features enabled the relationship between certain morphologically and semantically related lexical items, say, the verb *neglect* and the derived nominal *neglect*, to be established via base rules *prior to* syntactic operations. Such related verbs, nouns and adjectives are represented in the lexicon without categorial specification but with their unique selectional properties specified.

One benefit from a syntactic point of view is that the syntactic component is freed of much of the burden it previously carried of expressing morphological relations. Furthermore, in 'Remarks on Nominalizations', Chomsky (1970a) argues that the distinction between lexical items derived via lexical rules and lexical items derived via syntactic rules copes with certain data better than a purely syntactic account can. We review these arguments here.

Consider first the verb *criticise* and the related gerundive *criticising* and derived nominal *criticism* in (3). Previously, the limitations of the theory required that both the gerundive and the derived nominal were derived from the verb via syntactic rules.

(3)a. *John criticised the book*

Gerundive:

b. *John's criticising the book*

Derived nominal:

c. *John's criticism of the book*

Chomsky (1970a) argues that the gerundive is derived from syntactic operations and the derived nominal results from lexical rules in the base.

First, the transformation that creates a gerundive applies freely, whereas the equivalent transformation creating a derived nominal is often blocked:

- (4)a. *John's being easy to please*
b. **John's easiness to please*

(Chomsky 1972:18)

Secondly, there is a regular semantic relation between a verb and the respective gerundive, whereas the semantic relation between a derived nominal and the verb is often 'idiosyncratic', as are the examples in (5).

- (5) *laugh – laughter*
permute – permutation
trial – try

(Chomsky 1972a:19)

Thirdly, the gerundive does not have the internal structure of an NP whereas the derived nominal does:

- (6)a. **The proving the theorem*
b. *The proof of the theorem*

(Chomsky 1972a:20)

A final argument against a general syntactic rule of nominalization is that such a rule predicts that all constructions in (7) should be grammatical.

- (7)a. *John is easy to please*
b. *John is eager to please*
c. **John's easiness to please*
d. *John's eagerness to please*

In fact, the nominalization appears to be possible only for *eager*, not *easy*. For Chomsky, the categorially unspecified *EAGER* has the subcategorisation frame +___S in the lexicon. Hence, in both (b) and (d) *eager/eagerness* take a sentential complement, with *eager* specified [+V,-N] and *eagerness* [-V,+N].

In contrast, the lexical entry for *easy* does not have the same subcategorisation frame. Rather, it is specified in the lexicon to be predicated of propositions as subject (e.g. [*to please John*] is *easy*, where the bracketed proposition is the subject). As a result, it cannot be inserted into a noun position in the context +___S, and we cannot derive (c) (Chomsky, 1972:22-3). A *carte blanche* rule of nominalization in the syntax is unable to rule out (c) without reference to individual lexical items.

In this section, then, we have seen how the earliest generativism was strongly syntactocentric, in contrast to its structuralist predecessor. This finds its reflection in both the generation of lexical items and their 'post-syntactic' introduction into the derivation. In the latter part of this section we briefly considered Chomsky's (1970a) lexicalist position which removed derivational morphology from the syntactic arena. It is in the introduction to the Standard Theory in Chomsky (1965) that the first explicit rule of lexical insertion was introduced and to which we now turn.

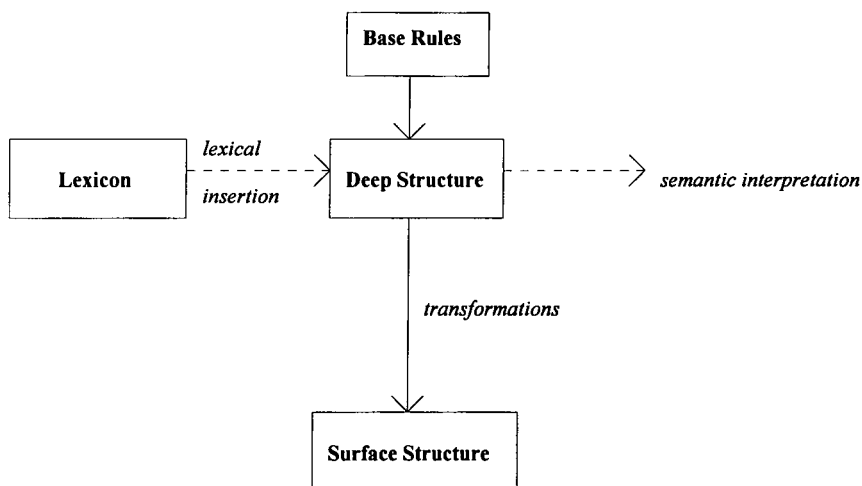
1.3. Generative semantics and lexical decomposition

In Chomsky (1965), deep structure was defined as:

- (8)a. The base of the simplest syntactic component,
- b. The level at which grammatical relations/selectional restrictions are defined, and
- c. The point at which there is lexical input to transformations.

In this model, a rule of lexical insertion substitutes a lexical item for a syntactic terminal prior to transformations that take the derivation to surface structure. The model is represented in (9).

(9) The Standard Theory Model



In the absence of a theory of universal semantics, and the assertion of syntactic autonomy from semantics results in semantics being given the status of a 'by-product' of the language faculty (Chomsky 1965: 226 fn. 15). However, the model in (9) also establishes a relation between deep structure and the semantic interpretation of a sentence. Consider Chomsky's references to the relation between Deep Structure and semantic interpretation in *Aspects*:

The syntactic component of a grammar must specify, for each sentence, a deep structure that determines its semantic interpretation...[this] is interpreted by the semantic component.

(Chomsky 1965: 16)

...the syntactic component of a grammar must contain transformational rules mapping semantically interpreted deep structures into phonetically interpreted surface structures.

(Chomsky 1965: 29)

Such statements are unclear. Do they simply refer back to the relations in (8b), the representation of subcategorisation frames and selectional restrictions, or is *all* semantic interpretation established at deep structure? Some syntacticians later known as 'Generative Semanticists' assumed the latter and argued that

sentences which were 'cognitively synonymous' must share the same deep structure (Newmeyer 1980:91-2)⁵.

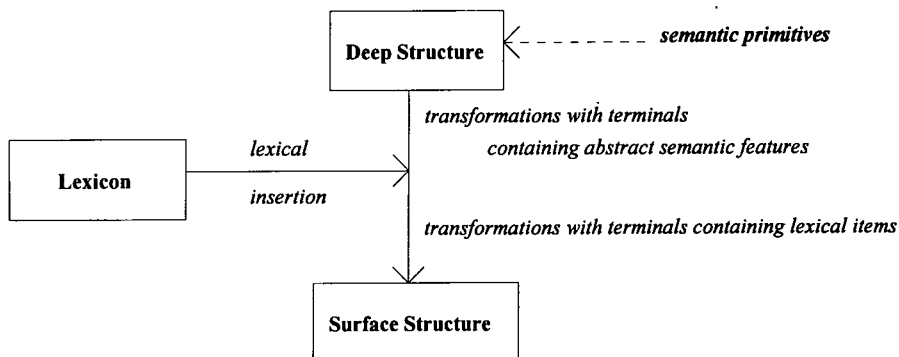
For example, Lakoff (1968) argued that (10a) and (b) were both derived through syntactic rules from the shared deep structure in (10c).

- (10)a. *Seymour sliced the salami with a knife*
 b. *Seymour used a knife to slice the salami*
 c. *Seymour used a knife* \S [*Seymour sliced the salami*]

In this way, the selectional restrictions referred to in (8b) that are shared by (a) and (b) need be stated only once (that is, a verb that appears before the instrumental adverb in (a) may also appear in the complement to *used* in (b)).

It was soon argued that if deep structure were indeed the locus of semantic interpretation and all syntactic transformations were meaning-preserving (as proposed in Katz & Postal 1964), then deep structure must consist of semantic primitives alone. Lexical insertion became a transformation at a later stage following transformations on semantic primitives. This model is represented in (11).

(11) A Generative Semantics model



⁵ When this term was made precise, such as for declaratives in the present or past, 'Cognitively synonymous' meant 'sharing truth values'.

Rather than defining Deep Structure in terms of (8), this model asserts the 'Universal Base Hypothesis'; Deep Structure is a level at which 'semantic primitives' are combined by what generative semanticists termed 'natural logic'.

One classic example of this model is the verb *kill*. At the level of deep structure, *kill* is supposedly represented as a causative construction by the phrase *cause to die*. The lexical item *kill* is inserted at a later stage, once the syntax has generated a single complex terminal node that can be matched with *kill*. As a result, the relation between the sentences in (12) is argued to be parallel to the relation between those in (13).

(12)a. *John killed Mary*

b. *John caused Mary to die*

c. *Mary died*

(13)a. *Floyd melted the glass*

b. *Floyd caused the glass to melt*

c. *The glass melted*

The relation between the sentences in (13) is readily apparent. A semantically-based grammar claims that *killed*, *caused X to die* and *died* are similarly equivalent at deep structure.

Along the same lines, McCawley (1968) argued that the 'respectively-transformation' derived (14d) from the sequence (14a-c), and (15c) from that of (15a-b):

(14)a. $Ax:x$ (John, Harry) [*x loves x's wife*] (where A=the universal quantifier)

b. *John loves John's wife and Harry loves Harry's wife*

c. *John and Harry love John's wife and Harry's wife respectively*

d. *John and Harry love their respective wives*

- (15)a. *That man (x) loves Mary and that man (y) loves Alice*
b. *That man (x) and that man (y) love Mary and Alice respectively*
c. *Those men love Mary and Alice respectively*

(following Chomsky (1970b))

McCawley argues that (14) and (15) are both instances of the 'respectively-transformation', a 'unitary phenomenon' in his terms. However, in the Standard Theory of Chomsky (1965), the relations in (14) must be 'semantic', given that it relates quantifiers and bound variables in (14a) to ordinary NP's in (14b-d), whilst (15) must be syntactic, as it involves conjunction reduction. The Standard Theory cannot therefore treat (14) and (15) as a single phenomenon, and must consequently be rejected in favour of a semantically-based grammar.

In terms of levels of lexical insertion, it is central to generative semantics that if grammar is semantically-based, then lexical items are not introduced prior to all transformations. Rather, lexical items are introduced only once the syntax has generated the appropriate complex terminal nodes with which lexical items can be matched.

Generative semantics was eventually discredited, some of the reasons for which we will consider below. However, we shall see that part of the logic of the above argument concerning lexical insertion surfaces throughout the history of generative grammar in support of any lexical insertion that occurs later than deep structure. That is, some lexical items have morphological forms that require syntactic operations to precede lexical insertion in order to provide the necessary context for insertion.

1.3.1. *Against Generative Semantics*

The notion of a semantics-based syntax was a major departure from the dominant strain of formal linguistics in the twentieth century. It struck at the heart of Chomskyan linguistics by questioning the autonomy of the syntactic component. The hostility once directed at the structuralist old guard became directed at the generative semanticists and heated debates ensued⁶. In this subsection, we briefly review some of the most famous arguments against the generative semantics approach that appeared in the literature during the period of the most heated debates.

1.3.1.1. *Slicing generative semantics with a knife*

Chomsky directly addressed the notion of a semantically-based grammar in his article 'Deep Structure, Surface Structure and Semantic Interpretation' (1970b). In response to Lakoff's (1968) analysis of (10a,b), Chomsky argues that (10b) (repeated as (16a) below) is derived from a separate deep structure representation (16b), with appropriate deletions in the embedded S. The preposition *with* is optionally present, hence an additional possible construction (16c) that Lakoff's analysis fails to account for. In this way, the similar data in (d) and its deep structure (e) follows straightforwardly.

(16)

- a. *Seymour used a knife to slice the salami*
- b. *Seymour used a knife* S[*Seymour sliced the salami with a knife*]
- c. *Seymour used a knife to slice the salami with*
- d. *Seymour used this table to lean the ladder against*
- e. *Seymour used this table* S[*Seymour leaned the ladder against this table*]

In contrast, the construction *Seymour sliced the salami with a knife* obviously does not derive from (b), but forms the embedded S in (b).

⁶ On generativist virulence against structuralism, see Hockett (1997). For accounts of the so-called 'linguistics wars', see Newmeyer (1980) and Harris (1993). The debate continues; for an illuminating revisionist account of the debate, see Huck & Goldsmith (1995), and Newmeyer's (1996) review.

Any shared selectional restrictions follow from lexical entries, and need only be stated once in the lexicon.

1.3.1.2 *Causing generative semantics to die*

Chomsky (1970b:fn.7) dismisses the notion that *kill* is at a more abstract level composed of *cause-to-die* by pointing out that it is possible to cause someone to die without actually being said to *kill* the victim. Fodor (1970) goes further and gives three arguments against the generative semantics position.

- Cause to die *and* kill have different distributional characteristics from cause to melt *and* melt

Recall that a semantically-based grammar asserts that *cause to die* and *kill* in (12) are related in the same way as *cause to melt* and *melt* in (13). However, Fodor shows that the *do so* test indicates that there is no constituent [*Mary die*] underlying [*killed Mary*]. Consider his data in (17).

- (17)a. *John killed Mary and it surprised me that he did so*
b. *John caused Mary to die and it surprised me that she did so*
c. **John killed Mary and it surprised me that she did so*

(Fodor 1970:431)

In (a), *do so* can replace the constituent [*killed Mary*]. In (b), *do so* replaces [*to die*]. A semantically-based grammar asserts that *John killed Mary* in (a) is underlyingly *John caused Mary to die* as its underlying form. We wrongly expect *do so* therefore to be able to replace *to die* in (c) in the same way.

This contrasts with the supposedly related constructions in (18).

(18)

- a. *Floyd melted the glass though it surprised me that he would do so*
- b. *Floyd caused the glass to melt though it surprised me that it did so*
- c. *Floyd melted the glass though it surprised me that it would do so*

Unlike in (17), the construction in (c) is grammatical, suggesting that at some syntactic level *the glass melt* is a constituent in (18b) whereas *Mary die* is at no level a constituent in (17b).

The ungrammaticality of (17c) does not follow from a possible rule ordering (e.g. ‘the *do so* test must follow the lexicalization transformation’) because if this were so, then we would not expect (18a) to be grammatical.

- *An acceptable deep structure but ungrammatical surface structure*

A semantically-based grammar generates the deep structures in (19).

(19) [*John [caused [Bill to die on Sunday]]] [by [stabbing him on Saturday]]*

The lexicalization transformation introducing *kill* and *melt* should then be able to generate the surface structure in (20).

(20) **John killed Bill on Sunday by stabbing him on Saturday*

This appears to be word-specific problem, as it is equally impossible for *melt* (**John melted the butter on Sunday by heating it on Saturday*) but not for, say, *qualify* (*John qualified for the job on Sunday by interviewing well on Saturday*).

- *Instrumental adverbial phrases*

Consider the construction in (21).

(21) *John contacted Mary by using the telephone*

The understood subject of the gerundive *using* is understood to be co-referential with the subject *John* of the main clause, but not to the direct object *Mary*. Now consider the deep structure in (22a) and the two possible surface structures in (22b,c).

(22)a. [*John caused [Bill to die]*] [*by [Bill swallows Bill's tongue]*]

b. *John_i caused Bill_j to die by PRO_{i/j} swallowing his tongue*

c. *John_i killed Bill_j by PRO_{i/*j} swallowing his tongue*

In (22b,c), the understood subject of the gerundive clause is represented by PRO, with co-reference/disjoint reference indicated by coindexation. As we can see, the construction in (22b) is ambiguous: the understood subject of the gerundive *swallowing* may be co-referential with either the matrix subject *John* or the subject of the embedded clause *Bill*. However, if the lexicalization transformation introduces *kill* into the derivation, the semantics of the construction is no longer ambiguous. This indicates that underlyingly *Bill* in (22c) does not occur in the same position as *Bill* in (22b).

Alternatively, this data suggests that whatever theory is used to explain the co-referential possibilities of the gerundive subject, the possible semantic ambiguity of (22b) is not determined at deep structure but at the level of surface structure⁷. In fact, this is precisely the account of semantic interpretation that Chomsky proposes in the Extended Standard Theory (Chomsky 1970b).

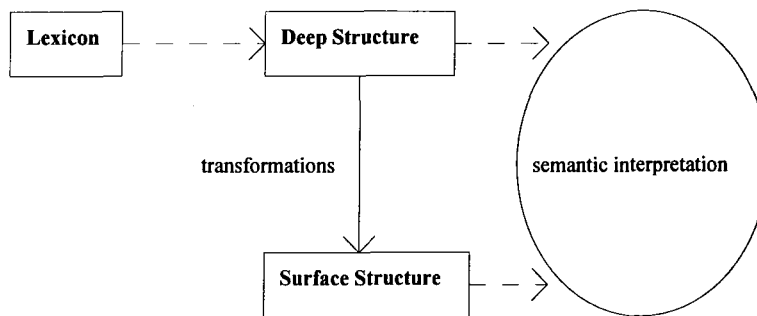
⁷ See also Wierzbicka (1975) for semantics-based arguments against *kill* as underlyingly *cause-to-die*.

1.3.1.3. A notational variant of the Standard Theory

Part of the force of Chomsky (1970b) derives from the two-step nature of the argument. First, he undermines the generative semantics position by asserting that the rules of semantic mapping onto a syntactic representation used in the 'respectively transformation' (14) are no more than 'inverses of rules of semantic interpretation in the Standard Theory' (1970b/1972:79). In other words, the model is merely a notational variant, and thus makes no empirical predictions that differ from those of the Standard Theory.

Secondly, Chomsky himself rejects the Standard Theory in favour of the Extended Standard Theory (EST), so removing any doubt concerning Deep Structure and semantic interpretation on account of the quotations on page 10 above. In the EST model, the semantic interpretation of a sentence derives from a combination of both the Deep Structure relations established via (8) and from the Surface Structure, a position dubbed 'Generative Interpretivism'.

(23) The Extended Standard Theory model

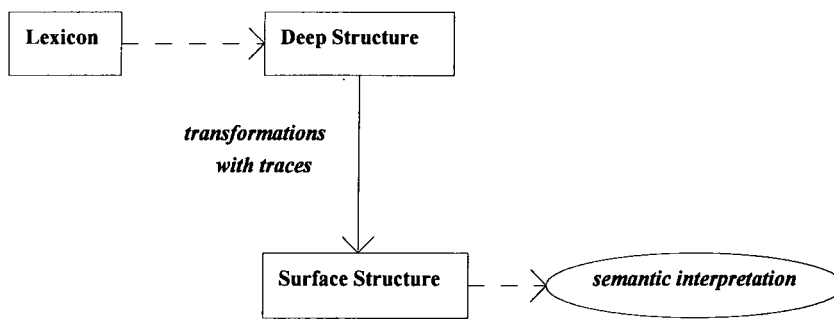


(Chomsky 1970b)

Regarding the so-called 'respectively transformation, syntactic rules (9b-d) proceed in the syntax, and the semantic reading is read off from the surface structure via semantic rules that are inverses of McCawley's semantics→syntax mapping rules.

With the introduction of movement traces, the relations established at Deep Structure could be retained throughout the syntax, hence opening the way for all semantic interpretation to take place at, say, S-structure.

(24) The Revised Extended Standard Theory



(Chomsky 1975)

In fact, the introduction of movement traces also opened up the option of uniform lexical insertion at S-structure (Otero 1976, den Besten 1977, Fiengo 1980). We hold over discussion of this issue for chapter 2.

In this section, we have focused on lexical insertion in the (Extended) Standard Theory and the challenges to this model presented by Generative Semantics. The way in which the syntax interfaces with the lexicon is central to this debate, and we reviewed some of the arguments both for and against a semantics-based grammar. Despite major developments in the theory during the 70s, particularly in relation to the introduction of movement traces, insertion of most lexical items remained at the level of Deep Structure.

1.4. The Principles and Parameters Framework: 'Government & Binding' Theory

Chomsky's Pisa Lectures of 1979 (Chomsky 1981) first introduced the Principles & Parameters (P&P) framework. The remainder of this chapter is devoted to the way in which the P&P model interfaces with the lexicon. In this section we address first the issues of 'weak' lexicalism and inflectional morphology in the 'Government & Binding' (GB) Theory before considering the role of late lexical insertion.

1.4.1. Inflectional morphology and the rise of functional categories

Deep Structure continued to be the locus of lexical insertion in GB Theory (Chomsky 1981, 1986). A *weak* version of the Lexicalist Hypothesis was retained; not all morphology resulted from lexical rules prior to lexical insertion. Inflectional morphology such as that resulting from (1) remained in the syntax.

Indeed, the way in which a lexical item gained its inflectional morphology became increasingly significant in terms of accounting for word orders. Emonds (1978) argued that differences between English and French negative finite clauses (23) result from movement of the French verb across negation (23a). The English verb cannot move up across negation in the same way (23b).

(23)a. *Jean (ne) mange_i pas t_i de haricots verts*

J. eat-3sg. neg. beans

b. **John eats not beans*

c. *John doesn't eat beans*

Instead, English utilizes 'do-support' to carry the inflectional features (23c).

Building on Emonds' work, Pollock (1989) proposed a 'split Infl', consisting of both a functional head for the agreement morphology (Agr⁰) and for the tense morphology (T⁰). In keeping with the X' framework introduced into generativism in Chomsky's *Remarks on Nominalization* (1970a), such functional heads project a phrase XP in the same way as the lexical categories N, A, V and P (Fukui 1986; Speas 1986)⁸.

Chomsky (1991/1995:147) proposed a further 'split-Agr' allowing a functional head for both subject agreement morphology (AgrS⁰) and object agreement morphology (AgrO⁰). In each case, the functional head motivated V⁰-movement for the purposes of 'picking up' the inflectional morphology.

⁸ The X' structure is $XP[X' [X[X^0]]]$. A structuralist precursor of the X' framework was proposed in Harris (1946).

Baker's Mirror Principle (Baker 1985, 1988) states that the order of morphemes attached to the word stem in agglutinating languages mirrors that of the syntactic operations that 'construct' the morphology. Hence if the verb attaches first to T^0 and subsequently to Agr^0 , then the order of these adjunctions is reflected by the linear order of the morphemes attached to the verb: V-T-Agr. 'Picking up' inflectional morphology in this way became the standard account of head movement (X^0 -movement) in mainstream GB theorizing.

The adoption of these functional categories heralded a general proliferation of functional phrases in mainstream GB theory in the late 80s and early 90s. One criticism that can be made of the research program at this time is that a semblance of analysis could be achieved via the mere stipulation of a new functional category based on, at times, no more justification than a language-particular word order, or morpheme order, or simply the existence of a morpheme. Given the X' structure, the postulation of a new head position comes with a specifier and a maximal projection, both available for substitution or adjunction respectively. Clearly, the more positions in the tree that are proposed, the more powerful the grammar becomes with the concomitant danger of over-generation⁹.

The combination of the Mirror Principle and the extensive range of functional heads being proposed generated a plethora of analyses of underlying syntactic structure prescribed by the linear order of morphemes. In a highly agglutinating language such as Finnish, this approach was relatively straightforward, as in the analysis of the Finnish clause in Holmberg *et al.* (1993). Ouhalla (1991) goes further in pursuing the same approach to a number of languages that exhibit fusional morphology, even though Baker's principle makes predictions for agglutinating languages only¹⁰.

Research along these lines has, of course, brought new data to light. However, the move to strongly minimalist-inspired theorizing in Chomsky (1995) has eradicated many functional categories, especially Agr Phrases, on the

⁹ This weak point of GB theorizing has been particularly common in accounts of South Slavic as we shall see in chapters 5, 6 and 7.

¹⁰ See chapter 2 of this thesis for discussion of fusional vs. agglutinating morphology.

grounds that they make no contribution to LF¹¹. In keeping with the aims of minimalism, Chomsky asserts that ‘Postulation of a functional category has to be justified, either by ... phonetic and semantic interpretation ... or by theory-internal arguments. It bears a burden of proof which is often not so easy to meet.’ (Chomsky 1995:240)¹². We shall consider the Minimalist Program in relation to the lexical interface in detail later (section 2.5). For now, let us focus on the issue of lexical insertion in GB theory.

1.4.2. Late insertion in Chomsky (1957, 1981)

Throughout the history of generative grammar, some lexical items have been inserted into contexts later than Deep Structure (henceforth D-structure), an issue that we have so far skirted. In this section, I review an array of lexical items inserted late in Chomsky’s *Lectures on Government & Binding* (1981). As an introduction, however, we return to the earliest generative account of English that included a form of ‘late’ insertion, that of *Syntactic Structures*.

In Chomsky (1957), the auxiliary *do* in (23c) above does not appear in the ‘kernel sentence’ (equivalent, for our purposes, to D-structure). Rather, *do*-insertion is a separate rule (24) in order to pick up the inflectional morphology realising tense and subject agreement.

(24) #*Af* → #*do* + *Af*

Informally: ‘*do* is introduced as the bearer of an unaffixed affix’

(Chomsky 1957:62)

This takes place following the transformations that form negative sentences, *yes-no* and WH-questions. For example, (24) applies in the derivation below to (25d) following transformations (25a-c):

¹¹ See also Iatridou (1990) for a critique of Agreement Phrases; see Ernst (1991) for a critique of a ‘NegP’ for negation.

¹² The Mirror Principle also comes into question, given its perceived lack of support from the data (Chomsky 1995:195).

(25)a. *John - C - eat + an + apple* (where C = *tense* and *agreement* inflection)

b. *John - past - eat + an + apple*

c. *past - John - eat + an + apple*

d. *Did John eat an apple*

(Chomsky 1957:70)

Do-Insertion must be 'late'. If the auxiliary were introduced into the kernel sentence (25a), this would constitute an 'affirmation' transformation (*John does eat an apple*; Chomsky 1957:65). Example (25a) could not then be the kernel sentence underlying the transforms *John eats an apple*, *John ate an apple*, *John didn't eat an apple*, *did John eat an apple*, etc. The effectiveness of this early analysis was precisely that so many strings were derived transformationally from a single kernel sentence. Inclusion of the auxiliary *do* in the kernel sentence prevented so parsimonious an account.

In GB theory, late insertion of *do* is retained. However, a number of additional lexical items are also inserted late for theory-internal reasons. We next consider these in turn.

We considered above the relationship between a verb and its derived nominal in English (section 1.2.1). A further difference between the two not previously mentioned is the fact that the verb can take an NP complement in (26a,d) whereas the related nominal, like any noun, cannot take an NP complement (26b,e).

(26)a. [VP *neglect the children*]

b. *[NP *the neglect the children*]

c. [NP *the neglect of the children*]

d. [VP *write the book*]

e. *[NP *the writer the book*]

f. [NP *the writer of the book*]

g. *[AP *proud John*]

h. [AP *proud of John*]

Rather, the nominal requires the presence of the semantically null preposition *of* to intervene between the complement and the head noun (26c,f). We see that the same is true of adjectives with an NP complement (26g,h).

For the moment, let us set aside the presence of the preposition *of* in (26c,f) and observe that a verb and its derived nominal share identical selectional relations that are satisfied at D-structure (8b). These selectional restrictions need to be stated only once in the lexicon if, like EAGER in (7) above, the lexical item remains unspecified for syntactic category in the lexicon. If this were the whole story, then (26b,e) would be grammatical D- and S-structures. Instead, however, (26b,e) can be assumed to be acceptable D-structures because they satisfy selectional restrictions, but they are clearly ungrammatical as S-structure representations. A further mechanism is therefore needed to rule out (26b,e) and generate (26c,f) at S-structure. The additional data (26g,h) suggests this mechanism should include both nouns and adjectives.

The categorial specifications for the major lexical categories in Chomsky (1972) and van Riemsdijk (1978) are as follows:

(27)

N	A	V	P
[+N,-V]	[+N,+V]	[-N,+V]	[-N,-V]

In Case Theory, an NP requires Case, but only [-N] categories are Case assigners (Chomsky 1981:49). In (27), the [-N] categories are V and P. When the selectional relations in (26) are established at D-structure, the NP complements to V receive Case from the V and hence (26a,d) are grammatical. The NP complements to N and A, in contrast, remain without Case, hence the ungrammaticality of (26b,e).

The Case requirement is satisfied via late insertion of the preposition *of*: 'insert an empty P devoid of semantic content as a kind of Case-marker to permit nominal complements' (1981:50):

(28) NP → [P *of*] NP / [+N] _____

In this way, both [NP *the children's neglect*] and [NP *neglect of the children*] can be derived from the same D-structure; there is no underlying P *of* to distinguish between the constructions at D-structure. This contrasts with [NP *John's gift*] and [NP *gift to John*]; both NPs cannot derive from a shared D-structure because the preposition *to* in the second construction is present at D-structure. Unlike the P *of*, the P *to* is not 'semantically null' and is required by both the noun *gift* and the verb *give* (*give the book to John*).

So far, we have seen that two semantically null lexical items are introduced late, the auxiliary *do* and the preposition *of*. Next, consider the derivation (29a-c).

- (29)a. [NP *Three men from England*][VP *arrived last night*]
 b. [NP *e*][VP *arrived last night*][NP *three men from England*]
 c. [NP *There*][VP *arrived last night*][NP *three men from England*]

In Chomsky (1981:85), the pleonastic or expletive pronoun *there* in (c) is inserted late into the empty position [NP *e*] in (b) which has been vacated by the subject in (a) *Three men from England*. Chomsky proposes that English *there*- and *it*-insertion occur 'freely and anywhere' (1981:88). This is preferable to stipulating a specific insertion context. However, expletive insertion is restricted via θ -theory, the assignment of thematic roles by lexical heads in GB theory. The semantic vacuity of *there* and *it* means that they can only appear in θ -bar positions (= positions that are not assigned a thematic role).

In fact, insertion 'anywhere' is not restricted only to semantically null items. In GB theory, late insertion of a semantically contentful lexical item

becomes the solution to problems encountered in Chomsky (1977) in the analysis of *easy-to-please* constructions in (7a), repeated as (30a).

(30)a. *John is easy to please*

b. *It is easy to please John*

It has already been established that the expletive *it* in (30b) must be late inserted into a θ -bar position. What Chomsky (1981) asserts is that the proper noun *John* is also inserted late. This is very much for theory-internal reasons, so we shall reconstruct the argument in some detail.

The adjective *easy* appears to have a dual lexical entry to accommodate (30a) and (30b). Let us consider (a) first. Updating the analysis of *eager* in *Remarks on Nominalization*, Chomsky (1977) assigns *easy* the subcategorization frame + ____ S'. This is supported by the existence of the overt *wh*-phrase in (31).

(31) *This is an easy violin on which to play sonatas*

In Chomsky (1981), the D- and S-structures of (30a) are analysed as (32a,b) respectively.

(32)a. *John is* [AP *easy* [S' [S PRO *to please* PRO]]]

b. *John_i is* [AP *easy* [S' PRO_i [S PRO_{arb} *to please* *t_i*]]]

The PRO in embedded object position in (32a) moves to COMP in (32b). This PRO is co-referential with *John*, indicated by the index. The PRO subject of the embedded clause has arbitrary reference. Following Lasnik & Fiengo (1974), Chomsky (1977) assumes *John* is generated in matrix subject position.

Now let us turn to (30b). Here, *easy* appears to subcategorize for a clausal complement that in some way prevents the subject position of the matrix clause from being a θ -position, hence the presence of the expletive *it*. An entirely *ad hoc* generalization is therefore proposed in Chomsky (1977) that the

subject is a θ -position if and only if the complement does not exhibit any internal movement such as WH-to COMP in (31) or PRO to COMP in (32b).

The difference, then, between (30a) and (30b) is captured in Chomsky (1977) essentially via stipulation. The awkwardness of this is avoided in Chomsky (1981:309) where [*easy to please*] is reanalysed as a complex adjective (see [*How easy to please*] is *John*), so that (30a) is now assigned the structure in (33):

(33) *John*_i is [_{AP} [_A *easy to please*] *t*_i]

The subject *John* is base-generated in the θ -bar subject position, just as in (32a). The question is then how *John* gets a θ -role. The trace in complement position to the complex adjective *is* in a θ -position, and this transmits its θ -role to *John* in subject position in the same way as an antecedent-anaphor relation in, say, *John*_i is fond of himself_i¹³.

A problem then arises with respect to the lexical insertion of the subject. It can only be inserted at D-structure if the subject position is a θ -position, which it is not. It must therefore be inserted at S-structure, just as the expletive is inserted at S-structure in (30b). The significance of this is that lexical insertion of even a semantically 'contentful' item is not restricted to D-structure.

For theory-internal reasons, Chomsky must assume the most parsimonious stance: *all lexical insertion may take place freely at D- or S-structure*. It is then incumbent upon other components of the grammar to determine the level at which a lexical item is inserted.

In this section, we have seen that Chomsky (1981) proposes that all lexical insertion may occur at any stage from D-structure to S-structure. The vast majority of lexical items are inserted at D-structure in order to receive and assign θ -roles. Following the earliest generative analysis, the auxiliary *do* is

¹³ This is equivalent to proposing that *John* is inserted into complement position, and receives its θ -role directly, with subsequent movement to subject position. The question is what the motivation is for such movement. One possibility within GB theory is that the NP is not assigned Case in complement

inserted to pick up the stranded tense and agreement morphology in Infl. The preposition *of* is inserted late to assign Case to the object of a noun or adjective, which are [+N] categories and hence unable to assign Case. The expletives *it* and *there* are inserted late into θ -bar subject positions to satisfy the requirement that all sentence have a subject (the Extended Projection Principle). And finally, the semantically contentful subject in the *easy to please* construction is inserted late and receives its θ -role from a trace in object position.

We therefore have a potentially elegant system; both lexical insertion and the movement operation (move- α) occur 'anywhere' but are constrained by other aspects of the grammar. However, what we are left with is a highly inelegant array of items that are inserted late, for largely theory-internal reasons. The defining factor for these items is not uniformly the quality of being semantically null; while on the one hand, the set includes an NP subject that requires a θ -role in the *easy to please* construction, on the other, semantically null lexical items such as the English auxiliaries *have* and *be* are not inserted late.

We shall see next that this lack of elegance continues in the minimalist version of the P&P framework.

1.5. Minimalist 'Select', PF insertion and Economy

The Minimalist Program of Chomsky (1993, 1995) is a radical development of the P&P framework that seeks to reduce the computational component (C_{HL}) to a minimum of primitives and operations. The X' structure assumed since Chomsky (1970a) is no longer a primitive of the system, but is rather constructed derivationally via repeated operations of Merge and the projection of lexical items. As mentioned above, the number of functional projections is greatly reduced. Movement (Attract) is motivated by the need to match features of lexical items with features in functional heads higher in the structure. Features are said to be strong if checking occurs prior to Spell-out, weak if checking takes place later at Logical Form.

position and so moves to subject position to receive Nominative Case. This follows if *easy to please* is analysed as a complex raising adjective.

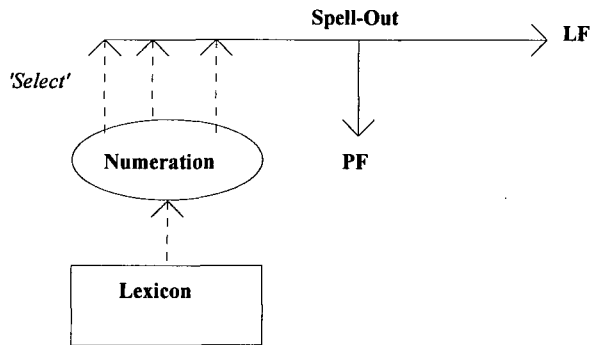
It could be argued that, where the rampant postulation of functional projections in late GB theory was a weak point in much theorizing, in Minimalism, a similar weak point is often found in the postulation of features that require checking, or in their weak/strong properties. However, we shall set such issues aside in this section and focus on the nature of how the computational system interfaces with the lexicon.

The Minimalist equivalent of lexical insertion is a two-stage process; items are taken from the lexicon to form the numeration, at which point they receive inflection for category-specific features. A noun [+N,-V], for example, may receive inflection for [plural] or [agreement] at this stage. The derivation begins as items are selected from the numeration and merged together. Chomsky therefore assumes Lapointe's (1979) Lexical Integrity Hypothesis: full word formation, including both derivational and inflectional morphology, occurs prior to the syntactic computation¹⁴. No displacement effects in the syntax result from the construction of a lexical item in the syntax, or the addition of morphology during the derivation. Rather, all syntactic movement occurs as a result of (abstract morphological) feature checking between the lexical item and functional heads. The distinction between derivational and inflectional morphology is therefore no longer a morphological distinction but a syntactic one: inflectional morphemes are associated with features in functional heads, derivational morphemes are not.

In the earliest version of minimalism (Chomsky 1993), *Select* continues until *Spell-out*. The computational system modifies the features of items in the numeration, building structure on the way to LF. At some point ('anywhere', defined on a language-specific basis), *Spell-out* occurs which feeds the PF component. The model is represented in (34).

¹⁴ See also Lieber (1980, 1992) for a lexicalist approach.

(34) The Minimalist Model



The stipulation that Select precedes only prior to Spell-out is essentially a reformulation of the earlier models where lexical insertion was one of the defining characteristics of deep structure.

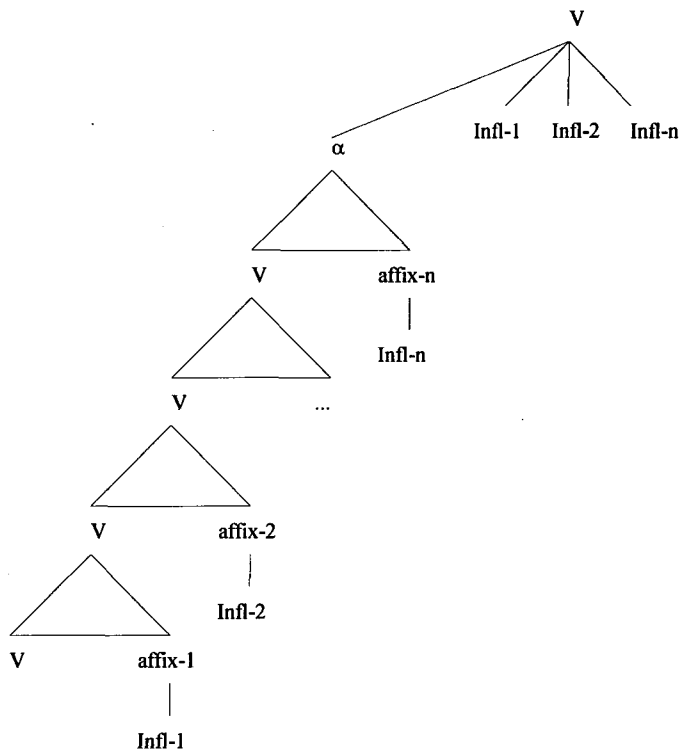
As mentioned earlier, much syntactic theorizing in the late 80s and early 90s was based upon Baker's Mirror Principle, whereby the order of affixes in relation to the lexical stem reflects the hierarchy of functional categories in the syntax. In a lexicalist theory, lexical items are no longer constructed in the syntax through head movement and the 'picking up' of affixes, so the question arises whether a strong lexicalist hypothesis undermines the Mirror Principle (and hence the justification for the hierarchy of Agr and Tense heads assumed in Chomsky (1989/1995: chapter 2). If one assumes that a strong version of the Mirror Principle is accurate, it is relatively easy to stipulate the checking mechanism to ensure the order of checking reflects the order of affixation:

...we may take a lexical element – say, the verb V – to be a sequence $V = (\alpha, Infl_1, \dots, Infl_n)$, where α is the morphological complex $[R- (\alpha, Infl_1, Infl_n)]$, R a root and $Infl_i$ an inflectional feature. The PF rules only 'see' α . When V is adjoined to a functional category F (say, Agr^0), the feature $Infl_1$ is removed from V if it matches F ; and so on.

Chomsky (1995:195)

Following Halle & Marantz's (1993:168) interpretation of this, an inflected word comes from the lexicon with the following internal structure:

(35)



(Halle & Marantz 1993:168)

The node α consists of all the prefixes/suffixes attached to the stem V in the lexicon. α is arranged in a particular sequence with the inflectional feature bundles of the affixes, the order reflecting the hierarchy of affix embedding inside α . (35) is the lexical item that is inserted into the syntax. This lexical item moves to check the inflectional features one by one against functional heads containing inflectional features: the features representing the most embedded affix Infl_1 is checked first, then infl_2 , and so on until infl_n has been checked. By means of such stipulation, the proximity of the affix to the head reflects the functional hierarchy in the syntax.

This system is, of course, highly stipulative, and Chomsky is by no means committed to such an analysis. Without this stipulation, however, the relation between surface morphology and the syntactic checking of abstract 'morphology' would be wholly lost.

Returning to the model in (34), the fact that Select can only occur prior to Spell-out is more stipulative than the GB position in which lexical insertion may

occur 'anywhere'. Such a restriction on Select was deemed unnecessary in the 'chapter 4' revision of the Minimalist Program because insertion after Spell-out is impossible in principle. The LF component cannot select an item with phonological features and the PF component cannot select an item with semantic features for reasons of interpretation: 'that is a requirement for any theory on the weakest empirical assumptions; otherwise the sound-meaning relation would collapse' (Chomsky 1995:231).

However, formulated in this way, the above quotation does not rule out the possibility that the PF component might select an item with *only* phonological features. Before considering this further, let us consider whether Select can occur at PF in principle. Chomsky asserts that this is not possible:

It [PF] has rules of a special nature, distinct from those of the Numeration → LF computation, and these only modify forms presented to them. Accordingly, Select is inoperative in the phonological component: no item can be selected from the numeration in the computation from Spell-out.

(Chomsky 1995:231)

The argument that the PF component is fundamentally different can be traced back to *Aspects*, where it is asserted that both the PF and LF components are 'purely interpretive' components (Chomsky 1965:16). But this is a stipulation: however 'different' the phonological component is, there is no reason *per se* why Select should be excluded.

One theory-internal argument excluding the possibility of Select operating in the PF component is that the lexical item taken from the Numeration must be modified by the computational system - features must be deleted/erased for reasons of interpretability at the interfaces. But theory-internal facts are by definition not 'conceptually necessary'. A well-motivated and principled change to the theory might well allow some lexical items to require no deletion of features. Besides, the introduction of abstract features in need of deletion via checking is little more than a diacritic for Move in any case.

Following Bloomfield (1933:274), Chomsky describes the minimalist lexicon as a list of 'exceptions' - a list of only those elements of a lexical item which do not follow from general principles (Chomsky 1995:235)¹⁵. The fact that an N has Case features, for example, need not be included in the lexical entry. Case features follow from the fact that the lexical item has the categorial specification [+N, -V], and the inflection for Case is added when the item is selected for the numeration. One extreme example of 'exceptions' that must be encoded in the lexicon, however, is the inflectional paradigm of the English auxiliary and copula *be* which displays highly suppletive morphology:

In this case, the lexical coding will provide whatever information the phonological rules need to assign a form to the structure [copular, {F}], where {f} is some set of formal features (tense, person, etc.). It doesn't seem to matter (for our purposes at least) how this information is presented: as a list of alternants, each with its formal features, or by some coding that allows the phonological component to pick the alternant ("late insertion").

(Chomsky 1995:239)

"Late insertion" here is an algorithm for PF to cope with suppletive morphology, but still the PF component has to 'pick' the appropriate form from the lexicon. Chomsky goes on to note that, in terms of the lexicon, this is the 'worst case':

Plainly, it would be a methodological error to generalize the worst case to all cases - to infer from the fact that the worst case exists that it holds for all lexical items.

(Chomsky 1993:18)

¹⁵ As noted in Chomsky (1965), Bloomfield was in turn following an earlier tradition: see Sweet (1913:31) in which it is stated 'grammar deals with the general facts of language, lexicology with the special facts'.

Besides being a covert criticism of 'postlexicalist' models (in which all lexical insertion is post-syntactic; see 2.2), this suggests that the issue of level of insertion is of little interest in the Minimalist Program. However, a significant generalization is being dismissed: cross-linguistically, the auxiliary and copula *be* often exhibits suppletive forms. Indeed, many other lexical items also have suppletive forms, *all of which are closed class items* (Emonds 1985: section 4.5) but such phonological idiosyncrasies are accidental in current versions of Minimalism¹⁶.

The requirement that LF and PF cannot select items from the Numeration is owing to the 'weakest empirical assumptions'. That is, the sound-meaning relation is fundamental, given the modules to which the computational system is hooked up in the human brain. It would therefore appear essential that a grammar must have the sound-meaning relation built in to the model. Even so, a requirement that the structural derivation must have related PF and LF representations remains unnecessary because LF cannot select anything with phonological features for the simple fact that they are unreadable at LF. But in the same way, PF cannot select anything with semantic content because such features are equally uninterpretable at PF.

The possibility remains that a lexical item might be introduced 'late' provided it does not contain a feature that is unreadable at that interface. For example, it is possible that a phonologically null lexical item that contains semantic features might be introduced into the computation in the covert syntax. No phonological features relating to this lexical item exist, hence the derivation will not be ill-formed ("crash") at either interface. An example of this is the null complementizer in English that Chomsky proposes is inserted into (36) in the covert syntax (Chomsky 1995:292).

(36) *John left*

The null complementizer establishes the force of the declarative sentence at the LF interface.

¹⁶ See chapter 2 and 3.3 for discussion of suppletion in closed class items.

But also, the possibility exists that some form of late insertion at PF for lexical items may occur provided it contains no semantic information. As we have seen already, a mechanism is already needed in Chomsky's account to introduce the suppletive alternants of the English auxiliary *be*.

In fact, despite the fundamental 'difference' of PF, there are further instances of PF insertion in 'chapter 4' minimalism. Discussing the existence of, overt and null expletives in languages such as German and Icelandic, Chomsky suggests that ideally, the overt variant should only be required for PF convergence:

The optimal result would be that the overt variant is used only when this is required for convergence: PF convergence, since, the two forms are identical within the covert component ...In both languages it seems that the overt expletive is used only where the V-second property otherwise holds. If that turns out to be correct, then the expletive may well be null – nothing beyond the categorial feature [D] – throughout the $N \rightarrow \lambda$ computation. The overt features are then added only in the course of the phonological operations, though coded in the lexicon.

(Chomsky 1995:289)

Thus we have both the lexicalization of expletives and the English auxiliary *be* at PF, but still minimalism lacks a mechanism that makes this possible. Furthermore, the array of items that are inserted late is as inelegant a collection as the list of late inserted items in GB theory.

So far, we have concluded that insertion of overt lexical items is impossible at LF because of the presence of uninterpretable phonological features in their feature matrix. Similarly, open class items cannot be inserted at PF because of the presence of uninterpretable semantic features. However, the possibility exists for a null item to be inserted at LF if that item contains no phonological information. In the same way, a lexical item can be inserted at PF provided it includes no semantic information. We have seen, furthermore, that

both of these options are already employed in 'chapter four' minimalism, with the late insertion of an English null complementizer in the covert syntax, and the late insertion of the suppletive forms of English *be* and expletive pronouns. Covert insertion cannot be substitution into a position that is already extant, hence insertion of the null complementizer must extend the projection. Such a restriction does not necessarily hold, however, for PF lexicalization.

Let us consider further the nature of PF insertion. First, note the earlier minimalist discussion of the syntactic role played by the semantically null auxiliaries *be* and *have*. In Chomsky (1993), it is argued that these auxiliaries violate Last Resort by moving to check tense and agreement features *early*, before Spell-out. This is because they are 'LF invisible', and therefore must have their features checked before LF. Given the significant role Economy plays elsewhere in the theory, the question arises as to why semantically vacuous items which are 'LF invisible' should be inserted into the computational system at all. This is surprisingly uneconomic, especially considering that in this model, the computational component C_{HL} clearly modifies structural descriptions *en route* for the LF interface. Also, in the earlier minimalist model, lexical insertion is a Generalized Transformation, and hence contributes to an evaluation of Economy.

Given this, let us propose that it is more economic for a derivation *not* to include lexical items that play no role at the LF interface:

(37) *Semantically vacuous lexical items need not be introduced into the derivation on the way to LF.*

Although not overtly arguing from minimalist principles or assuming a minimalist framework, Emonds (1994) argues for precisely this. Lexical items that lack any purely semantic feature can be inserted at PF, and, given an appropriately formulated Principle of Economy, such items *must* be inserted at PF.

Returning to the minimalist framework, in the revised 'Chapter 4' formulation, a problem for (37) arises in that Select and Merge are said to be

'costless', hence not subject to Economy (1995:226). In fact, this is not entirely true. Consider the following restriction Chomsky puts on the numeration:

Suppose there is an economy interpretation (76):

(76) α enters the numeration only if it has an effect on output

With regard to the PF level, this effect can be defined in terms of literal identity: two outputs are the same if they are identical in phonetic form, and α is selected only if it changes the phonetic form. At the LF level the condition is perhaps slightly weaker, allowing a narrow and readily computable form of logical equivalence to be interpreted as identity. Under (76), the reference set is still determined by the numeration, but output conditions enter into determination of the numeration itself; they affect the operation that constructs the numeration from the lexicon.

(Chomsky 1995:294)

The crucial point to note here is that *Select* is subject to a form of *economy*. Let us propose this as a principle for future chapters.

(38) *Select is subject to economy.*

In this section, we have briefly reviewed the minimalist model and considered the way in which the computational system interfaces with the lexicon. We determined a number of problems which are summarised in the following section, and proposed two principles that follow relatively straightforwardly from the system Chomsky has proposed. These are, (i) that semantically vacuous lexical items need not be introduced into the computational component, but can be lexicalised at PF, and (ii) the operation *Select* that takes lexical items from the lexicon to the numeration, and subsequently takes them from the numeration for *Merge* is subject to economy

principles. The combination of these two principles are essentially identical to the Late Insertion Principle in Emonds (1994). We have couched it in Minimalist terms and shown them to be relevant for theory-internal reasons to the Minimalist model.

1.6. Summary and conclusions

In this chapter we have reviewed various approaches to lexical insertion within the different Chomskyan models proposed since 1957. We considered a number of issues associated with the level of lexical insertion in the ((R)E)ST of Chomsky (1965, 1970a,b, 1975). In the ST, lexical insertion and the satisfaction of contextual restrictions were defining features of Deep Structure, a level that feeds transformations. Establishment of subcategorization frames and selectional restrictions establishes core semantic relations in the sentence at Deep Structure. So-called Generative Semanticists pursued this fact further and soon arrived at models that either did away with Deep Structure altogether, or established Deep Structure as a universal base of abstract semantic primitives. In such modules, lexical insertion occurs at some point within the transformation cycle, once appropriate contexts have been derived and prior to syntactic operations on lexical items. We reviewed some arguments for and against the generative semantics position.

In the GB version of the Principles & Parameters Theory (Chomsky 1981), lexical insertion and move- α can occur at any stage from D-structure to S-structure. Constraints of Theta Theory ensure that the vast majority of lexical items are inserted at D-structure, whilst a small closed class of lexical items are inserted late: auxiliary *do*, preposition *of*, and the expletives *it* and *there*. It is also suggested that the NP subject of *easy to please* constructions is inserted into a θ -bar subject position, receiving its θ -role from a trace in complement position.

In the Minimalist Program, we noted a number of problems in the system. These are listed in (39).

- (39)a. A theory of lexicalization is lacking: it remains unclear what mechanisms are employed to implement PF insertion when it is required.
- b. The array of lexical items that undergo 'late insertion' remains an inelegant and *ad hoc* list, as in Chomsky (1981).
- c. Lexical items that have no bearing on LF are not only introduced into the derivation but, for theory-internal reasons, must move overtly, both of which violate the spirit, if not the letter, of Economy.
- d. No account of the suppletive forms of the English auxiliary *be*, or any other suppletion cross-linguistically follows naturally from the system set up. Such phonological idiosyncrasies remain purely idiosyncrasies. More to the point, the distinction between closed class items that often exhibit such idiosyncratic morphology and open class items that do not is left a mystery.
- e. Closely related to point (d), traditional morphology and abstract 'morphology' that triggers movement and checking are divorced.

Finally, we established two principles concerning lexicalization:

(37) *Semantically vacuous lexical items need not be introduced into the derivation on the way to LF.*

(38) *Select is subject to economy.*

Together, these principles disallow the introduction of semantically null lexical items into the computational system.

2. Uniform late lexical insertion

2.1. Introduction

In the previous chapter, we saw that Chomsky (1981) adopts a weak lexicalism: derivational morphology is constructed via morphological rules in the lexicon and syntactic operations combine stems and inflectional morphemes. In the Minimalist Program, Chomsky (1995) adopts a strong lexicalist position. All word formation, including both derivational and inflectional morphology, takes place in the lexicon prior to the selection of lexical items for the numeration.

An alternative to such models is to propose that *all* lexical insertion occurs late. That is, within the ((R)E)ST and GB models, all lexical insertion takes place at S-structure, as proposed by Otero (1976), den Besten (1977) and Fiengo (1980).

An alternative approach to late insertion is to decompose the lexical item into the syntactic and semantic features on the one hand, and phonological/morphological material on the other, inserting the latter following syntactic operations. To my knowledge, a version of this approach was first proposed by Hudson (1976), and has been pursued more recently in Halle & Marantz (1993), Zwart (1996) and Anderson (1992).

In Distributed Morphology (Halle & Marantz 1993), abstract morphemes without phonological features undergo syntactic rules as in GB theory, and all phonological features are introduced at Morphological Form. A number of morphophonological rules immediately before and after lexical insertion result in the surface morphology¹. Zwart (1996) adopts this theory in his minimalist treatment of Dutch syntax and terms it 'postlexicalism'.

Anderson (1992) pursues a 'word and paradigm' approach, dispensing with the traditional notion of 'stem and affixes' altogether. Word formation rules apply to the abstract terminal nodes generated by a (much reduced) syntax and match lexemes from the lexicon with these nodes. No 'transformations' on morphemes as such take place.

A further alternative arises in Jackendoff's (1997) model that departs radically from the models assumed in the (Extended) Standard Theory and Principles and Parameters Theory. Jackendoff proposes that lexicalization establishes correspondence rules between wholly autonomous modules of syntax, PF, and the conceptual component with simultaneous and autonomous computation occurring in all three modules.

In this chapter, we will argue that there are a number of drawbacks to such uniform lexical insertion. Principally, each of these approaches to lexical insertion is unable to account for both the morphological and syntactic differences that exist between open and closed class lexical items. When all lexical insertion is the same, other explanations are required for the differences between these lexical types. Also, we argue that the powerful level of Morphological Form in Halle & Marantz and Anderson's models is effectively unconstrained and renders pointless any restrictiveness in the syntax. More significantly still, empirical arguments given by the above authors in favour of some version of late insertion actually involve *only closed class items*, despite the fact that none of the above accounts mention the open/closed distinction².

A *prima facie* argument for late insertion lies in the variety of ways that languages reflect the syntax-morphology relation.

In largely agglutinating languages like Finnish, the relation between syntactic features and morphemes is often isomorphic: the lexical item consists of distinguishably individual morphemes attached to a stem, and each morpheme represents a syntactic feature³. In a theory that adopts the Mirror Principle (Baker 1985), an agglutinating language is the prototypical 'well-behaved' language on which the weak lexicalist theory is founded. The underlying functional hierarchy directly reflects the order of individual

¹ Word formation rules were first proposed in Halle (1973).

² A single exception is one theory-internal minimalist argument proposed by Zwart (1996) that relates to open class transitive verbs and their underlying syntactic structure (see section 2.3.4 below).

³ See, for example, Vainikka (1989) and Holmberg & Nikanne (1993) for generative treatments of Finnish.

morphemes with respect to the stem (see Holmberg et al. 1993 for such an account of Finnish clause structure).

However, agglutinating morphology is not the only way that languages realise the syntax-morphology relation, and so should agglutinating morphology be seen as the prototypical data for this relation?

For example, in some 'isolating' languages such as Vietnamese (Spencer 1991:38), grammatical function tends to be expressed not through morphology at all but via 'free morphemes'. In other languages, a single 'portmanteau' morpheme is an exponent of more than one grammatical function (e.g. Latin *amo* 'I love': the stem is *am-*, and the *-o* realizes person, number, present, active and indicative, all grammatical features that are generally marked overtly on Latin verbs (Hockett 1947)). One can see a portmanteau morpheme as a 'fusion' of more than one syntactic feature.

In languages such as Chukchee, a single complex morphological word expresses an entire sentence in another language (Baker 1995)⁴. There are also widespread instances of 'extended exponence' (Matthews 1991) where a single grammatical feature is realised at two or more different points in the word (e.g. German *Wort* 'book', *Wörter* 'books': the plural is simultaneously represented by the vowel change and the suffix *-er*).

Cross-linguistically then, the grammatical function-form relation is often not isomorphic; the ways in which grammatical function is related to morphological form are many-to-many⁵. This suggests there may be good reason to consider a uniform level of lexical insertion following the syntactic cycle.

The organisation of this chapter is as follows. Section 2.2 details the empirical and conceptual arguments given in Otero (1976) and den Besten (1977) for uniform S-structure insertion within the ((R)E)ST model of grammar.

⁴ In fact, European linguists need not go so far afield for examples of what was traditionally termed 'polysynthesis'. The French sentence *Je le lui donnerai* 'I will give it to him' is also a single phonological word consisting of several bound morphemes.

⁵ See Robins (1959); Matthews (1972) for a generative treatment; Spencer (1991) for an overview.

Then we turn to those models that introduce phonological features at a level of Morphological Form following Spell-out. Section 2.3 briefly reviews some of the morphophonological mechanisms adopted in Halle & Marantz (1993) before considering the arguments that Zwart (1996) gives in favour of the 'postlexicalist' approach. Section 2.4 focuses on Anderson's theory and his Optimality Theoretic account of South Slavic clitics at Morphological Form in Anderson (1995a,b). This section also serves as a preliminary introduction to some of the issues discussed in more depth in later chapters on South Slavic. In section 2.5, we turn to a discussion of Jackendoff's (1997) rigorously autonomous model of the language faculty. Section 2.6 provides a summary.

2.2. Uniform S-structure insertion

Otero (1976, 1983) argues for a model in which all lexical insertion occurs at S-structure. In addition to points made above concerning agglutinating and fusional morphology, he cites two pieces of data that suggest lexical insertion occurs at a level that follows syntactic operations.

The first argument concerns 'second position' clitics in Gallegan, a dialect of Portuguese. First, Otero assumes a syntactic rule that takes clitics in first position in the construction and moves them to second position following the finite verb.

(1) Pronoun - Verb

1 - 2 => 2 - 1

(Strozer 1976:281)

The two following rules show two diachronic changes that Gallegan underwent approximately 1,000 years ago.

(2)a. $C \rightarrow ll / _ l$

b. $ll \rightarrow l$

In (a), a consonant became [l] when it precedes another [l]. In (b), degemination of [ll] occurred, producing [l].

Consider now the diachronic derivation in (3), consisting of rules (1) and (2a,b).

(3) *las interpretas* → *interpretas-las* → *interpretal-las* → *interpretálas*
 them interpret-2nd. rule (1) rule (2a) rule (2b)
 'You interpret them'

Note that the rules are ordered (1)>>(2a)>>(2b). The form *interpretálas* is a contemporary Gallegan form which, for the native speaker, is indivisible: **interpretál* is not 'a legitimate unit'.

Otero writes the following:

...forms such as interpretálas are single, indivisible words, which would have to be computed as such in the paradigmatic subsystem [ie. the lexicon] and inserted as units in the syntactic phrase-marker. Since this is not possible before the last cyclic transformation of Clitic Verb Inversion applies [rule (1)], we have to conclude that insertion follows at least this (local) transformation.

(Otero 1976:13)

In other words, this is an example of a lexical item that requires a syntactic context for insertion. The context is one that supposedly results from the last cycle of syntactic rules. Hence the lexical item must be inserted following syntax.

Next, consider Spanish (4).

(4)a. *Prefiero dejar-le volver a querer poder decir-lo*

Prefer-1sg. let-him return to want be able say it

'I prefer to let him want to be able to say it again'

b. *Prefiero dejar-se-lo volver a querer poder decir*

(Strozer 1976:v.2.6,v.3)

The underlined clitic *lo* 'it' may appear as an enclitic on *decir* 'say' in (a) or on *dejar* 'let' in (b). In (b), when *lo* appears on *dejar*, it triggers a change from *le*

'him' to the allomorph *se*. Again, this change is only possible after the clitic *le* on *dejar* has undergone Clitic Verb Inversion, rule (1) and following placement of *lo* 'it'. The phonological change can only occur after the syntactic cycle.

Otero's point is that the phonological form of what is unquestionably 'a word' for the native speaker undergoes rules that can only come into play following the transformational cycle.

However, a more interesting generalization is being missed. If we reflect further on the nature of the changes in (3) and (4), we see that the clitic is triggering a phonological change on the inflectional morphology in (3) and on another clitic in (4). Both of these morphemes are closed class morphemes. Recalling Chomsky's point in section 1.5 above concerning the suppletive form of the auxiliary *be*, it would be a methodological error to generalize from these cases (closed classes) to all lexical items. That is, the data supports the notion of late lexical insertion of closed class morphemes only, not the late insertion of all lexical items indiscriminately.

In fact, rule (1) may not be a syntactic rule at all. We shall consider in detail similar data in South Slavic in chapters 5-9 below and argue that this is not a syntactic phenomenon.

Den Besten (1977) suggests that S-structure insertion is necessary on account of deletion and substitution operations that require contexts created by transformations prior to S-structure. In (5a), the Dutch WH-complementizer *of* is optionally deleted following WH-movement, and in (5b) the sequence *of of* 'or whether' is substituted with *of dat* 'or that' following the transformational cycle:

(5)a. *Ik weet niet, wie (of) er vanavond gaan demonstrere* (Dutch)

I know not who WH there tonight go demonstrate

'I don't know who'll go there tonight to demonstrate'

b. *Ik weet niet, ...*

I know not

*of hij nog thuiskomt of *of/dat hij daar blijft vernachten*

WH he yet home-comes or *WH/that he there stays pass-the-night

'I don't know whether he's coming home yet or whether he stays the night there'

In each case, deletion or substitution of lexical item(s) follow WH-movement, and hence require particular syntactically-derived contexts in which to occur.

Also, den Besten proposes that S-structure insertion copes neatly with a problem noted in Halle (1973), that case morphology on a noun is often determined by the noun's S-structure position. Lexical insertion at S-structure avoids the problem of inserting inflectional morphology prior to transformations by introducing the noun and case inflection once the syntax has provided the appropriate context.

Again, the lexical items den Besten demonstrates to be inserted late are closed class items only, not members of the major lexical classes. Case morphemes on nouns are also closed class morphemes, just as the inflectional morphology on verbs in Otero's (3).

The arguments in Otero (1976) and den Besten (1977) therefore are strong arguments not for uniform insertion following the transformational cycle, but for the late insertion of closed class items only.

In a minimalist framework, lexical insertion into the syntax which does not extend the projection is ruled out, hence a lexical item can only be Merged at the top of the tree; anti-cyclic insertion is impossible. This rules out an equivalent notion of S-structure insertion in a minimalist model. But S-structure is not a level of representation in minimalism in any case.

A reformulation of S-structure insertion would therefore be a mechanism that introduces phonological features of lexical items *outside* the syntax, ie. at a

level between Spell-out and PF. In the next two sections, we consider models that propose this.

2.3. Postlexicalism

The term *postlexicalism* has been coined by Zwart (1996: chapter 5) to refer to theories in which all lexicalization occurs at a level of Morphological Form following Spell-out⁶. Strictly speaking, it should include Anderson's (1992) theory as well, discussed below in section 2.4. However, a major syntactic difference exists between Anderson on the one hand and Zwart and Halle & Marantz (henceforth HM) (1993) on the other. Both HM and Zwart assume versions of the Principles & Parameters framework whereas Anderson rejects the notion of stem and affix and assumes a much simpler syntax. In this section therefore, we focus on HM and Zwart alone. In the first part we review some of the morphological mechanisms proposed by HM to account for the syntax-morphology variation mentioned above. Zwart adopts Distributed Morphology in his minimalist approach to Dutch syntax, and we consider his arguments in favour of postlexicalism in subsection 2.3.2.

2.3.1. Distributed Morphology (Halle & Marantz 1993)

In a sense, Distributed Morphology retains the weak lexicalist approach to inflectional morphology, in that HM assume a GB-style syntax whose operations combine stems and inflectional morphemes via head movement. Unlike Chomsky (1981, 1986), terminal nodes dominate only abstract features, and no phonological features. The syntax builds up complex bundles of syntactic features and the process of lexicalization at Morphological Form

⁶ A precursor to models discussed here is Hudson (1976) who argues for the syntactic insertion of semantic/syntactic features, with the insertion of phonological and morphological material at S-structure. His arguments for such a model are largely reiterated by the authors discussed in sections 2.3 and 2.4: (i) aesthetic appeal of a single insertion level, (ii) the existence of morphological 'irregularities' discussed above, (iii) suppletive morphology, (iv) the apparent redundancy of phonological/morphological information in the syntax within the REST model. Points (ii) and (iii) refer to closed class morphemes, and points (i) and (iv) are addressed in section 2.3.2.

matches these terminal nodes with appropriate phonological features from the lexicon. Rather than sever the relation altogether between the language-specific morphology and syntactic functions it idiosyncratically represents, HM propose a number of morphophonological rules that manipulate the abstract terminals generated by the syntax. Informally, the surface morphology of an ‘agglutinating’ language may be seen as reflecting the underlying morphological structure of the word generated by the syntax. In languages with fusional morphology where the relation between the syntactic features and morphemes is not isomorphic, the surface morphology reflects these morphophonological transformations.

Two of the phonological rules HM propose are described in (6).

(6)a. *Morpheme fusion* (HM 1993:116). Minimalist syntax merges nodes, but such nodes remain distinct in the syntax, represented by separate (abstract) morphemes. In *morpheme fusion*, however, two terminal nodes that are sisters under a single category node are fused into one terminal node. This is subsequently realized by a single ‘portmanteau’ morpheme. The *-o* morpheme in Latin *amo* ‘I love’ mentioned in the introduction is an example.

b. *Morpheme fission* (HM 1993:118). A node may be split into two. Here, we briefly illustrate fission, without attempting to reconstruct HM’s argumentation. Consider the following Georgian data:

- | | | |
|----------------------------------|-----------------------------------|------------|
| (i) <i>v-xatav</i> | (ii) <i>v-xatav-t</i> | (Georgian) |
| ‘I draw him’ | ‘We draw him’ | |
| (iii) \emptyset - <i>xatav</i> | (iv) \emptyset - <i>xatav-t</i> | |
| ‘you (sg.) draw him’ | ‘You (plur.) draw him’ | |

The important morpheme is the *-t* which realizes [+plural] in (ii) and (iv). In HM’s account, the [+plural] morpheme undergoes fission that splits it off from the morphological complex of verb + clitics (already formed by fusion), creating

a new node. Notice that rule ordering is crucial here: the fusion of verb and clitics is followed by fission of the [+plural] morpheme.

In addition to such rules, Distributed Morphology also allows:

- c. Diacritic features that make suffixes optional (p.126),
- d. Two types of zero morphemes (p.133),
- e. Context sensitive constraints on lexical insertion (p.136),
- f. Morphological well-formedness constraints on affixal morphemes that are able to force the insertion of extra verb nodes at a new level of Morphological Structure (p.137ff),
- g. Concord relations among functional categories exist that allow the same functional feature to be represented more than once in a word (p.145).

Some rules such as fusion and fission take place prior to lexical insertion, others occur following lexical insertion.

Anderson's (1995b) principle argument against Distributed Morphology is that there are simply too many operations made available, hence transformations in the phonology are 'effectively unconstrained'. For example, Anderson considers the following data in Chickasaw:

(7)a. *hihlali*

'I'm dancing'

b. *akhi'lho*

'I'm not dancing'

There are four ways in which the negative in (b) is realised:

(8)a. the stem /*hihla*/ is preceded by /*k-*/,

b. the stem appears in a 'glottalized' ablaut grade,

c. the stem is followed by the suffix /*-o*/ which replaces the final vowel,

d. the 1st person subject marker is taken from a different set (prefix /*a-*/ instead of suffix /*-li*/).

HM reject the notion of 'multiple exponence' as defined in Matthews (1991), hence require that (7a) differs from (7b) in terms of a single feature [+NEGATIVE]. But the system has little problem with (7), given that it allows (i) the negative marker to undergo fission and (ii) a context-sensitive realization of the stem and of the 1st person affix. As Anderson maintains, 'it is hard to imagine a case of multiple exponence that could not be accommodated in this way, and the empirical content of HM's claim is not clear.' (1995 notes).

'Distributed Morphology' has been influential. Chomsky (1995) suggests in a footnote that lexicalization in the Minimalist Program might be along the lines of Distributed Morphology, and Zwart (1996) adopts the theory in his account of Dutch syntax. But we shall see a more indirect influence in section 5.3.3, when considering the first-position restriction on clitics in Bulgarian and Serbian/Croatian/Bosnian, combined with the tendency for clitics to appear following the first phonological word in these languages. Several linguists have proposed to account for such data via a phonological movement rule, whereby the clitic elements move to the right of the first phonological word (Schütze 1994; Embick & Izvorski 1995; Halpern 1995; King 1996). I think it unlikely that this *ad hoc* rule would have gained such currency without the popularity of Distributed Morphology, in which a whole host of transformations are conceived post-Spell-out.

2.3.2. Zwart's arguments for postlexicalism

Zwart (1996: chapter 5) follows Distributed Morphology in assuming that all phonological features are introduced after the syntax. The computational system deals only with bundles of formal and semantic features which at Morphological Form are matched with appropriate phonological features listed in the lexicon.

Zwart additionally assumes that the morphology is unable to spell out formal features on their own. The morphology requires that formal features appear in a complex node together with *lexico-categorial features* (*LC-features*: a combination of semantic and categorial features) if they are to be interpretable

and subsequently matched with phonological material (Zwart 1996:158). For Chomsky (1995), ‘overt movement’ is the movement of a complete lexical item before Spell-out. That is, the formal, semantic and phonological features move together in the syntax. For Zwart, ‘overt movement’ means the movement of formal features together with a last resort pied-piping of LC-features before Spell-out.

For example, in Dutch, Zwart argues the functional head AgrS must be ‘lexicalized’ in order to check the features of the subject. In other words, the formal features must appear in a complex with LC-features. This may occur in one of two ways. In a [subject – verb] word order sentence such as (9), the finite verb has raised to AgrS.

(9) *Jan kust Marie*

J. kissed M.

‘John kisses Mary’

The phonological features of the verb are then inserted at Morphological Form in second position, as in (9).

An alternative way in which AgrS may be lexicalized is in an embedded sentence such as (10).

(10) ...*dat Jan Marie kust*

that J. M. kisses

‘...that John kisses Mary’

Here, the V feature of the verb raises to AgrS for checking as before. It then moves to C to combine with the LC-features of the complementizer. The V feature therefore appears in a complex with LC-features in C and no last resort movement of the verb’s LC-features are required. The verb’s LC-features remain below in the ‘base’ position. At the level of Morphological Form, these LC-features are matched with the phonological features of *kust* ‘kisses’ and inserted into the verb position in (10). The complex of the LC-feature of the

complementizer and formal V feature of the verb in C is spelt out by the morphology as a complementizer. Zwart suggests that the existence of complementizer agreement in some Dutch dialects gives support to the existence of this overt movement of AgrS to C (Zwart 1996:157-8).

Before considering Zwart's arguments for postlexicalism, let us note that this relation between LC-features and Spell-out is a stipulation. Furthermore, note that there are occasions where morphology is able to lexicalize a node that has no semantic feature, for example, the semantically 'null' auxiliaries *be* and *have* (Chomsky 1993). Hence it must be the presence of categorial features alone that the morphology requires in order to match formal features with phonological material in the lexicon.

Zwart's six arguments in favour of a postlexicalist model are as follows (Zwart 1996:161-6).

(i) *Fused morphemes*. The first argument is taken from HM (1993) and focuses on fused, or 'portmanteau', morphemes in which a single morpheme represents more than one syntactic feature. To demonstrate how the relation between the syntax and the morphology is not always transparent, Zwart cites the tense and agreement inflections in Dutch, with the verb *kussen* 'kiss' as an example:

(11)a. *Past tense*

1 st sing.	<i>kuste</i>	1 st plur.	<i>kusten</i>
2 nd sing.	<i>kuste</i>	2 nd plur.	<i>kusten</i>
3 rd sing.	<i>kuste</i>	3 rd plur.	<i>kusten</i>

b. *Present tense*

1 st sing.	<i>kus</i>	1 st plur.	<i>kussen</i>
2 nd sing.	<i>kust</i>	2 nd plur.	<i>kussen</i>
3 rd sing.	<i>kust</i>	3 rd plur.	<i>kussen</i>

In the past tense (a), the morpheme *-t* closest to the stem *kus-* represents past tense, with the morpheme *-e* indicating 'singular' and *-en* indicating 'plural'.

Here then the tense and subject-verb agreement seem to be represented by different morphemes. The present tense in (b) appears to be represented by a zero morpheme \emptyset , but we do not find the same agreement paradigm in (b) as in (a). The plural morpheme is again *-en*, but the singular differs. The 1st sing. is represented by \emptyset and 2nd and 3rd sing. represented by *-t*. It appears then that the choice of agreement markers is dependent on tense. In a framework involving successive adjunction of the verb to separate functional heads, Agr and T, it is not clear how this can be captured. Hence late insertion is to be favoured.

This then is an argument against the weak lexicalist position adopted in GB theory. Zwart might have included here the existence of suppletive forms in some paradigms, such as the English copula *am, is, are, was* and *were*. Notice though that both fusional morphology and suppletive morphology are characteristics of closed class morphemes only, not open class morphemes.

(ii) *Underspecification*. Halle & Marantz discuss the familiar fact that the most economic form of feature specification for some morphemes utilizes the notion of underspecification. For example, the singular paradigm in (11b) is most economically expressed as in (12).

- (12) [+sing., 1st] *kus*
 [+sing.] *kust*

The 2nd/3rd singular is unspecified for person and can be taken as a ‘default’, with the form *kus* specified both as [+sing.] and [1st]. This is more economic than specifying two features [2nd] and [3rd] for the one form *kust*. In a postlexicalist account, this presents no problem: an abstract node in the syntax may be specified for whatever person feature, and the morphophonological rules simply find the best match from the lexicon. However, Zwart suggests this is problematic for the strong lexicalist position, because it is not clear how a mismatch is ruled out. For example, if the AgrS head contains the feature [+sing., 1st], and the verb form *kust*, specified as [+sing.], adjoins to AgrS for

checking, how would the syntax 'know' that this is the most specified form available in the lexicon? There is no mismatch, and no crash should occur.

Here, then we have an argument against the strong lexicalist position. Of course, the problem can be avoided by taking the less economic approach to specification in the lexicon, so that *kust* is, as in (11), specified for both [2nd] and [3rd]. Again, note that this concerns closed class bound morphemes only, not open class items.

(iii) *The redundancy of phonological features in the syntax.* Zwart's third argument, also made in Jackendoff (1997:86), questions the need for phonological material to pass through the syntax at all. For Zwart, 'there seems to be no empirical reason to assume that phonological features are present before the Spell-out point' (Zwart 1996:165), hence by economy of representation, they should be excluded.

This is an argument against all the models discussed in chapter one. Note that the same point might be made in relation to features related to meaning; why should purely semantic features pass through the syntax as well? On this point, Jackendoff's tri-partite interface between the syntactic, phonological and semantic components is more elegant than postlexicalism (see section 4). A possible answer on Zwart's part may lie in the fifth argument below.

(iv) *Phonological features are introduced only to be stripped away at Spell out.* Closely related to the previous argument, it is questioned why the phonological features are introduced only to be 'stripped away' at Spell-out. This relies upon the stipulation that phonological features are uninterpretable at LF. In postlexicalism, the stipulation is unnecessary because phonological features are never introduced into the syntax in the first place.

This is an argument directed solely at the Minimalist Program. One defence is that the introduction and subsequent removal of phonological features allows

some correspondence between morphology in the traditional sense and the more abstract 'morphology' that drives movement in the computational system. Postlexicalism divorces *any* necessary relation between the morphology and syntax. Baker's Mirror Principle, for example, can only be captured via additional stipulation, such as in Chomsky (1995) (see section 1.5).

(v) *Phonological features are language-specific.* Zwart draws a distinction between the essentially arbitrary, hence language-specific, nature of the phonological features in the lexicon on the one hand, and the syntactic and conceptual features on the other. Referring to the concept and categorial status of the verb/noun *kiss*, he states: 'These are lexical properties that are considerably less arbitrary, presumably, than the phonological features of *kiss* commonly associated with the lexicon.' (Zwart 1996:166). The division he seeks to draw is between the 'universal' and 'arbitrary' features of a lexical item. This division is said to be reflected in the postlexicalist model: the 'universal' part of the lexicon feeds the syntax (and subsequently LF), the arbitrary part is available only after Spell-out.

Categorial features are clearly syntactic and universal, though different languages distribute the four values for [N] and [V] quite differently. The claim that conceptual structures of a lexical item are to be aligned with such a universality is a very different claim. There clearly are semantic universals in relation to language. The terrific rate at which children learn new lexical items alone is evidence of this. These universals are based around properties of, say, thematic relations such as goal and source, concepts such as agent and patient, intention and event. However, there remains much in the conceptual structure of an open class lexical item that is wholly language-specific. Take, for example, the English lexical items *kill*, *murder*, *assassinate* and *massacre*, discussed briefly in Chomsky (1991b). Common to the semantics of each of these verbs is some notion of 'cause to die'. Even if one takes this to be a semantic universal, there remains much semantic difference between the verbs. If syntax is a mapping from sets of lexical items (e.g. a numeration) to a conceptual interface,

then this arbitrary, culture-specific information must be included as part of the conceptual structure in the lexical entry for each verb, and therefore passes through the syntax.

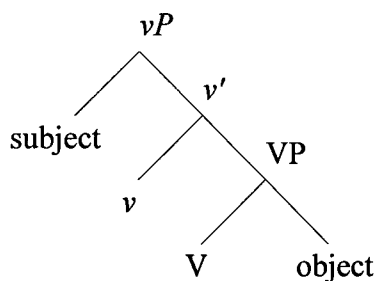
One attempt to associate universal semantics with syntax was that of Generative Semantics. In 1.3.1.2, we reviewed some of the arguments against analysing *kill* as *cause to die*, but for the sake of argument here, let us assume that *kill* could be analysed in this way. Presumably the verb *assassinate* should be similarly analysed. However, as Chomsky says, ‘it is implausible that *assassinate* has the lexical entry “cause to X” where X is an abstract lexical construction expressing the fact that the person who dies is important, the killing was done with malicious intent and broader sociopolitical motives, etc.’ (Chomsky 1991b:29). The implausibility stems from the fact that X is wholly arbitrary, and so cannot be entertained as part of the syntactic structure.

Semantic features may be universal or wholly arbitrary. The conceptual structure of a lexical item may well include both. In that sense, one *can* say, with Zwart, that the concept associated with a given lexical item is ‘less arbitrary’ than its phonological features, but only in a trivial way. It is equally true to say that the concept is not universal in the sense that syntactic features are. The division between ‘universal’ and ‘arbitrary’ is not as clear cut as Zwart implies, certainly not so as to warrant the claim to elegance he makes for postlexicalism⁷.

(vi) *Lexical decomposition*. The move to more abstract underlying structures adopted in Chomsky (1995) means for example that a transitive verb like *kiss* is derived from a double-headed structure such as in (13):

⁷ There are also highly universal aspects of phonology which Zwart glosses over. Take, for example, the dependencies that exist between feature values such that languages can have (i) stops but not continuants, but not vice versa, (ii) voiceless stops but not voiced stops, but not vice versa, (iii) three vowels [a], [i], [u] but not [o], [e] and schwa etc.

(13)



The verb *kissed* in the sentence *John kissed Mary* is, therefore, the realisation of two heads. Zwart argues that such lexical decomposition is well-suited to a postlexicalist approach. Although no citation is made, this point is similar to McCawley's attack on the level of D-structure as defined in Chomsky (1965). Abstract syntactic (or for McCawley, semantic) primitives undergo syntactic operations prior to the introduction of lexical items that are then able to realise syntactically complex nodes.

These then are Zwart's arguments in favour of postlexicalism. We have noted that the first two arguments, fusional morphology and underspecification, are characteristics only of closed class items. To propose therefore that all lexical insertion should be post-syntactic is 'a methodological error'. Only closed class morphemes may have fusional morphology, display suppletive morphology, and may be phonologically dependent on a 'host', yet postlexicalism has nothing interesting to say about such distinctions because in a postlexicalist model, all morphology is divorced from syntax.

Ironically, Zwart's first two arguments are sound arguments not for postlexicalism, but for a model that allows a different lexicalization procedure for open and closed class items. The idiosyncratic nature of closed class morphology strongly suggests that it is closed class items alone that are lexicalised following Spell-out.

Arguments (iii) and (iv) focus on the presence of phonological features passing through the syntax but playing no role in the syntactic mechanisms, only to be subsequently stripped away at Spell-out. As noted above, the same argument might be made against the passage of semantic features through the

syntax as well. By this reasoning, semantic features should be inserted at, say, LF. It is, after all, purely a metaphor that sees the computational system as ‘directed’ towards the LF interface, with an almost incidental branch off to PF somewhere *en route*. The metaphor can be rearranged (with no formal change in the model) such that the computational system is directed primarily towards Spell-out which feeds PF, following which any remaining computation branches off towards LF. In other words, why should phonological features be excluded from the syntax and not purely semantic features, especially given that they are both to varying degrees ‘arbitrary’? However, such a logical conclusion to Zwart’s argument must result in insertion at both Morphological Form and LF, which requires a more sophisticated theory of the lexical interface than postlexicalism represents.

Zwart’s assertion in (iv) is that the uninterpretability of phonological features at LF is a stipulation. Rather, the stipulation is that the computational system has a linguistic level that is an interface which provides instructions for the Conceptual-Intentional system in the brain, a stipulation made out of conceptual necessity (Chomsky 1995:168). The most minimalist assumption is to assume that this interface is only capable of interpreting features relevant to the Conceptual-Intentional system. No further stipulation is necessary.

As argued above, the fifth argument is a dubious plea for the elegance of the postlexicalist model. The existence of semantic universals does not mean that the purely semantic feature that distinguishes between, say, *tree* and *bush* should be any more associated with the syntax than phonological features.

Zwart’s final argument concerning lexical decomposition is evidently reminiscent of the fused morphology argument (i). It is, however, equally supportive of some form of checking theory, just as verbal affixes could both support a theory in which affixes are ‘picked up’ or checked. The single morpheme of the verb stem *kus-* ‘kiss’ may well be the trigger for movement from V to *v* precisely on account of its ‘fused’ status that requires checking in *v*.

Zwart’s arguments for postlexicalism are, then, surprisingly weak. Before dispensing with the notion of uniform late insertion altogether, however, let us consider a further example of lexicalization at Morphological Form.

Anderson's framework does not assume a minimalist syntax, hence Zwart's third and sixth arguments are irrelevant.

2.4. Anderson's A-morphous Morphology

Given that the syntax-morphology relation is often not isomorphic, Anderson (1992, 1993, 1995a,b) rejects the notion that lexical items consist of a stem and affixes. Rather, the morphological word is constructed via word formation rules at Morphological Form matching abstract morphosyntactic words created by the syntax with lexemes from the lexicon⁸.

For Anderson, the GB 'morpheme-based' approach is both too weak and too strong in accounting for data. It is too weak in the first place, because non-affixed morphology often does not appear as a constituent in any case (e.g., grammatically conditioned truncation or metathesis). Secondly, there is information about the morphological effect of a word that is not necessarily present in the traditional glosses of its constituent formatives. Take for example (14) from Georgian.

- (14) *mo = g- k'lav* (Georgian)
preverb= 2obj. kill
'I will kill you' (Anderson 1995 notes)

The position of the *g* morpheme in (14) is the same for the realisation of '2nd person object' and '1st person subject'. If both are generated by the syntax, the '2nd person object' wins out as shown. This is not phonologically conditioned, but a purely morphological rule.

The 'morpheme-based' approach is said to be too *strong* in some cases because, for example, the linear position of formatives may not in itself be relevant:

⁸ This is essentially a development of the traditional 'word and paradigm' approach to inflectional morphology, pursued in generative literature by Matthews (1972).

(15)a. *Hilha-li-h*

(Choctaw)

'I danced'

b. *Ish-hilha-h*

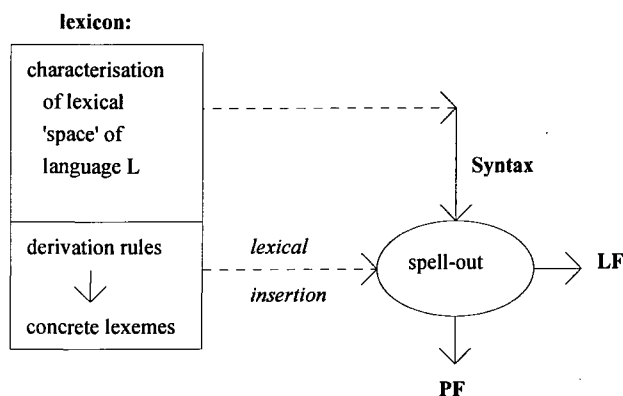
'He danced'

In (15), first and second person singular marking are divided between a penultimate and a first position.

Also, Anderson argues there are 'empty morphs' (Menominee *ke-t-os* 'your - \emptyset - canoe; your canoe'; or Romance thematic vowels: e.g. French, *pens-e-r-ai* 'I will think', *Sent-i-r-ai* 'I will feel') and, as we have seen above, multiple exponence of a single grammatical feature⁹.

For Anderson, a transformational syntax manipulates structure, but as in Distributed Morphology the terminals are abstract morphosyntactic representations. Lexical insertion takes place at 'spell-out' as a realisation of the terminal nodes generated by the syntax. This model of the grammar is represented in (16).

(16) Anderson's 'A-morphous Morphology' model



The syntax operates on morphosyntactic features. The lexical 'space' in (16) informally indicates the sort of feature matrices utilized by a language L within

⁹ It might be argued however that French thematic vowels are a part of the stem, undergoing truncation in certain contexts. Evidently, the notion of zero

the grammar assumed. The interface between the morphology and the syntax takes place at 'spell-out'; lexical insertion is the process of associating particular lexemes with the morphosyntactic representations derived by the syntax. This could be termed "lexical interpretation": a lexeme (understood as a complex of semantic and syntactic properties with a phonological stem or set of stems) is selected to interpret each position in a Phrase Marker provided that features are consistent. The stem is then subject to Word Formation Rules peculiar to language L that give the word its inflection. Note that derivational morphology remains in the lexicon, as proposed in Chomsky (1970).

For Anderson, languages have two methods of realising the syntactic features of a phrase. Features may be 'inherited' by a specific word within the phrase and are then realised in the inflectional morphology of that word (ie, the inflection on a finite lexical verb). Or the features are realised through a theory of 'phrasal affixation', which we focus on here.

An example of phrasal affixation is that of 'special clitics', morphemes that alternate with equivalent strong pronouns and often appear in different syntactic positions to the strong forms (Zwicky 1977), illustrated in (17a,b) below. For Anderson, special clitics are the 'morphology of phrasal constituents' and may be inserted via rules that are essentially the same as rules of affixation (a subset of the Word Formation Rules) that are standardly required in phonology.

Consider the Serbian/Croatian/Bosnian data in (17), first discussed in the generative literature in Browne (1974). The clitic cluster appears to follow optionally either the first phonological word or the first XP. In (17a,b) the cluster consists of the auxiliary *je* 'be-3sg.' and the pronominal argument clitic *mi* 'I-Dat.', whereas in (17c,d) the cluster consists only of the auxiliary verb.

morphemes is not necessarily a problem for an agglutinating system since all components have empty categories.

(17)a. *Taj mi je pesnik napisao knjigu* (Serbian/Croatian/Bosnian)

that 1sg.Dat. be-3sg. poet wrote book

'That poet wrote me a book'

b. *Taj pesnik mi je napisao knjigu*

c. *Lav je Tolstoj veliki ruski pisac*

Leo be-3sg. Tolstoy great Russian writer

'Lev Tolstoy is a great Russian writer'

d. *Lav Tolstoj je veliki ruski pisac*

Note that in (17c), the clitic appears within a proper noun following the first name *Lav*.

Anderson (1993:76) observes first that the cluster appears *either* following the first constituent *or* the first phonological word, never a mixture of the two, and always with the same strict order. This strongly suggests that the clitics are inserted as one cluster, and that the string is parsed uniformly for placement of all clitics.

In this model, the syntactic features of subject and object NPs and tense features are assumed to be passed up to the higher projections of the verb of which they are arguments (i.e. IP), so that at the clausal level there is an accumulation of syntactic features (Anderson 1992:107ff.)¹⁰. The clitic cluster is inserted into the phrase to realise these features in the same way as affixes are attached to words.

The comparison made between phonological affixation and the placement of clitics in the phrase is central to Anderson's account. Note first the positions into which a phonological affix may be placed:

¹⁰ The proposal that morphosyntactic features appear on phrasal nodes is also assumed in Generalised Phrase Structure Grammar (see Gazdar *et al.* 1985)

- (18)a. **Prefix** (e.g. *re-appoint*),
 b. **Suffix** (e.g. *healthy*),
 c. **Nuclear prefix** (e.g. Dutch: *breed-ge-schouder-d* 'broad-shouldered'),
 d. **Nuclear suffix** (e.g. Icelandic: [V[V *Kolluð-um*]-st] 'we were called', middle voice),

e. **Infixes**

- (i) following specific initial material (Chamorro: following the first consonant cluster: *dankolo* 'big', *dumankolo* 'become big'),
 (ii) preceding final consonant of stem (Latin: *reliqui* 'I left', *relinquo* 'I leave'),
 (iii) following main stressed syllable (Shuswap: *pésəłk^oe* 'lake', *pépsəłk^oe* 'small lake'),
 (iv) preceding the main stressed syllable (Samoan: *fa'amalósi* 'encourage, force' (singular), *fa'amalolósi* (plural)).

(Anderson 1992:205-210)

It is suggested that this array of data can be captured if Word Formation Rules employ three parameters that determine the placement of individual affixes (following Klavans 1980, 1985):

- (19)a. **SCOPE**: the affix is located in the scope of some constituent which constitutes its domain (morphological or prosodic)
 b. **ANCHOR**: the affix is located by reference to one of three designated elements in the constituents: first, last, or head element,
 c. **ORIENTATION**: the affix precedes or follows its anchor.

(Anderson 1992:210)

'Head' in (19b) should be understood as the nuclear stressed syllable in the prosodic structure.

The following shows the positions in which 'phrasal affixes', or special clitics, may appear:

- (20)a. **Initial** (e.g. determiners in KWakWala; see Anderson 1984), cp. (18a)
- b. **Final** (e.g. English 's genitive), cp. (18b)
- c. **Second position** (see SCB (13) above), cp. (18e-i)
- d. **Penultimate position** (e.g. pronominals in Nganhcara [Australia] within IP; Modern Greek possessives within NP in Sadock 1991:71), cp. (18e-ii)
- e. **Pre-head** (e.g. Romance pronominal clitics), cp. (18c), (18e-iv)
- f. **Post-head** (e.g. Romance clitics in, e.g. Imperatives, or Finnish *-kin* 'unexpected', see Nevis 1985). cp. (18d), (18e-iii)

Here, 'head' is understood in IP as I and in DP as D. Given this parallel, parameters identical to those in (19) can determine respectively the phrase in which the clitics appear (their 'scope'; CP, IP or DP), the anchor (a first or last element or head of the phrase), and whether they are pro- or enclitic.

Central to Anderson's model, then, is an apparent parallel between the typologies in (18) and (20). However, note that examples of (20d), in which a clitic element appears in a penultimate position, are rare. In contrast, clitics in 'second position' in the clause, known as the 'Wackernagel position' (Wackernagel 1892) (20c), are widely attested. We return to this point in section 9.6. Secondly, and more significantly for the supposed parallel, penultimate infixation is not uncommon (18e-ii).

Let us return to the data in (17) and consider in more detail how Anderson's account deals with Serbian/Croatian/Bosnian clitic placement via 'phrasal affixation'.

Regarding first the parameters in (19), the SCOPE of the clitic cluster is the IP, the ANCHOR is determined with reference to the *first* element, and the clitics *follow* the anchor in ORIENTATION.

In (18e-i), it was established that an infix may be placed following 'an initial element', but the precise nature of that element varies cross-linguistically. In the example given, the 'first element' is a consonant cluster. Elsewhere, the 'first element' may be the first consonant (Anderson 1992:8.2). Again,

Anderson assumes a parallel in phrasal affixation: the 'first element' is either the 'first phonological word' (17a,c) or 'first constituent' (17b,d).

Anderson (1996) develops this account further by using Optimality Theory (Prince & Smolensky 1993) at a level of Morphological Form. In Optimality Theory, grammars are hierarchies of universal constraints, the ranking of constraints being language-specific. Constraints can be violated; a grammatical sentence is the optimal candidate generated. That is, the 'grammatical' candidate is the candidate that constitutes least violation of the constraints.

Two families of constraints **EdgeMost** (*e*, **Right**) and **EdgeMost** (*e*, **Left**)¹¹ respectively place the element *e* as close to the left and right edge of the string as possible. The hierarchy with respect to each other determines which constraint wins out. Another constraint family **Non-Initial** (*e*) blocks the element *e* from appearing in first position. In this way, the notion 'second position' for a particular clitic_{*j*} is arrived at by the following ranking:

(21) **Non-Initial** (clitic_{*j*}) >> **EdgeMost** (clitic_{*j*}, **Left**)

The requirement that the clitic should not appear in sentence-initial position (=the 'Tobler-Mussafia effect' in Romance) is stronger than the requirement that the clitic appear as far to the left as possible.

Two further constraints compete for whether the sentence-initial element that satisfies **Non-Initial**(*e*) is a phonological word or a syntactic constituent. These are **Integrity**(**Word**) and **Integrity**(**XP**). The former does not allow a word to be interrupted by an infix¹², the latter prevents an item being inserted within an XP constituent¹³.

¹¹ These are equivalent to 'alignment' constraints in McCarthy & Prince (1993).

¹² Anderson (1995a) reports that Pashto allows clitics to be placed inside a word: this provides an example of **Integrity**(**Word**) appearing low enough in the hierarchy to be violated without danger of the candidate being ungrammatical.

¹³ Clitics can appear in the XP that constitutes their SCOPE in (19a), because such clitics represent the features of the XP, hence are 'members' of that XP.

The hierarchy of these two constraints in combination with constraints **Non-Initial(e)** and **EdgeMost(e, Left)** determines whether the element appears following the first word or first constituent. Hence, (17a,c) must result from the ranking (22a) and (17b,d) must result from the ranking (22b):

(22)a. **Integrity(Word) >> Integrity(XP)**

b. **Integrity(XP) >> Integrity(Word)**

A serious problem for this account is that constraint rankings in Optimality Theory are generally fixed for a given language. In order to account for Serbian/Croatian/Bosnian (17), Anderson must stipulate (i) that both hierarchies in (22) are possible in a single language, and (ii) that the change in hierarchy is optional¹⁴. This seriously undermines the restrictive nature of Optimality Theory.

Anderson (1993) goes further by taking up and pursuing the original observation of Wackernagel (1892) that not only 'accentless elements'¹⁵ tend to appear in a second position in Indo-European, but also inflected verbs - the phenomena known as 'verb second'¹⁶. Having established the mechanisms by which the features of a phrase may appear following the first position, Anderson proposes the following rule:

(23) *Realise the inflectional features of a clause by copying the features of Tense, Mood and Agreement onto a Verb which is as close as possible to the left edge of the clause without being (or interrupting) the left-most constituent of the clause.*

(Anderson 1995)

The verb therefore moves into a second position in order to represent the relevant features (this position may be C within a GB framework, as in standard

¹⁴ More recent research has indicated in fact that the data in (17) are not optional in the way once thought. See chapter 8.

¹⁵ Wackernagel included not just pronominal clitics, but also indefinite pronouns, indefinite adverbs, and other particles in, for example, Homeric Greek; see Anderson (1992:70) for discussion.

accounts of Verb-second: the syntactic position is, for this account, immaterial). A first point to note, however, is that rule (23) does not appear to be a sufficiently restrictive formal statement of the type expected in generative grammar.

There are a number of other weaknesses to Anderson's approach which we shall note here.

(i) Considering first the data in more detail, the clitic cluster in Serbian/Croatian/Bosnian can follow a single non-finite verb in (24a), but cannot follow the VP.

- (24)a. *Čitao sam knjigu* (Serbian/Croatian/Bosnian)
read-ppl. be-1sg.[-past] book
- b. **Čitao knjigu sam*
'I have read the book'

This contrasts with the proposed optionality of (17). Presumably in (24a) the relevant constraints are ranked in the order **Integrity(Word)** >> **Integrity(XP)**. In (24b) however, we appear to need some qualification to the **Integrity(XP)** constraint such that this constraint does not apply to VP. This increases the amount of syntactic information required at Morphological Form, as well as decreasing the parsimony of Anderson's proposal.

(ii) It is stipulated that the domain of cliticization (or SCOPE in (19a)) is IP in SCB. For Cavar & Wilder (1994), the domain of cliticization is assumed to be CP. In chapters 5 and 8, we shall see evidence that neither stipulation is descriptively adequate.

(iii) Next, consider the Bulgarian DP, which Anderson also discusses in terms of 'phrasal affixation'. The determiner generally appears as an enclitic on the

¹⁶ See Vikner (1995) for a review of the literature.

first word in the DP, whether this is an adjective or noun (25a,b). However, this is not possible if the first word is the specifier of an AP, as in (25c):

(25)a. *Momiče to mi* (Bulgarian)

girl the my

b. *Hubavoto to momiče*

nice the girl

c. **Mnogo to hubavo momiče*

very the nice girl

'The very nice girl'

Example (a) suggests that **Integrity(Word)** is ranked higher than **Integrity(XP)**: the enclitic determiner follows the N but precedes other material inside the NP. In (b), the determiner follows the adjective. In (c), the determiner cannot follow the first word, suggesting that in (b) and (c) the constraint **Integrity(XP)** is observed at the expense of violating **Integrity(Word)**. Constraint rankings therefore appear to vary according to the structure.

Providing new constraints high enough in the hierarchy could weakly account for the facts in (i) and (ii), but would undermine some of the conceptual appeal of Anderson's system.

(iv) Anderson glosses over a significant asymmetry between phonological affixation (18) and so-called phrasal affixation (20). No language has been attested that displays 'verb-penultimate' and as noted above, cases of clitics appearing in penultimate position (20d) are very few. This suggests that the analogy between (18) and (20) is not so robust. This asymmetry leads rather to the question 'Why should second position be so significant in natural languages, and penultimate position virtually unattested?', a question we shall address in this thesis.

We saw in points (i) and (ii) that there is a large amount of syntactic information required and used in a highly language-specific way, to the extent

that it is reminiscent of the complex conditions placed on early 'construction-specific' transformations that differed from language to language. It is difficult to imagine what data this system could *not* cope with. The benefit of moving the locus of activity to PF allows an 'explanation' of the idiosyncratic data, without needing to address any question of 'why?'. The more syntactic information utilised in these processes means that the system is becoming too powerful.

Finally, a criticism that Halle & Marantz make of Anderson's system is that it deals best with suppletion in closed class items. Yet both systems are set up to deal with all morphology in the same way, whether for closed or open class items.

Anderson's account of South Slavic clitic clusters is the first of several Optimality Theoretic accounts of the South Slavic clitic clusters that have appeared in the literature in recent years (see Legendre 1996 and Franks 1998 on Bulgarian). The clear benefit of an optimality style approach is that it highlights the interplay of a number of restrictions at play in the placement of special clitics. But a question that lingers over such accounts is 'why?'. Why should there be a restriction on the first position for some lexical items, or why are there requirements of 'edge most'?

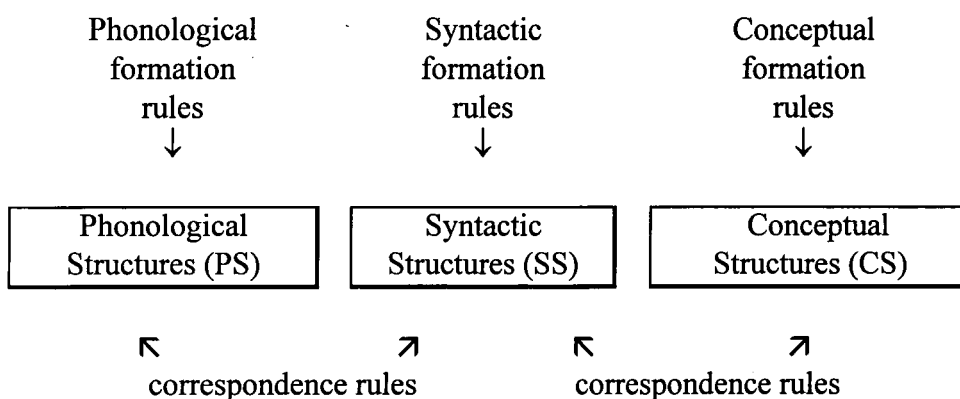
2.5. Lexicalization as a mapping relation (Jackendoff 1997)

Jackendoff (1997) shares Anderson's (1993) wish to reject the 'syntactocentric' approach of Chomsky's EST/P&P frameworks in which the PF and LF components are given 'interpretational' roles. Instead, he proposes a model in which the syntactic, phonological and semantic components are autonomous modules, each with its own distinct computational system or 'generative grammar' (in a broad sense of the term), with 'lexicalization' redefined as the relation between these modules.

2.5.1. A tri-partite model

For Jackendoff, the syntactic, phonological and semantic modules are autonomous, related via correspondence rules.

(26) Jackendoff's tripartite parallel model



This is to some extent reminiscent of Sadock's Autolexical Syntax (Sadock 1991) in which a sentence is given a dual representation in the syntax and the phonology that can, in Eskimo for example, be markedly different. A difference is that Jackendoff gives equal prominence to all three modules. A major additional distinction between (26) and Chomskyan models reviewed in chapter 1 is that the 'conceptual component' in (26) should not be confused with 'LF'. For Chomsky, LF is a linguistic level of representation that interfaces with the conceptual component; Chomsky is keen to distance LF from notions of traditional logic and formal semantics. In (26), however, there is only one interface shared by all three components via correspondence rules¹⁷. The conceptual component is not, say, the 'covert' syntax; it has no syntactic encoding but relates to the syntax via correspondence rules.

If the modules are autonomous, it is because the phonology and conceptual components employ different sets of primitives and rules from the syntax and from each other. With respect to the phonology, Jackendoff (1997: chapter 2) cites, for example, the fact that (i) intonational structure is

constrained but not derived from syntactic structure, (ii) prosodic constituency is determined only partly by syntactic structure (Zwicky & Pullum 1983; Zec & Inkelas 1990), and (iii) data such as (16) above shows an apparent mismatch between syntactic word order and phonological placement. Regarding conceptual structures, he notes (i) that the relation between syntactic categories and conceptual categories is many and varied (e.g. all physical object concepts are expressed by nouns but not all nouns express physical object concepts), (ii) that much of the conceptual information within a lexical item (such as the difference between *kill* and *assassinate*) is invisible to the syntax, (iii) syntactic distinctions are only loosely related to conceptual distinctions (e.g. Indo-European gender), (iv) many conceptual distinctions can be expressed via seemingly identical syntactic structures (e.g. many different thematic roles may be associated with ‘direct object’ position)¹⁸, and finally (v) many different syntactic distinctions can signal the same conceptual relation (e.g. (a)telicity can be realised via choice of verb, preposition, adverbial, and thematic roles).

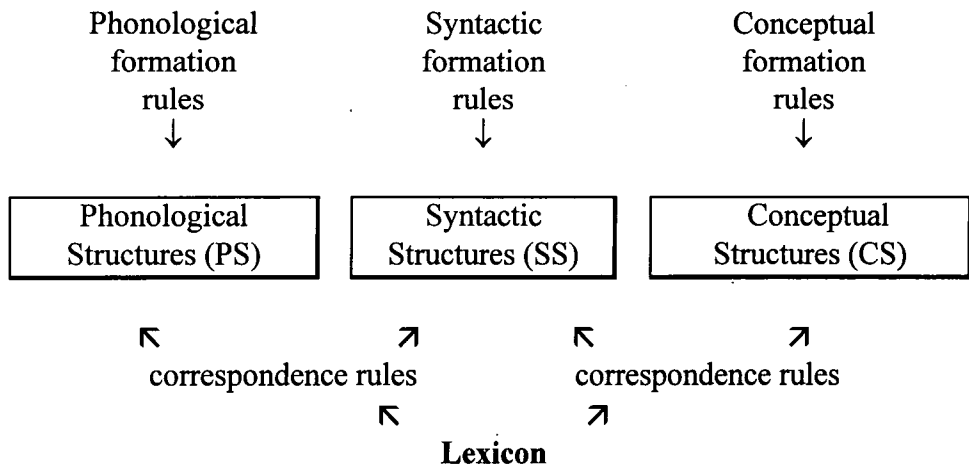
There is little here for an exponent of the so-called ‘syntactocentric’ view to disagree with. These discrepancies are simply a restatement of the ‘autonomy of the syntax’. Significant differences, however, lie in the fact that PS and CS share the same interface, unlike the models discussed in chapter 1 where the interfaces are separate. Also, Jackendoff’s model has a fundamentally different approach to lexicalization; we have referred to ‘correspondence rules’ that mediate the PS-SS and SS-CS relation. These correspondence rules are, in fact, the lexical items themselves.

¹⁷ Brody (1995) proposes a level of ‘lexico-logical form’ that is a single interface between the syntax and PF/LF (LF in the Chomskyan sense) with the overt/covert distinction reducing to Spell-out of the foot or head of a chain.

¹⁸ This is contra to Baker’s (1988) Uniformity of Theta Assignment Hypothesis in which a one-to-one relation is asserted between syntactic configurations and thematic roles. Jackendoff cites the following examples of thematic roles realised in object position as evidence:

- (i) Theme/patient: *Mary threw **the ball***
- (ii) Goal: *John entered **the room***
- (iii) Beneficiary: *John helped **the boys***
- (iv) Experiencer: *The film annoyed **the boys***

(27) **Lexical licensing in a tripartite model**



(Jackendoff 1997:100)

An open class lexical item consists of a matrix of three features [π , λ and δ], where π represents its phonological features, λ its semantic features, and δ its syntactic features. Each one of these features is interpretable, and hence taken for computation in its respective module. The feature matrix [π , λ and δ] is the only point at which the modules interface, via fairly extensive coindexing between the differing primitives of each module. In a sense, lexical items are not so much ‘inserted’, but introduced from the lexicon to mediate between the structures generated by the models. The term ‘insertion’ is therefore misleading, as the process does not involve the substitution of a lexical item into a syntactic position in the way described in Chomsky (1970b:64). Jackendoff prefers the term ‘unification’ because the modules are related to each via the lexical item. The term ‘lexical interface’ is equally misleading, because there is no separate level of structure with which another module can interface. Rather, Jackendoff’s lexicon itself is part of the mapping between the SS-PS and SS-CS correspondence components.

2.5.2. *Phonology and syntax: the English auxiliaries be and have*

Like Zwart, Jackendoff argues that it is an inelegance in the EST/P&P model for phonological features to pass through the syntax. Unlike Zwart, however, Jackendoff does not attempt to create an artificial distinction between

arbitrary phonological features on the one hand and supposedly less arbitrary syntactic and semantic features on the other. He asserts that the passage of conceptual features through the syntax is equally unwarranted and avoided in his model, but interestingly he concedes that nothing empirical follows from the strict modular autonomy he proposes.

In fact, this depends on the framework being used. One might argue that there are contexts in which the phonological content of a terminal node in the syntax, for example, does have demonstrably syntactic repercussions that Jackendoff's system can only generate via further stipulation. Consider, for example, the variation between the clitic and nonclitic forms of auxiliary *be* and *have*.

(28)a. *You think he 's/is where today?*

b. *Where_i do you think he *'s/is t_i today?*

c. *I 've/have called the police*

d. *Should_i I t_i *'ve/have called the police?*

In (a), the auxiliary *be* may cliticize to the pronoun *he*. This is blocked in (b) on account of the moved WH-element. In (c), the auxiliary *have* may cliticize to the pronoun *I*, but this is blocked in (d) by the trace of a moved modal.

Evidently, there *is* a relation between the nature of the phonological content and syntactic operations here, whether it is seen as the syntax being restricted by phonological content, or the insertion of phonological material being dependent on the syntactic output¹⁹. In Jackendoff's model, some further diacritic in the lexical entries of *be* and *have* is required to restrict phonological reduction in certain contexts, an unwelcome addition to the lexical entry. We return to the examples in (28a,b) in section 4.4.

¹⁹ Of course, a notational variant of these movements is possible in terms of copy theory (in which case it is not a trace that is left in the syntax, but the deletion of a copy at PF that affects cliticization), but still, the possibility of deletion at PF of the lower copy is licensed by the fact that syntactic displacement has taken place.

2.5.3. *The pros and cons of a single interface level*

By excluding phonological and semantic features from the syntax, Jackendoff is forced to have a single interface in order to avoid the difficulties of keeping track of lexical items as they pass from one interface to the other (at whatever levels they might be). Evidently, introducing diacritics or indexes to relate the phonological features [kæt] at a PF interface with the concept [CAT] at (an equivalent to) LF at another level would simply be a notational variant for having semantic and phonological features. Several of Jackendoff's arguments in favour of this model centre around the perceived benefits of having the equivalent of a combined PF and LF interface (Jackendoff 1997:91-101).

First, he cites the existence of lexical items that lack syntactic structure. That is, they have either the feature matrix $[\pi, \lambda, \emptyset]$, where the syntactic feature δ is null (e.g. *hello*, *ouch*, *yippee*) or the feature matrix $[\pi, \emptyset, \emptyset]$, where the lexical item lacks both syntactic and conceptual structure (e.g. *fiddle-de-dee*; *e-i-e-i-o*). For Jackendoff, such lexical items clearly exist in the lexicon because they're part of *language*, even if not syntax. The question then is why such lexical items should be 'dragged' through the syntax at all, given that they play no syntactic role²⁰. However, not everyone would accept that these do pass through the syntax. Jackendoff gives one rather weak piece of evidence in defence of their syntactic 'existence': the fact that they can't appear in (29) in the way that a wholly nonsyntactic noise can.

(29) *Then John went* "<<belching noise>>"/*"hello"²¹

This is apparently restricted to 'nonteenage' dialects (Jackendoff 1997:94). I certainly would dispute this as a diagnostic, but presumably because I am a little closer to the required age-range than Jackendoff. Jackendoff's point is that his model can deal with such cases easily: the item in question does not appear in

²⁰ A second possible example is expletive infixation in English (*auto-bloody-matic*, *Wolver-friggin-hampton*) where the infix has Phonological Structure and semantics/pragmatics but no Syntactic Structure.

²¹ Setting aside the fact that this is possible with a marked intonation to *hello* which stresses the auditory rather than linguistic characteristics of the utterance.

the syntax (or, in the case of expletive infixation in footnote 16, the expletive may appear as an affix in the syntax: Jackendoff 1997:119).

The second (tentative) argument is from language acquisition. The argument assumes that very young children who are at the one-word stage have sound-meaning relations but no syntax. When syntax develops, then a new module grows up within an already established structure. In contrast, if the PF and LF (equivalent) interfaces are at different levels, then the sound-meaning relation is mediated by syntax. Jackendoff believes this means either that the child has syntax but cannot use it, or that when syntax ‘kicks in’, then a major reorganisation occurs. Either way, it is inelegant. Firstly, tests have shown that children at the one-word stage do have syntactic knowledge (e.g. Hirsh-Pasek & Golinkoff 1991). But let us concede that children do not have syntax. Still, it does not follow that if one assumes an EST/P&P model, then one is committed to the position that all sound-meaning pairs processed by the human brain must pass through the computational component. The argument can be turned on its head: precisely because a sound-meaning pair *hello* or a chimpanzee’s signing of *banana* lacks syntax, there is no relation to a syntactic component. This is just as true whatever model of the language faculty is adopted.

At this point we touch upon some of Jackendoff’s differences with Chomsky in more general terms. Chomsky hypothesizes that the computational system is “perfect” and that it might easily have been ‘hooked up’ to different modules within the human brain:

If humans could communicate by telepathy, there would be no need for a phonological component, at least for the purposes of communication... These requirements for language to accommodate to the sensory and motor apparatus might turn out to be critical factors in determining the inner nature of C_{HL} in some deep sense, or they might turn out to be “extraneous” to it, inducing departures from “perfection” that are satisfied in an optimal way. The latter possibility is not to be discounted.

(Chomsky 1995:221)

For Chomsky, the computational system (C_{HL}) interfaces with the conceptual component via the linguistic level of LF. For Jackendoff, there is a closer

relation between the language faculty and communication. But there seems no reason why scientific research cannot posit a model of the language faculty without thereby being committed to asserting that all pairings between the sensori-motor apparatus and the conceptual component must be at all associated with, and must be computed by, the syntactic component in any of the models discussed in chapter 1.

There is a further issue. Jackendoff is interested in parsing and devotes some space to discussing how his framework provides a model for parsing too. Again, this is stimulating, but does not mean that the positing of a model for human language must commit one to providing a parser in the same model.

Finally, Jackendoff points out that topic and focus in conceptual structures may be realised via stress or intonation (ie. phonologically) or via syntax (clefting, topicalization etc.). If the PF interface and the equivalent to an LF interface are disjoint, then diacritics are required in the syntax simply to relate the two representations at different levels (as in Jackendoff 1972). Again, this is hardly a major problem. Given that topic and focus can be realised syntactically, this means we are dealing with a syntactic feature of some sort. It is therefore a minor step to relate this to alternative phonological realisations of topic and focus.

On a more general level, discussion of A-morphous morphology and Distributed Morphology in Jackendoff (1997) suggests a number of connections between these models and that of (27). Indeed, Jackendoff suggests that his theory is compatible with Distributed Morphology, though there is of course no discussion of semantics in Halle & Marantz (1993). As these authors do, Jackendoff discusses morphology at length (chapters 5 and 6), demonstrating how the system may work through indexation of the primitives of the PS, SS and CS of a given sentence. Suppletion is dealt with fairly straightforwardly through a 'loosening' of the relation between the PS-SS and CS-SS relations (Jackendoff 1997:145). But as with the other models we have considered in this chapter, a major drawback in our view is that Jackendoff's model is unable to say anything about the persistent and widespread characteristics of closed class items that distinguish them from open class items. Closed class items by

definition contain a restricted set of features that may be 'recognisable' in the syntax, but in Jackendoff's model it remains merely a coincidence that such syntactic features are associated with certain morphological and phonological effects that do not occur with open class items. In suppletive forms, the 'weakening' of the ties between the correspondence rules allows the machinery to produce the right result, but in a very *ad hoc* way. What triggers this? And what but coincidence leads to the array of morphological effects discussed earlier in this chapter in relation to closed class items?

In conclusion, we note that despite the elegance of Jackendoff's model, nothing empirical necessarily follows from his pursuit of autonomy between the components. Setting aside the claim for elegance, the arguments Jackendoff cites in favour of the single interface level are fairly weak.

2.6. Summary and conclusions

In this chapter, we have reviewed a number of alternative approaches to lexicalization, all of which share the property of inserting lexical items uniformly at a single post-syntactic level.

In Otero (1976) and den Besten (1977), we saw several arguments for the insertion of lexical items at S-structure in a REST model that assumes movement traces. However, in both cases, the empirical evidence does not so much support late insertion of all lexical items as the late insertion of closed class items, where 'closed class' includes pronominal clitics and inflectional morphemes for case and person-number agreement.

In both HM's Distributed Morphology and Anderson's A-morphous Morphology, word formation rules at Morphological Form (following Spell-out) combine lexical items with abstract nodes generated by the syntax. For HM, morphophonological rules are extremely powerful transformational tools that modify the stem + affix configurations combined by the syntax in a GB-style syntax. Rather than adopt such a battery of rules to capture the variety of realisations of the syntax-morphology relation, Anderson rejects the notion of a lexical item as a combination of stem and affixes altogether. He pursues a 'word and paradigm' model to fit the abstract feature bundles generated by the syntax

with lexical items. He then uses an Optimality Theoretic approach to account for the preferences displayed in South Slavic with respect to the clitic clusters. The model is weakened by the number of stipulations, in a sense a counterpart to HM's high number of rules. Also, the claim that phonological affixation is paralleled by 'phrasal affixation' (the placement of clitics in the clause) is only a limited parallel.

In both models, the accusation can be made (and each make it of the other) that it is difficult to see what data *cannot* be dealt with in their respective systems.

Jackendoff argues instead for a markedly different model in which the three autonomous modules, syntax, LF and PF are related via correspondence rules that are lexical items. Lexical items consist of syntactic, semantic and phonological features; upon insertion, the lexical item is decomposed, each feature undergoing simultaneous computation within its respective module.

Turning to the arguments given for uniform lexical insertion, both Zwart and Jackendoff propose arguments based on the elegance of the language models proposed. The existence of phonological features in the syntax in all Chomsky's models in the ((R)E)ST and Principles & Parameters frameworks is questioned. Jackendoff pursues this line with greater consistency than Zwart, given that in the architecture he proposes, syntactic, phonological and semantic features pass through 'their own' modules only.

The core argument that has surfaced several times in favour of all these models is the fact that uniform late insertion allows a single lexical item to realise syntactic objects that are available only after syntactic computation. This may be the case of a single 'portmanteau' morpheme that realises more than one functional head, or it may be a morphological form that is only possible in specific derived contexts. However, virtually all of these cases involve closed class items and so the central argument for uniform late insertion is actually irrelevant to the vast majority of lexical items that are members of open classes.

The only exception to this is with minimalist lexical decomposition, illustrated with transitive verbs in the text above. However, checking theory is such that this is not a particularly strong argument either way, given that the

particular morphology of a lexical item can be 'checked' via displacement just as easily as it can be inserted following displacement.

All the models discussed in this section are weakened by the fact that they cannot distinguish between closed and open class lexical items. Closed class items often display a unique syntactic behaviour, display fusional morphology, suppletive morphology and may be phonologically dependent on a host; none of these facts follow from anything in the models described. Instead, as we have seen, these morphological characteristics of closed class items have been taken as the justification for inserting all lexical items at a single level, and the open/closed class distinction cross-linguistically remains a coincidence.

One significant point that Anderson (1993:76) makes concerning the clitic cluster in Serbian/Croatian/Bosnian is worth highlighting here. Observing that the clitic cluster appears in one of two places, never divided between the two, and that the clitic cluster always has the same order of morphemes, Anderson rightly concludes that the clitic cluster is inserted as a single unit, and that the string is parsed uniformly for placement of all clitics. We shall adopt the same position in our discussion of clitic clusters in chapters 7 to 9.

3. Syntactic and PF Insertion and theories of extended projections

3.1. Introduction.

In chapter 1, we saw how Chomsky (1981) provides an elegant system in which both lexical insertion and move- α take place 'anywhere'. The onus is on other modules of the grammar such as Theta and Case Theory to restrict the grammar from over-generation. In practice, the vast majority of lexical items are inserted at D-structure with a surprisingly inelegant collection of lexical items which are 'late' inserted at PF for theory-internal reasons. The Minimalist Program of Chomsky (1995) retains a similarly small array of late inserted items, though it is less clear what mechanism is employed.

In chapter 2, we considered a number of approaches to uniform late insertion using broadly the Chomskyan model of the language faculty. Each is founded on one or both of the following facts:

- (1) *Inflectional morphemes often do not exhibit a one-to-one relation with grammatical features they realise.*
- (2) *Descriptive generalisations for introducing a number of lexical items (together with some inflectional morphology such as case morphology) can only be stated in transformationally derived contexts.*

We noted however that *all* the morphemes included in (1) and (2) are closed class morphemes. Inflectional morphology is by definition closed class: it is not possible for speakers of a language to coin new morphemes to realise, say, tense or agreement. All other instances of (2) considered so far are demonstrably drawn from the inventory of 'grammatical' (or in the somewhat misleading current terminology 'functional') items in a language¹.

¹ I exclude here Zwart's sixth argument concerning lexical decomposition in the Minimalist Program of Chomsky (1995: chapter 4) on the grounds that it is entirely theory-internal. I proposed an equally 'natural' alternative account in chapter 2.

Chomsky (1995) maintains that it is a methodological error to extrapolate a general rule for uniform late insertion of the lexicon from the 'extreme' case of suppletive *be*. In other words, the fact that one item requires late insertion does not warrant uniform late insertion. We observed that a similar point can be made with respect to (1) and (2). Because a relatively small and fairly clearly defined class of morphemes of a language (ie. those covered in (1) and (2)) require late insertion, it does not follow that *all* morphemes should be late inserted.

However, it is equally a methodological error to treat pervasive patterns in a distinct class of morphemes as mere 'exceptions', as if they somehow 'prove the rule'.

This chapter focuses on an alternative approach proposed in Emonds (1985, 1994) that develops the dual nature of D-structure and 'late' insertion in Chomsky's models, but embeds the lexicalization theory within a unified typology of lexical categories. In general terms, the information included in lexical entries means that open class lexical items are inserted at D-structure ('Deep Lexicalization') and a definable subset of closed class items are inserted at PF ('Phonological Lexicalization').

More recent developments in this theory have focused on the remainder of closed class items that we will informally refer to as the 'third class' of lexical items (Emonds 1997 and current research). Members of this third class are optionally subject to Deep Lexicalization or late insertion.

The strongest arguments that have been marshalled for uniform late insertion reviewed in sections 2.2 - 2.4 in fact become even stronger in favour of the phonological lexicalization of closed class items only. Stronger, because the set of 'late inserted items' no longer includes a majority of items that do not exhibit the characteristics of (1) and (2).

First, in section 3.2., we discuss Deep Lexicalization and consider the lexical entries that trigger such syntactic insertion. In section 3.3, we review the arguments in Emonds (1985) for the phonological lexicalization of a subset of closed class items and the lexical entries that trigger this mechanism. In 3.4, we discuss the remaining closed class items that undergo optional lexicalization.

Section 3.5 addresses the issue of defining an 'extended projection'; following a brief account of why Government & Binding theory needs the concept, we review the approaches of Grimshaw (1991) and van Riemsdijk (1990, 1997) and some of the difficulties in elaborating a theory of extended projections. In the final part of this section, we note an improvement on other accounts allowed by Emonds' typology of lexical categories. Section 3.6 summarises the main points and reconsiders some of the points made by Zwart and Jackendoff in the light of Emonds' model.

3.2. Deep Lexicalization

Open class lexical N, A, and V have several hundred and usually thousands of members in any given language, in contrast to the relatively small number of closed class items discussed in the next section. Neologisms (the coining of new words) are readily possible, hence the number of open class items in any language are indefinite.

Transformations that apply to lexical N, A, V or P do not distinguish between lexical items. Hence if a rule applies to one open class V, it applies to all open class V. One such transformation is that of lexical insertion: all open class items are uniformly inserted into the syntax at the start of the transformational cycle. This syntactic insertion is triggered by the presence of a purely semantic feature in the lexical entry of a given morpheme. Chomsky (1965:88) defines a feature as 'purely semantic' if 'it is not referred to by any rule of the phonological or syntactic component'. Take for example the verbs *frighten* and *inquire*. In Emonds' system, they appear in the lexicon with (at least) the following information in their subcategorization frames, where *f* indicates the purely semantic feature that provides the sort of information found in a dictionary entry.

(3)a. *frighten*, V, +_____ [+ANIMATE], *f*,²

b. *inquire*, V, +_____ [+WH], *f*,

For the derivation to be successfully interpreted at the LF interface, the semantic feature *f* must be present at LF. It is this fact that triggers insertion of the lexical item into the computational system.

(4) **Deep Lexicalization:**

*Items associated with non-syntactic, purely semantic features *f* satisfy lexical insertion conditions at the lexical interface.*

(Emonds 1994)

'Lexical interface' is understood here as being at D-structure in GB terms, or the point at which an item is taken by Select from the numeration for Merge in the Minimalism Program (see section 1.5).

As mentioned above, the sense in which Chomsky uses the term 'purely semantic feature' is to distinguish between this and a feature that is involved in a syntactic operation. Although informally, we might describe, say, the feature [+ANIMATE] as 'semantic' because the feature is associated with a particular semantic interpretation at LF, this feature is *syntactic* because it plays a role in syntactic operations (Chomsky 1965:150). In (4), then, it is the presence of a feature that is *not* syntactic that triggers insertion at D-structure to ensure that the lexical item is present at LF.

A purely semantic feature is outside the syntactic component, in that it is not visible to syntactic operations. In Chomskyan terms, if the computational system were hooked up to other modules in the brain, then it is these features that would change, not the features of the computational component. Equally, the syntactic feature [+ANIMATE] would remain part of the syntactic component if the computational system interfaced with a module other than the

² For clarity, I include word order configurations within these subcategorization frames here, even though left-to-right order of heads and complements is determined independent of lexical entries in this system.

intensional-conceptual component, and receive an interpretation appropriate to that module.

3.3. The Lexicalization of closed class items

The lexicon of any natural language includes a number of grammatical items that, in Emonds' (1985: chapter 4) typology of lexical categories, are classified as grammatical features associated with a lexical head, a phrase or a specifier of NP, AP, VP and PP (ie. they do not project as heads).

Closed class morphemes that are not N, A, V or P may be phonologically bound to another lexical item (a host) or free. Examples of free morphemes in English are *the*, *very*, etc. Examples of bound morphemes are the inflectional morphemes realising tense and agreement on a verb, or the case morphology on a noun and modifying adjectives in many Indo-European languages.

Bound morphemes may subcategorise for a specific host; English tense/agreement morphology for example always appears on a V. Alternatively, a bound morpheme may be relatively indiscriminate in its category of host, its position being defined in structural terms. Polish agreement morphemes are a classic example:

(5)a. *My-smy znowu wczoraj poszli do parku* (Polish)

we-1pl. again yesterday went to park

'We went to the park again yesterday'

b. *My znowu-smy wczoraj poszli do parku*

My znowu wczoraj-smy poszli do parku

My znowu wczoraj poszli-smy do parku

(from Banski & Franks 1998)

The agreement morpheme realising '1st person plural' *-smy* is suffixed to the subject pronoun in (a), the adverbs in (b) and (c) and the verb in (d).

A third alternative for bound morphology is between these two extremes: the lexical entry of a morpheme may not stipulate a precise host, but restricts the possibilities of hosts to a certain set. The Bulgarian definite article in (25) of chapter 2 is an instance of a more restrictive contextual feature appearing on the closed class morpheme³.

Theories differ over whether these closed class morphemes are heads that project to phrases, or whether they do not project, being specifiers or features on a lexical head. Stepping back from this issue for the moment, we note first that one common factor is that these classes are closed class items; neologisms cannot be coined by a speaker in the way that they can for open class members.

In addition to these items, Emonds (1985) demonstrates that the major lexical categories N, A, V and P include subcategories of 'grammatical' N, A, V and P. Examples of each are given in (6).

- (6)a. Grammatical N: *thing, place, time, way*,
b. Grammatical V: *be, have, get, do, go, come, make, let, want, say*,
Japanese passive and causation bound morphemes,
c. Grammatical A: *seldom/often, other, same, different, such, many, few, more, little*,
d. Grammatical P: *of, to*, etc., and *as* in its use as a prepositional 'copula'.

Emonds notes that there are apparently transformations that apply to closed class morphemes and not open class morphemes. Furthermore, such rules may well distinguish between one grammatical morpheme and another, in a way

³ In this framework, the notion 'bound' does not distinguish between inflectional morphology and 'clitic'. The distribution of a bound morpheme boils down to an interplay between contextual restrictions in the lexical entry of the morpheme and independent structural restrictions. The issue of whether, say, Polish tense/agreement morphemes or Finnish 'possessive suffixes' in the DP, are inflectional elements or clitic elements has not been successfully resolved, despite repeated attempts (see Banski & Franks 1998 for discussion of Polish; Pierrehumbert 1980 on Finnish suffixes). Both inflectional suffixes and clitics

that never occurs when transformations apply to lexical X. In other words, closed class morphemes typically display unique syntactic behaviour. Hence the distinctions between, say, the specifiers in AP:

- (7)a. {*as/so/too/how/*very/*less/*most/*quite*} big a man
b. {*so/*as/*too/*very*} *tired that he went to sleep*
c. {**so/as/*too/*very*} tired as I was

One transformation that applies to closed class items but not open class items is that of suppletion, where 'suppletive' is defined as in (8):

(8) Suppletion

Two irregular variants⁴ are suppletive iff they differ in some non-stem-final consonant cluster

(Emonds 1985:171)

Examples of suppletion are the auxiliary *be* in English and other languages (see chapters 5 and 6 for South Slavic languages), English *go/went*, or Latin *ferre* 'to bring'/*tuli* 'brought'/*latus* 'brought'. However one formally captures the notion of suppletion, there is no doubt that suppletive morphology is distinct from 'irregular' morphology found in limited numbers in the open classes. For example, by analogy to *be/are* and *good/better*, it is unlikely that the irregular past stem of *arise* could be *bose*, and that of *bleed*, *gloot*.

Another transformation that may apply to closed class morphemes is insertion after certain transformations have applied. Hence (9):

are categorised as part of the lexical morphology in Bresnan & Mchombo (1995), for example.

⁴with *irregular variants* defined as: 'Two different words are *irregular variants* if they differ only and precisely in the same structural contexts as does a pair of regular variants, but they cannot be obtained from the syntactic and phonological rules of the language.' (Emonds 1985:171)

(9) **Late Lexical Insertion:** *if a morpheme M inserted in a cyclic domain D has a contextual insertion feature that must be satisfied after (rather than before) transformations apply in D, then M is in a closed category.*

(Emonds 1985:177)

Note that (9) involves a one-way entailment: if an item is inserted late, then it must be a closed class morpheme. However, if an item is a closed class morpheme, it does not necessarily undergo late insertion.

Before going further, let us consider the original evidence in favour of (9).

3.3.1 Early Arguments for late insertion

The evidence given in Emonds (1985) from closed class items outside the categories N, A, V, P, is similar to den Besten's (1977) suggestions. We consider a couple of these first before turning to arguments related to grammatical subsets of N, A, V and P.

- *So, too, either*

Assume a grammatical formative, K, that is associated with coordination, and means roughly 'also'. This formative is realized in affirmatives by *too* (10a), in negatives by *either* (10b), and in a clause-initial position by (affirmative) *so* (10c):

(10)a. *Mary will leave town, and John will too/*so/*either*

b. *Mary won't leave town, and John won't either/*too/*so*

c. *Mary will leave town, and so/*too/*either will John*

(Emonds 1985:180-1)

In terms of (9), *so* is a morpheme M associated with the syntactic feature K, which includes a contextual restriction to the effect that it must be inserted in a clause-initial position – let us assume specCP. In (a), K has not moved to specCP, hence *so* is ungrammatical if inserted. In (c), K has moved and the

contextual requirement of *so* is satisfied upon insertion. In other words, insertion of *so* must follow K-movement. Equally, insertion of *too* must follow K-movement, otherwise K-movement could include *too*-movement into specCP, ruled out in (c).

- French *quoi* 'what', *qui* 'who', *lequel* 'which'

In French, the WH-words *quoi* 'what', *qui* 'who', *lequel* 'which' appear in NP positions. When fronted with *de* 'of', they may be replaced with the morpheme *dont*.

(11)a. *Je (ne) peux pas résoudre le problème dont tu parles* (French)

I can not resolve the problem of which you speak

b. *Je (ne) peux pas résoudre le problème duquel tu parles*

The lexical item *dont* can only be introduced into the derivation once WH-fronting of [*de* + WH-element] has established the appropriate context – again, let us assume specCP.

Next we turn to some of the evidence for (9) taken from grammatical subsets of the major categories, besides suppletions (8), which are also of this type.

- English *be* versus *exist*, *remain*, *occur*, *appear*

Consider how the English verbs *exist*, *remain*, *occur*, and *appear* differ in their syntactic behaviour from the auxiliary *be* in (12).

(12)a. *There existed/remained/occurred/appeared a problem with the car*

b. *A problem with the car existed/remained/occurred/appeared*

c. *There are good doctors*

d. **Good doctors are*

(Emonds 1985:186)

In (a) and (c) each verb allows the expletive *there* in subject position when it dominates an NP. In (b), the verbs *exist*, *remain*, *occur*, and *appear* do not require a terminal element following. This contrasts with (d) because *be* has the contextual feature +_____XP. Assuming that (a/c) are examples of rightward movement of the subject NP followed by *there*-insertion, *be* must be inserted *after* the rightward movement of *good doctors* in (c) in order to satisfy the subcategorization frame.

Notice that the syntactic difference in (12) exists despite the similarity of semantic import associated with these verbs. That is, this is not a syntactic restriction utilizing semantic criteria.

- *Have*, *get*, *let*, and *want* and the passive

The stative grammatical verbs *have*, *get*, *let*, and *want* (used in their basic sense and not in any idiomatic sense) are claimed to be inserted after the passive transformation, hence the ungrammaticality in (13):

(13)a. **This car was had by John last year*

b. **This car was gotten by John last year*

c. **My friend was had to report for service*

d. **The dog is never wanted in the backyard*

(Cf. *They never want the dog in the backyard*)

(Emonds 1985:187)

Note a distinction is drawn between the grammatical V in (13) and the grammatical activity verbs such as *do* and *make* which can be passivized (*It was done/made yesterday*).

3.3.2. Phonological lexicalization and hard-wired features

The number of late inserted items have been extended to include at least inflectional morphology and clitics and some grammatical subcategories of the major lexical classes. This however is only an extension of the list of late-

inserted items in Chomsky (1981). In this section we consider further developments of Emonds' theory, in particular, the principled motivation for late insertion and its adaptation to an extra-syntactic role termed phonological lexicalization.

We saw in the previous section that D-structure insertion ('Deep Lexicalization') of open class items is triggered by the presence of a purely semantic feature *f*, a feature that has no role to play in a syntactic mechanism. Closed class morphemes, by definition, are not specified for any purely semantic features in their lexical entries and so are specified only for formal syntactic features FF.

A distinction is drawn between FF that are required at LF and those which are not. We shall consider the former in the next section; here we concentrate on features that play no role at LF, for example, contextual features and agreement features. Such a syntactic feature F is 'hard-wired' into the system; it is, in a sense, given 'for free' by the language faculty, or inherent to the language faculty. Crucially, it does not require lexical instantiation in the syntax *en route* to LF.

The lexical entry, then, of such a closed class item does not include any semantic feature *f*, nor any closed class feature F that is required at LF. Take for example the English 'functional' P *of* and complementizer *that*. The lexical entries will include the information in (14) in some form.

- (14)a. *of*, P, -LOCATION, +____DP
b. *that*, P, -WH, +____[CP; +FINITE]

What features there are in (14) are already a part of the X' framework, so lexical insertion introduces nothing new into the computational system. Being superfluous at LF, they need not be inserted into the computational system.

(15) Phonological Lexicalization:

Items specified solely in terms of contextual and other non-interpretable features are inserted subsequent to any operation contributing to Logical Form.

(Emonds 1994)

Informally, closed class lexical items may be seen as 'place-holders' only, realizing syntactic features at PF. Note that in Emonds' system, unlike that of Bare Phrase Structure (Chomsky 1994), the X' system is a primitive of the system, already in the syntax prior to lexical insertion.

Whereas the earlier formulation of late lexical insertion in (9) is 'post-transformational', the form of late insertion in (15) is essentially 'extra-syntactic'. So far, the lexicon is effectively divided into two: (i) those items that must be introduced into the computational component at the lexical interface in order to be present at LF, and (ii) those items which either make no contribution to LF or whose features FF do not require a lexical item to do so and hence are inserted at a stage that has no effect on LF.

If lexical insertion is a transformation, Emonds (1994) maintains that it is more economic for lexical items *not* to be inserted into the computational system, hence (16).

(16) Economy of Derivation

The most economic realization of a given deep structure minimizes insertions of free morphemes ("Use as few words as possible").⁵

(Emonds 1994)

This combines with Deep Lexicalization (4) and Phonological Lexicalization (15) to require that only lexical items that are interpretable at LF can be inserted

⁵ Cp. Chomsky's proposal (76) that ' α enters the numeration only if it has an effect on output' (Chomsky 1995:294).

into the computational system. Grammatical X devoid of any semantic content such as those in (14) *must* be inserted at PF.

3.3.3. *The third class: optional lexicalization*

In terms of closed class items, we have so far discussed a subset whose lexical entries contain no features required at LF and which are consequently subject to phonological lexicalization. In this section, we turn to how the remainder of closed class items are lexicalized in this theory.

Here, we are concerned with lexical items whose FF include one or more syntactic features that are interpreted at LF. In other words, such features have some semantic reflex. A classic example might be the feature [+ANIMATE], classed as a syntactic feature in Chomsky (1965) on account of the role it plays in syntactic operations. Evidently, this feature has a semantic reflex too, indicated by the mnemonic used for the feature.

Examples of this third class of lexical item in Emonds' account are modal verbs, quantifiers, negation, the grammatical verbs, strong pronouns. Indeed, a number of the items discussed in section 3.3.1 above turn out to be members of this third class.

Such lexical items appear in their canonical positions in the syntax. Hence an English modal verb appears in I^0 , in contrast to English verbal inflections that realize features of I^0 but appear lower down on the verb. Both modals and inflections are closed class items, both realize features in I^0 , but the inflectional morpheme has features that are hard-wired into the system, and not interpreted at LF, whereas the modal verb is interpretable, and hence required at LF (i.e. the difference between *must* and *may*).

Consequently, the inflectional morpheme is phonologically lexicalized by (15) and (16) above as we have seen. The third class item, however, receives a different treatment.

In Emonds (1997), it was argued that restructuring verbs in Italian and Spanish are members of the third class (see sections 7.4.2 and 9.5). As we shall see in later chapters, these verbs give rise to two optional structures which are argued to follow from optional Deep Lexicalization (like open class items) and

phonological lexicalization (like hard-wired cognitive features). Informally, the system recognizes these closed class features and is indifferent whether or not they are lexicalized in the syntax.

3.3.4. *Summary: the typology of lexical items*

The lexicon consists of open and closed class morphemes. Open class N, A, V, P, include both syntactic features FF and purely semantic features *ff* in their lexical entries. Presence of *f* triggers their insertion at D-structure. Any transformation affecting a major lexical class applies to all members of that class, regardless of the content of *f* because syntactic transformations have no access to *f* with which to be able to distinguish between open class lexical items.

A subclass of closed class morphemes such as agreement morphemes and the copula clitic contain only syntactic features FF that are cognitive features, already hard-wired into the system. Such features are contextual features, ϕ -features and other features that indicate lack of ‘content’ in semantic terms. Examples are English auxiliaries *do*, *have*, *be*, and inflectional morphemes. Insertion of such an item into the system therefore introduces nothing ‘new’, and thus economy ensures that they cannot be introduced into the computational system. As a result, they are inserted at PF as “place-holders” to realise the syntactic features.

Other closed class lexical items contain at least one formal feature F in their lexical entries that is interpretable at (and hence required at) LF. The system knows how to deal with these items and it is immaterial whether they are lexicalized in the syntax or not. Consequently, such closed class items may be inserted at D-structure or at PF in Emonds (1997). We will distinguish between features that are hard-wired into the system and these F which are required at LF by making the latter F_1 and the former F_2 .

The typology of lexical items and lexicalization is summarised in (17).

(17) Emonds' typology of lexical items

	Features included in the lexical entry	Contributes to LF	Level of insertion
Open class items	syntactic features F , semantic features f	<i>yes</i>	Syntax: D-structure
Closed class items 1.	syntactic features F_1	<i>no</i>	PF
2.	syntactic features F_1 and F_2	<i>yes</i>	Syntax: D-structure/PF

A purely semantic feature f is not interpretable by syntactic rules and hence plays no role in syntactic operations. It is required at LF to contribute to the semantics of the construction, hence it is inserted into the syntax (at D-structure). A syntactic feature F is a closed class formal feature. A formal feature that makes no contribution to LF, F_1 , does not need to be lexicalized: it comes 'for free' with the system. Consequently, a lexical item that contains only F_1 is not lexicalized into the syntax, and so it is subject to PF insertion. A formal feature that is required at LF, F_2 , may be either PF inserted or introduced into the syntax at D-structure. In terms of being present at LF, it does not matter at what level the morpheme is inserted because the features are already there and recognizable to LF.

In a revised version of this theory, the third class of lexical items containing F_2 are always inserted into the syntax, with the optionality resulting from whether this is insertion at D-structure or later syntactic insertion before Spell-out (Emonds pers. comm). We will not be pursuing this recent development here, however.

3.4. Extended Projections

Zwart (1996) and Jackendoff (1997) question the parsimony of a model of grammar where phonological features pass through the syntax and Jackendoff goes further and also questions the need for semantic features to appear in the syntax. Instead, Zwart proposes the eradication of phonological features in the



syntax, and Jackendoff pursues a radically autonomous agenda in which no features of one module pass through another module.

In contrast, in the model we have considered so far, the distinction between open and closed class items and their respective levels of lexicalization depend entirely on the presence or absence of purely semantic features in the syntax. In this section, we shall suggest that an ‘extended projection’ may also be defined in terms of the presence and absence of lexical items in the syntax. Another way of putting this is to say that, if a node dominates phonological material in the syntax, then that node is dominating an open class lexical item, a definition that we will pursue in our own model in 4.3.1.

The notion of ‘extended projection’ is of significance to us for both theoretical and empirical reasons. In terms of data, reference to the extended projection is essential in accounting for the placement of the South Slavic clitic cluster: in particular, we demonstrate that the clitic cluster in Serbian/Croatian/Bosnian appears on the ‘highest head’ of the extended projection of V^0 in section 8.4.1. In the next chapter, we shall see that the lexicalization mechanism in a revised minimalist Phonological Lexicalization crucially relies on the definition of ‘extended projection’.

First, we consider Grimshaw’s (1991) and van Riemsdijk’s (1990, 1997) accounts of extended projections, before deriving a notion of ‘extended projection’ from Emonds’ system.

3.4.1. Evidence of extended projections in Grimshaw (1991)

Certain syntactic relations such as argument selection by a head and agreement are generally regarded to be restricted to a ‘local’ domain. Specifically, both nodes in the relation should appear within a single phrase. Grimshaw (1991) points out that certain examples of both selection and agreement relations appear to violate this locality restriction. Consider first (18).

(18) *We merged the files/*the file*

The verb *merged* selects a complement marked for [+plural]. In earlier analyses, the complement *the files* was taken to be a single phrase projected by the head N, the determiner *the* appearing in specNP (e.g. Chomsky 1970, Jackendoff 1978). Selection of a [+plural] complement is therefore local, being a syntactic relation between a head and its complement. However, if we adopt the ‘DP-hypothesis’ (Abney 1987), then the determiner *the* heads a phrase DP which takes an NP as its complement: $DP[the\ NP[files]]$. In this case, the relation between *merge* and *files* reaches across an intervening maximal projection (DP), and hence is no longer local.

A similar problem occurs in the agreement relation between subject and verb such as in (19).

(19) *The boys were/*was walking to school*

If [*The boys*] is a single phrase, NP, then the relation is local, occurring between NP in specIP and the [+plural] agreement features in I^0 : the relation occurs within a single projection. Locality is violated if *The boys* is analysed as a DP $DP[The\ NP[boys]]$.

However, the selectional relation in (18) and the agreement relation in (19) are still local relations if DP is in some way a projection of N. The feature [+plural] could then percolate up to the DP node. For this reason, Grimshaw argues that the extended projection of N is DP: in (18) the verb selects an extended projection with a [+plural] feature, and in (19) the Infl agrees, via spec-head agreement, with an extended projection in specIP.

Further evidence for extended projections is found in WH-movement. In (20), the WH-feature in C^0 optionally attracts either the DP marked [+WH] or the full PP containing the [+WH] on DP.

- (20)a. $DP[Which\ stone]_i\ did\ they\ find\ the\ note\ PP[under\ t_i]?$
 b. $PP[Under\ DP[which\ stone]]_i\ did\ they\ find\ the\ note\ t_i\ ?$

The question is how the PP in (20b) is able to satisfy the WH-feature checking requirement if the fronted PP in (b) is not marked [+WH]. The phrase carrying the relevant feature is embedded inside the PP and hence not in a local relation to C⁰. Rather than see (20b) in terms of the P being ‘pied-piped’ (Ross 1967), Grimshaw proposes that the PP is in the extended projection of the N, hence the WH-feature can percolate up from the N (or D) to the PP node.

Next, consider the ways in which the syntax satisfies the selectional requirements of a verb such as *wonder*, which takes a [+WH] CP complement. There are two possible scenarios, represented in (21): presence of a [+WH] complementizer in (a) or a WH-element in specCP in (b).

(21)a. *I wonder*_{CP} [_C *whether*] [_{IP} *they read that book*]]

b. *I wonder*_{CP} [*which book* [_{IP} *they read*]]

In both cases, the CP is [+WH]. However, the matrix verb’s selectional requirements are not met if the WH-element in specCP is embedded inside *another* lexical projection, as in (22a).

(22)a. **I wonder*_{CP} [[*a book* [*about who(m)*]] *they read*]

b. *I wonder*_{CP} [*who* *they read a book about*]

In (a), the PP *about whom* is a complement of the N *book*. The DP *a book* is not therefore an extended projection of *who(m)*, so the WH-feature does not percolate up, but remains embedded inside the NP. This contrasts with (22b) where the WH-element alone has been extracted out of the DP [*a book ...*] and appears in specCP. When a PP is not a complement to a lexical head, but simply the most extended projection of a lexical head N, then it can inherit a [+WH] feature from the N and hence satisfy the selectional requirements of the matrix verb:

(23) *I wonder*_{CP} [*under which tree* [_{IP} *they sat*]]

Here, the PP [*under ...*] is a projection of the DP *which tree* and inherits the [+WH] feature.

To summarise, Grimshaw shows that we require a theory of extended projection in order to retain the notion that selectional relations, agreement relations and checking relations are local. From the data we have seen above, it would appear that an extended projection consists of a lexical head which projects both to a lexical phrase and further to one or more functional phrases.

3.4.2. Grimshaw's theory of extended projection

Following Chomsky (1970), Grimshaw assumes the categorial specifications in (24) for nominal and verbal extended projections. The feature F=0 indicates a 'lexical' projection and the feature F=1 indicates a 'functional' projection. The feature L indicates the bar levels of the X' theory: L=0 being a head and L=2 being a maximal projection.

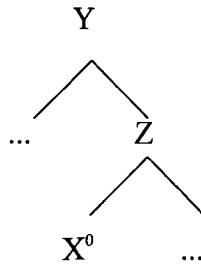
(24) *Categorial specifications:*

V	[+V, -N]	F=0	L=0	N	[-V, +N]	F=0	L=0
V'	[+V, -N]	F=0	L=1	N'	[-V, +N]	F=0	L=1
VP	[+V, -N]	F=0	L=2	NP	[-V, +N]	F=0	L=2
I	[+V, -N]	F=1	L=0	D	[-V, +N]	F=1	L=0
I'	[+V, -N]	F=1	L=1	D'	[-V, +N]	F=1	L=1
IP	[+V, -N]	F=1	L=2	DP	[-V, +N]	F=1	L=2

The difference between a lexical category and its associated functional projection is the stipulation of the F feature, 0 or 1.

Grimshaw draws a distinction between 'perfect' and 'extended' projections. A 'perfect' projection is the familiar endocentric X' structure in which a head X⁰ projects to XP:

(25) *Perfect projection*



X is the perfect head of Y, and Y is a perfect projection of X in (29). Y and X share all categorial features, the node Z intervening between X and Y shares all categorial features, and the F value of Y is the same as the F value of X. Thus if $X=N$, then NP (=Y) is the perfect projection of N. N^0 , N' and NP share the same categorial features and all have the F value 0.

On the other hand, the *extended projection* in (26) below captures the intuition that the perfect projection of a lexical head combines with the perfect projection of a higher functional head of the same categorial specification.

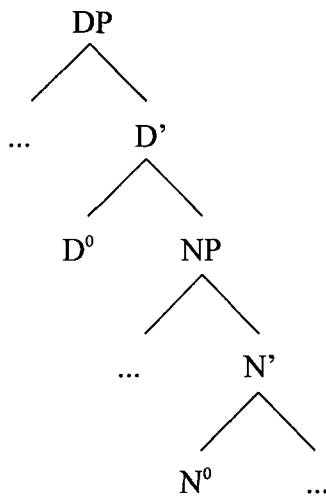
(26) *Extended Projection*

X is the extended head of Y, and Y is an extended projection of X iff:

- (a) Y dominates X;
- (b) Y and X share all categorial features;
- (c) all nodes intervening between X and Y share all the categorial features;
- (d) if X and Y are not in the same perfect projection, the F value of Y is higher than the F value of X.

Let us apply this to the case of a DP projection.

(27)



In (27), all nodes share the same categorial features, conforming to (26b,c). (26d) ensures that the perfect projection of D^0 must be a functional projection, $F=1$.

As it is worded, (26) rules out the possibility of more than one functional projection in an extended projection, though Grimshaw allows for the possibility of further values for F by avoiding a binary $+/-$ value⁶.

An interesting case that Grimshaw considers is that of the gerund construction in (28).

(28)a. [*Their studying this problem*] *will not be useful*

b. *I resent* [*Mary's eating cookies in front of me*]

Verbal gerunds have the external distribution of NPs, appearing in subject position (a) or object position (b). As in NP, the subject of the gerund appears with genitive inflection. However, in terms of the internal argument structure, gerunds appear more like verbs than nouns; gerunds take adverbials rather than adjectives (*Mary's cheekily/*cheeky eating cookies*) and assign case directly to the complement NP (*Mary's cheekily eating (*of) cookies*).

⁶ One might argue that this entails an ability to count on the part of the language faculty, an ability it does not have.

Abney (1987) proposed that the gerund consists of a VP complement to a D. That is, the maximal projection is nominal, whilst the internal structure of the gerund (a VP) is verbal. This is problematic in Grimshaw's account of extended projections, because DP and VP differ in their categorial specifications. Rather, Grimshaw proposes that (i) the *-ing* head of the gerund is unspecified for [N] and [V] features and (ii) extended projections require categories to be non-distinct rather than identical.

The underspecification of *-ing* also allows for the nominal gerund in (29):

(29) [*The eating of cookies*] is not recommended for those on a diet

Here the nominal distribution is matched by the internal structure of an NP. In GB terms, the 'dummy case assigner' *of* is required to assign case to *cookies* because the noun is unable to assign case.

As a critique of Grimshaw's system, note first that the requirement that all nodes share categorial features is stipulative. Evidently, in a bare phrase structure framework such as that of the Minimalist Program, this stipulation is not required.

Secondly, the feature F suggests that the terms 'functional' and 'lexical' are primitives. The system established earlier in this chapter indicates that 'lexical' and 'functional' need not be primitives (understanding 'functional' as 'grammatical' in Emonds' sense). The status 'grammatical' and 'lexical' are derived from the absence or presence respectively of purely semantic features in the lexical entry of a given lexical item. Nevertheless, of course there has to be a distinction. In Emonds' terms, a purely semantic feature can only be associated with the lowest X^0 in an extended projection.

Prepositions are problematic in Grimshaw's system. The category P may include both lexical P and 'functional' P, so the F value remains unclear. Problems arise in terms of the categorial specifications. Grimshaw initially proposes that P are specified [-V, +N] and can therefore appear in the extended projection of a noun. C appears in the extended projection of a verb and is

specified [+V,-N]. However, P can take a CP complement, suggesting they should share specifications, yet P also has case-marking properties which suggests it must be [-N]. Grimshaw therefore proposes that P is possibly neutral between both verbal/nominal and functional/lexical specifications. Interestingly, this attaches similar categorial specifications to P and the gerund *-ing*, a position that bares some comparison with van Riemsdijk's (1997) account of extended projection we turn to next.

3.4.3. *Van Riemsdijk's (1990, 1997) Categorial Identity Thesis*

Grimshaw asserts that C and P have distinct categorial specifications⁷. Emonds (1985: chap. 7), however, argues that C is a subcategory of P, both having the categorial specifications [-V,-N]. In Grimshaw's system it is not apparent how some P can be part of the extended projection of a noun, whilst a subcategory of P, namely C, may be part of a verbal extended projection.

Van Riemsdijk's (1990, 1997) assumes the same specifications in his theory of extended projections.

(30) *Categorial features:*

[+/-N] [+/- V]	[+N, -V] = N, D, Q, ...
	[-N, +V] = V, I, Agr, ...
	[+N, +V] = A, Deg., ...
	[-N, -V] = P, C, ...

Instead of a ternary L feature for the levels of the X' framework, Van Riemsdijk adopts Muysken's (1982) features [+/-Projection] and [+/-Maximal] to capture the nodes found in the X' tree.

⁷ Rizzi (1990b) also proposes that CP is categorially distinct from IP, although in the same extended projection.

(31) *L-features*:

- [PROJ -, MAX -] = head (H^0)
[PROJ +, MAX -] = Intermediate node (H')
[PROJ +, MAX +] = maximal projection node (HP or H^{\max})
([PROJ -, MAX +] = Unprojected particles⁸)

The distinction between ‘functional’ and ‘lexical’ nodes is arrived at via binary values for F (‘functional’) and the addition of a new feature for ‘grammatical’ [+/-G]:

(32) *F- and G-features*:

[+/-F] ‘functional’, [+/-G] ‘grammatical’

[-F, -G]	lexical head, N, V, ...
[+F, +G]	functional head, D, I, ...
[+F, -G]	semi-lexical head, e.g. container nouns
[-F, +G]	??

Earlier versions of this account employed only the feature F, adopted from Grimshaw’s account, but with a 3-way value ($F=0, 1, 2$) to allow for lexical, ‘semi-lexical’ and functional heads. The addition of the feature [+/-G] in (32) allows the three-way typology of heads through binary values as shown above, but introduces the problem of positing a fourth category [-F, +G] that is not currently attested. The exact consequences of ‘grammatical’ as opposed to ‘functional’ remains unclear.

An extended projection in Van Riemsdijk’s system conforms to two well-formedness conditions at the interfaces. The first does the same work as Grimshaw’s (24); Categorical Identity in (33) requires that all nodes in an extended projection share categorial features.

⁸ An example of an unprojected particle might be, for example, a pronominal clitic.

(33) *Well-Formedness Condition #1*

Categorial Identity Thesis (CIT): the lexical head and the corresponding functional head(s) has/have the same categorial features.

Secondly, the ‘No Value Reversal’ constraint in (34) captures both the X-bar framework structure *and* the fact that within an extended projection, lexical projections must not dominate functional projections:

(34) *Well-Formedness Condition #2*

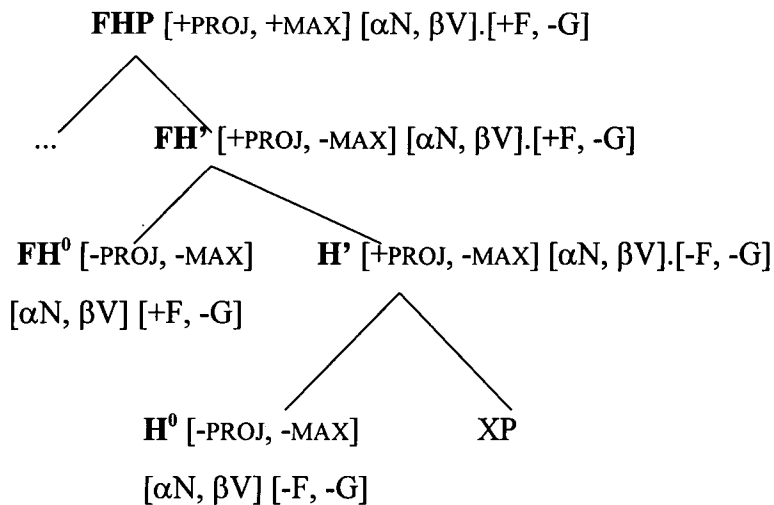
No Value Reversal (NVR): within a projection, the following restriction holds for F- and G-features:

*[-]
|
[+]

That is, a [-] value can never dominate a [+] value for any of the features [F], [G], [PROJ], or [MAX] in (31) and (32). In this way, a head X^0 cannot dominate X^{\max} or X' , for example. In terms of the features [F] and [G], an extended projection cannot consist of a lexical projection dominating a functional projection; i.e. a projection of V cannot dominate IP. This is equivalent to Grimshaw’s (26d).

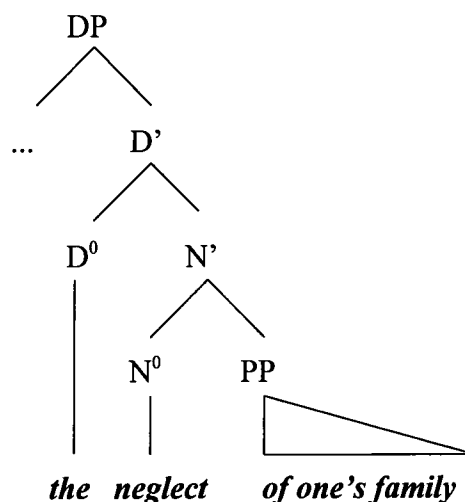
Finally, whereas Grimshaw (1991) has the notion of ‘perfect’ and ‘extended’ projections, Van Riemsdijk proposes that an extended projection is a *single* maximal projection. That is, there are no intermediate maximal projections within an extended projection; rather, a single maximal projection may contain more than one head (i.e. a lexical head and (possibly more than) one functional or semi-lexical head(s)). Hence the tree in (35) is characteristic of Van Riemsdijk’s system.

(35)



The tree in (35) represents a well-formed extended projection. The head H^0 is the lexical head of the extended projection with the categorial specification $[\alpha N, \beta V]$. Every node of the extended projection has the same categorial specifications $[\alpha N, \beta V]$, and therefore satisfies the CIT (33). The head FH^0 is functional and so it is specified [+F, -G]. The restriction on feature value reversal (34) is satisfied because at no point does a [-] value dominate a [+] value. Notice that H^0 does not have a 'perfect projection' in Grimshaw's sense: there is no 'HP' dominating H'. We shall return to this directly. A concrete example of (35) is the DP in (36).

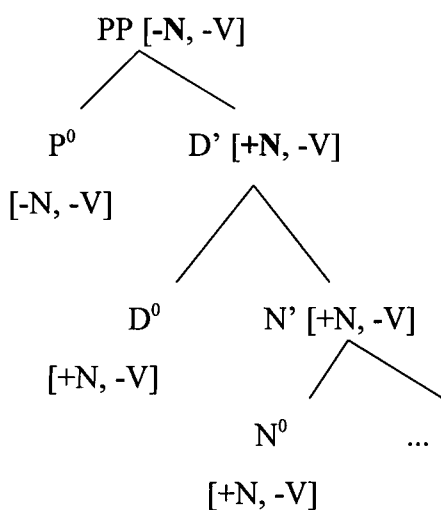
(36)



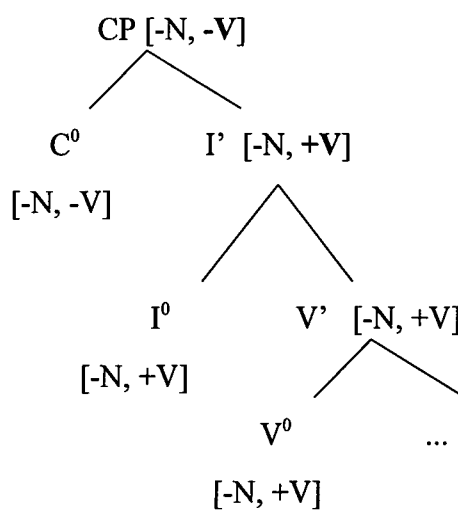
Notice that the lexical head N^0 does not head a ‘perfect’ projection, as it does in Grimshaw’s system. For Van Riemsdijk, there is no ‘NP’ in the traditional sense. Rather, there is a single maximal projection, DP, and all other nodes in the extended projection are either heads or intermediate projections. ‘Endocentricity’ in this system means that a maximal projection has a single lexical head with which it shares categorial features and every lexical head projects to only one maximal projection.

Jackendoff (1972) and Van Riemsdijk (1978) demonstrate that the category P is a major lexical category with its own categorial specifications [-N, -V]. As mentioned above, van Riemsdijk (1996) follows Emonds in viewing complementizers as a subcategory of P, hence C is also specified [-N, -V]. This feature specification should violate categorial uniformity (33):

(37)a.



b.



In (a), the specification [+N] for N and D is dominated by the specification [-N] of PP. In (b), the specification [+V] for V and I is dominated by the value [-V] of CP.

A revised CIT therefore must exclude P from its formulation:

(42) **Revised CIT:** Within a projection, the configuration

$[\gamma N, \delta N]$.

|

(where $\alpha, \beta, \gamma, \delta$, range over + and -)

$[\alpha N, \beta N]$.

is illicit (*) unless either (i) $\alpha=\gamma$ and $\beta=\delta$

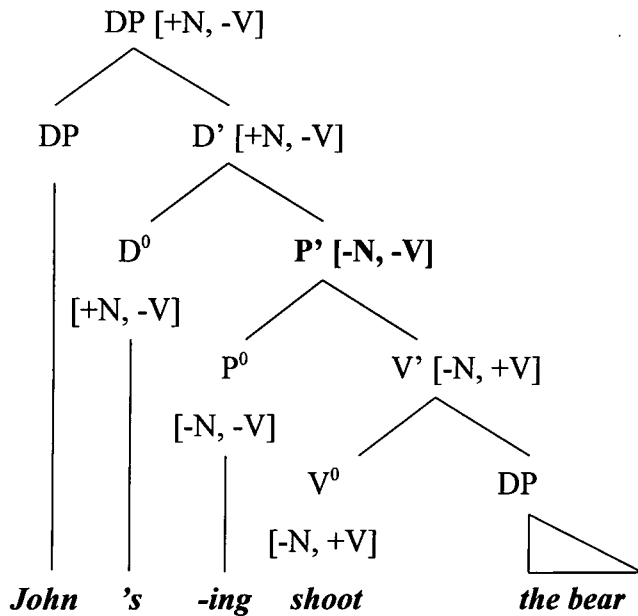
or (ii) at most one of $\alpha, \beta, \gamma, \delta$, is '+'

(adapted from van Riemsdijk 1997: (93))

Qualification (38i) asserts that categorial uniformity within an extended projection is required, as before. (38ii) allows for the dominating node or the dominated node in (38) to be a P, given that there is no '+' value in its categorial feature matrix [-N, -V]. Let us return to (37) to see this at work. In (37a) the offending configuration at the top of the tree is acceptable by (38ii) because only one '+' value appears in the configuration. The same occurs in (37b). The offending configuration at the top of the tree is now acceptable under (38ii).

(38ii) also allows a P [-N, -V] node to act as intermediary between nominal and verbal projections within a single extended projection. Compare Van Riemsdijk's account of the English gerund *V-ing*. Internally, the gerund has the argument structure and semantics of V, but in distributional terms it has the categorial status of [+N, -V]. Van Riemsdijk proposes that *-ing* is [-N, -V], mediating between the verbal projection V' and the nominal projection D'.

(39)



In (39), *-ing* is marked as P^0 , mediating between the V' and D' projections. The verb *shoot* raises into P^0 . Within this system, if *-ing* were a nominal element, the configuration $N' \rightarrow V'$ would violate categorial uniformity, occurring as it does within a single extended projection.

Equally, (38ii) leaves open the possibility for a P to appear dominated by a nominal [+N, -V] or verbal [-N, +V] node without the notion of extended projection being violated. It therefore remains possible for an extended projection headed by P to include nominal or verbal nodes. Furthermore, it allows a P [-N, -V] node to appear 'sandwiched' between nominal or verbal nodes within a nominal or verbal extended projection, e.g. *a bunch of the people*, and possibly *...ought to do that*.

In summary, an extended projection in van Riemsdijk's system consists of a single maximal projection, a single lexical head and any number of functional heads. Categorial Uniformity is observed in all cases but that of P. The lack of '+' values in the feature specification of P, which is specified as [-V, -N], is exploited to arrive at the most parsimonious filter possible on categorial uniformity.

Just as with Grimshaw's account, however, the distinction between 'functional' and 'lexical' must be stipulated. This distinction is arrived at in

Emonds' system via information in the lexical entry, and we now turn to a definition of 'extended projection' in that system.

3.5.4. *An extended projection within Emonds' model*

For both Grimshaw (1991) and van Riemsdijk (1996/7), an extended projection is the highest projection of a single lexical head. The distinction between 'functional' and 'lexical' head is central to the definition of an extended projection, and is characterized in both systems via the stipulation of features: in Grimshaw's case, an F feature, and in van Riemsdijk's case the features [+/-F] and [+/-G].

As a final note to Grimshaw's explanation of her extended projection theory, she writes:

In the best of all possible theoretical worlds, it will of course not be necessary to stipulate the [F] value of some head, anymore than it will be necessary to stipulate that dog is a noun and walk a verb. The [F] value will be a principled matter, either the same cross-linguistically or parameterized in some illuminating fashion. In the case of category labels, the fact that they have clear semantic correlates and are highly predictable does not render them eliminable from the theory, and the same is likely to be true for the F value. However, the theory of extended projection in no way rests on reference to the [F] feature; the same results will always be obtained even if the work of [F] is taken over by other parts of the theory.

(Grimshaw 1991:8)

If we consider again the lexicalization theory of Emonds (1985), an alternative and slightly less stipulative route for arriving at the 'lexical'/'functional' distinction is apparent. For Emonds, the definition of 'functional' and 'lexical' need not be stipulated, but follows from the absence or presence of a lexical item in the syntax. This in turn requires no stipulation, following as it does from the absence or presence of a purely semantic feature in the lexical entry.

For example, the lexical entry for the semantically null auxiliary *sum* 'be' in Bulgarian lacks any purely semantic feature, or is 'semantically null' in Chomsky's terms (Chomsky 1995). In Emonds' theory, it need not, and for reasons of economy, cannot be inserted into the syntax at D-structure. Rather, it is inserted into the appropriate syntactic position at PF. In the syntax, therefore, we find a head (I^0) containing only the formal syntactic features, such as agreement and Tense features, but no lexical item. The lack of phonological features in the head position of IP indicates what is termed a 'functional' head in both Grimshaw's and van Riemsdijk's systems.

In contrast, a lexical verb such as, say, Bulgarian *zamina* 'departs' contains both syntactic and purely semantic information, and is introduced into the derivation at D-structure. Its presence in the syntax indicates it is a 'lexical' head.

The distinguishing factor between *sum* 'be' and *zamina* 'departs' is therefore the absence and presence, respectively, of a lexical item in the syntax. We do not need to stipulate any further features to capture the distinction.

In Emonds (1997), the projection of a lexical head is defined in the following terms:

(40) *If Y^0 is the highest lexically filled head in B^X , then Y^0 is the lexical head of B^X and B^X is the projection of Y^0 .*

((75) in Emonds 1997)

Here then, extended projection is defined in terms of the presence of a single lexical head, which is determined by the presence of the lexical item in the syntax.

In the next chapter, we shall combine this approach with bare phrase structure to arrive at a definition of extended projection in terms of which terminal nodes dominate phonological features and which do not. As we have said, this is of significance for us both in terms of characterising our revised version of phonological lexicalization, and in accounting for South Slavic clitic cluster placement.

3.5. Summary and conclusions: dual lexicalization

In this chapter, we have considered a development of the GB framework that argues for a more coherent theory of lexical insertion, founded on a theory of the lexicon and lexical entries.

The presence of a purely semantic feature in a lexical entry (of an open class item) triggers insertion into *D*-structure, thus ensuring it is present at the LF interface. Lexical items that lack a purely semantic feature are closed class items. They consist of two sorts: (i) items that include syntactic features that are already hard-wired into the system do not need to be inserted into the syntax because they introduce no new ‘information’. By economy, such items cannot be inserted until PF; (ii) items that include a formal syntactic feature that is required at LF are inserted either into the syntax or at PF (Emonds 1997).

We then considered three definitions of ‘extended projection’. For Grimshaw, *C* appears as the highest head in the extended projection of *V* because both heads share categorial identity [+*V*, -*N*]. Likewise, *P* appears in the extended projection of *N* because *P* and *N* share the features [-*V*, +*N*]. Assuming that *C* is a subclass of *P*, van Riemsdijk proposes a filter that ensures categorial uniformity within an extended projection except with respect to the category *P*. The filter exploits the lack of a ‘+’ value in the specification of *P* to arrive at the most parsimonious characterization of categorial uniformity possible. We briefly considered how Grimshaw and van Riemsdijk separately account for the gerund construction in English.

However, both Grimshaw and van Riemsdijk’s systems require the terms ‘lexical’ and ‘functional’ to be primitives, defined in both systems via the stipulation of feature(s). Emonds’ typology of lexical items opens up an alternative approach, allowing an extended projection to be defined in terms of insertion into the syntax and phonological lexicalization, which we pursue in the following chapter.

Both Zwart (1996) and Jackendoff (1997) argue that it is a redundancy for a feature that is only interpretable in module *A* to pass through module *B*. In Emonds’ system, though, the presence of syntactic features *FF* and purely

semantic features f in the computational system, together with the fact that the syntax is unable to read f , is what distinguishes between open and closed class items. Rules that apply to open class items apply to all members of a category X , regardless of the different semantic features contained in the lexical entries. Some rules apply only to closed class items and may have access to any of the (syntactic) features included in their lexical entries. Consequently, it is possible for rules referring to closed class items to be item-specific.

In contrast, in Jackendoff's radically autonomous modularity, a given module is indifferent to the presence or absence of features in another module. The difference between a lexical X and a member of the grammatical subcategory X is nonexistent in Jackendoff's system. As a result, it is impossible for there to be syntactic transformations that distinguish between open and closed class features.

Jackendoff suggests his exclusion of semantic features from the syntax makes no empirical difference but is an issue of elegance and parsimony. What we discover here is that this depends on the model adopted. In the framework discussed in this chapter, the interplay of F and f in the lexicon and the syntax is fundamental to the way the syntax operates. The presence of a semantic feature in the syntax distinguishes an open class item. We have seen that the definition of 'extended projection' in Emonds (1997) derives from the presence/absence of phonological material under certain nodes in the syntax.

In section 1.5, we noted the lack of a fully-fleshed out theory of minimalist lexicalization in Chomsky (1995). In the next chapter, we shall develop a version of the lexicalization theory in this chapter that is compatible with bare phrase structure, and thus which retains both the distinction between open and closed class items.

4. A Semi-Postlexicalist Model

4.1. Introduction: Phonological Lexicalization and Bare Phrase Structure

In the previous chapter we followed Emonds (1985) in establishing the following typology of lexical items.

(1) *Open class lexical items:*

- a. These have a lexical entry that includes purely semantic feature f , e.g. *book, donate, quick, around*. Presence of this feature triggers D-structure insertion.

Closed class lexical items:

- b. A subset of closed class items have a lexical entry that includes only syntactic information and no purely semantic information. The syntactic feature F_1 lacks semantic information and represents hard-wired cognitive features which do not require lexical instantiation for interpretation, e.g. grammatical morphemes such as agreement morphology on a finite verb, case morphology on a noun, pronominal clitics, auxiliary *do*, and preposition *of*. Presence of hard-wired F_1 in the derivation obviate the need for the lexical item to be inserted into the syntax. By economy, these items are inserted at PF.
- c. The remainder of closed class items such as modals, quantifiers and strong pronouns contain closed class features F_2 that are interpretable at LF. Whether or not such items are lexicalized in the syntax is immaterial, hence they may optionally be inserted at D-structure or at PF. Note that the feature F_2 is distinct from the purely semantic feature f which plays no role in syntactic operations.

The lexical entry for open class items includes phonological features π , purely semantic features f and syntactic features FF . An open class item therefore has

the feature matrix $[\pi, f, FF]$. In contrast, the lexical entry for a closed class item is $[\pi, \emptyset, FF]$, where \emptyset indicates a lack of purely semantic features f^1 .

A difficulty arises in adapting this theory of lexicalization to a minimalist framework that employs Bare Phrase Structure (Chomsky 1995: chapter 4). In the Minimalist Program, the X-bar structure is built up derivationally through Merge, with one of the merged items projecting each time. Each time Merge takes place, the projection is extended. There is no X-bar framework that pre-exists lexical insertion, and so we can say that the X-bar framework is not a primitive of the system.

In contrast, earlier accounts of lexical insertion, including Emonds' system, do require the X-bar framework as a primitive. In Emonds' typology in (1), open class items are inserted into a syntactic position that already exists. Closed class items are inserted at PF into positions already provided by the syntax. PF insertion is only possible because the formal syntactic features that closed class items represent are *already present in the syntax*.

In a framework employing Bare Phrase Structure, no head position occurs in the syntax without resulting from the operation of Merge. Hence, if a lexical item is not taken from the numeration, no head position will be generated and no phrase projected.

The problem then is one of incompatibility between a framework employing Bare Phrase Structure and Emonds' theory of lexicalization. In fact, the problem already exists in Chomsky's Minimalist Program, given that it is assumed in Chomsky (1995: chapter 4) that some lexical items such as auxiliary *do* in English are 'inserted late'. To retain the minimalism of Bare Phrase Structure and dual level lexicalization, we require a model that allows us to build up the structure via Select and Merge, yet retains a syntactic distinction between the classes in (1).

In this chapter, I propose a Semi-Postlexicalist model that achieves this by exploiting the decomposition of a lexical item into its respective phonological, semantic and syntactic features. In section 4.2.1, we consider the nature of a lexical item. In section 4.2.2, we propose a revision of the

¹ We set aside for the moment the distinction between F_1 and F_2 .

Minimalist operation Select that enables the construction of a derivation in the computational system without the presence of the full feature matrix of each lexical item. In section 4.3, we turn to a definition of extended projection in this model. In 4.4, the mechanism of phonological lexicalization is established and related to the definition of extended projection. We briefly entertain a viable alternative account of phonological lexicalization based on cyclic numeration. In section 4.5, we argue for retaining a form of head licensing at PF, and propose why it is that clitic auxiliary forms cannot license traces. The chapter closes with a summary and discussion of the differences between this Semi-postlexicalist model and Zwart's postlexicalism in section 4.5.

4.2. Semi-postlexicalism

First we consider the nature of a lexical item in this model, and then propose an adaptation to Chomsky's operation Select.

4.2.1. Features in a lexical item

The models of lexical insertion considered in chapter 1 treat almost the entire lexicon as if it consisted of open class lexical items. That is, the phonological, semantic and syntactic FF features in (2) are treated as an inseparable unit and inserted as a whole into the syntax at D-structure.

(2) [π, f, FF]

In postlexicalist theories discussed in chapter 2, the phonological features of a lexical item are divorced from the semantic and syntactic features and introduced post-syntactically. As we observed, the major problem with the models in chapter 2 is that they are unable to distinguish between open and closed class items (without introducing extra diacritics), despite the fact that there are fundamental and pervasive distinctions between the two classes.

Open class items do not display suppletive morphology and they are capable of bearing stress. When a syntactic rule applies to one of the open class lexical categories, it applies to all members of that category without distinction

on the basis of semantic features. Furthermore, an open class lexical item may carry entirely language-specific and culture-specific semantics; neologisms are regularly introduced. Given this last point in particular, we can see an open class item as essentially a sound-meaning pair with syntactic features added. This is represented in (3).

(3) $[[\pi, f] FF]$

As Chomsky (1965: chapter 1) points out, for Saussure, a lexical item was no more than the core sound-meaning pair, $[\pi, f]$, and the lexicon was a list of these pairings. The sound-meaning pair $[\pi, f]$ is not, of course, unique to human language; chimpanzees are able to learn sixty or so such pairs. What generativism did was to recognise the existence of FF as the crucial aspect in human language and hence to introduce the FF into (3). However, the very existence of Saussurean arbitrariness, that is, the arbitrary relation between π and f in (3), makes the π - f relation fundamental to an open class item. Dissociate this relation and one has no open class lexical item. It is the addition of the FF associated with this sign that make it possible for the signifier-signified pair to undergo syntactic computation.

For the postlexicalism of Zwart and Halle & Marantz in 2.3, the relation appears to be rather $[\pi [f, FF]]$, where the syntax takes the semantic and syntactic features for computation, with the π features added outside the syntax. As we have argued in chapter 2, this is a wholly arbitrary approach to the lexical item and the computational system. It is premised upon the notion that *both* purely semantic features and syntactic features are universal and that the presence or absence of phonological features in the syntax has no empirical bearing. Jackendoff on the other hand assumes that a lexical item is more like (2), with no privileged relation between any subset of the three features.

Turning to closed class items and their empirical properties, these are often typified by suppletive morphology, they often cannot bear stress and may require a phonological host; they are either semantically null or restricted to closed classes of semantic features such that they cannot be coined. They may

be subject to separate transformations from open class items, and may be subject to item-specific transformations. What is apparent from the discussion in previous chapters of the syntax-morphology relation and the phonological idiosyncrasies of closed class items is that the relation between the phonological features π of a closed class item and its syntactic features FF is often idiosyncratic. This is unsurprising if syntactic features are built in to the system. If we pursue Chomsky's point concerning the interfaces, then the computational system might well be hooked up to modules other than the articulatory-perceptual and conceptual-intensional modules in the brain. If this were the case, syntactic features would not change, merely the way in which they are interpreted at a given interface would change. In other words, whilst π, f , and the way in which F_2 are *interpreted* at LF might change, the formal features F_1 and F_2 would remain primitives of the computational component.

In pre-theoretical terms, then, an open class item is a sound-meaning pair with syntactic features added $[[\pi, f] FF]$. A closed class item is a syntactic feature that may have phonological realisation and closed class semantic interpretation $[\pi, \emptyset, FF_x]$, where X may be 1 or 2, as in (1b,c). Open class items are from 'outside' the syntax, and play a role only in so far as they have syntactic features. Closed class items, on the other hand, emanate from the very nature of the syntactic system. Open and closed class items are fundamentally different primitives that meet within the computational system of the language faculty.

This distinction is reflected in the 'Semi-Postlexicalist' model pursued here (henceforth 'SP model'). The features of open class items are inseparable, and enter the computational system accordingly, contra postlexicalist stipulations.

(4) *The feature matrix of an open class item $[[\pi, f] FF]$ cannot be dissociated by the insertion operation.*

This holds open the possibility that feature decomposition may take place within the computational system. Chomsky's Attract F, where only FF are moved in the syntax without pied-piping of other features, is an example of this.

In contrast, the feature matrix of a closed class item *is* separable in the way that postlexicalism proposes. This is owing to the privileged relation between π and f in an open class item: the absence of either feature allows feature dissociation to occur, with the syntactic features FF alone becoming available for computation in the C_{HL} .

(5) *The feature matrix of a closed class item $[\pi, \emptyset, FF]$ may be dissociated by the insertion operation.*

Having established this distinction, we can now consider how this might occur in the computational system.

4.2.2. *Select F and pied-piping of phonological features*

As in the Minimalist Program, lexical items are taken from the lexicon by the operation Select and placed in the numeration, which is the set of lexical items used in the derivation. Select then takes lexical items from the numeration one at a time for Merge with the derivation in the computational system. Any instance of Merge extends the projection.

Chomsky replaces Move α with the more economic Move F (and subsequently Attract F) in which the syntax moves syntactic features FF only, unless forced to pied-pipe other features on account of interface requirements (Chomsky 1995: 261ff, 297ff). Evidently this is more economic and reflects the fact that the computational system is only concerned fundamentally with syntactic features. Phonological features/semantic features are pied-piped if required by the interfaces.

Along the same lines, in our model Select is in fact *Select F*. It is more economic, and reflects the primary interest of the syntactic component, that only the syntactic features of a lexical item are selected from the numeration for computation by C_{HL} . For Chomsky, Attract F may be forced to pied-pipe

phonological information in the overt syntax to satisfy the PF interface. In the same way, Select F is forced to pied-pipe additional features only if required by the interfaces.

(6) *Select F takes only the syntactic features of lexical items for Merge in the computational system; additional features are pied-piped if required by the interfaces.*

Clearly, we are assuming with Collins (1997) that economy is not restricted to Attract, but is a feature of the system as a whole. It therefore applies to Select.

Consider open class items first. In the SP model, the presence of both phonological features π required at PF and a purely semantic feature f required for semantic interpretation at LF triggers pied-piping of the whole feature matrix when Select takes FF from the numeration. This is in accord with the ban on feature dissociation for open class lexical items in (4).

Next, consider X, a lexical item with the feature matrix in (7).

(7) [$\pi(X)$, \emptyset , FF(X)]

Assume that FF include only F_1 , i.e. agreement features, contextual features and other 'noncontentful' features. The f feature is \emptyset , hence X lacks any feature required at LF. By (5), it is more economic for Select to take only FF(X) from the numeration for Merge and subsequent extension of the projection. Last resort insertion of $\pi(X)$ takes place at the PF interface.

Phonological lexicalization by definition occurs outside the syntactic component and hence is *substitution without extending the projection*. Note also that in this SP account of phonological lexicalization, the system requires that syntactic information is taken from the C_{HL} at Spell-out, otherwise there would be no syntactic position for π features to be inserted into. This differs from Chomsky (1995: chapter 4), where the phonological features alone are 'stripped away' at Spell-out from the syntactic derivation. Independent motivation for the

fact that some syntactic information *is* required at PF comes from research on the phonology-syntax interface (e.g. Nespors and Vogel 1986).

Next, consider the third class of lexical items in (1c). The feature matrix is identical to (7), only FF includes a feature F_2 which is interpretable at LF. It was established in 3.3 that such items may optionally undergo insertion into the syntax or at PF. In the SP model, this means that the economy restriction on Select F is suspended: Select may take either the FF alone, or pied-pipe the phonological features π .

Let us summarize the mechanisms at work for open and closed class items:

(8) *Open class: full feature pied-piping*

- a. Presence in the lexical entry of features required at both PF and LF interfaces; Select is forced to pied-pipe the full feature matrix $[[\pi, f] FF]$ for Merge in the syntax.

Closed class: feature dissociation

- b. Absence of phonological features π and/or semantic features f in the lexical entry; Select takes only FF. Remaining π features in the numeration are lexicalized at the PF interface.
- c. Absence of f , but presence of F_2 allows optional pied-piping of π features. Any remaining π features are lexicalized at the PF interface.

In this way, Select and Merge constructs the X' framework in the same way as in Chomsky (1995: chapter 4). The difference is that only open class items have their entire feature matrices taken through the computational system. Closed class items in (8b) have their phonological features introduced at PF which gives rise to the phonological idiosyncrasies that are widespread amongst closed class items: bound morphemes, suppletive morphology, fusional morphology, multiple exponence and so on. Closed class items in (8c) are a hybrid class, undergoing either full syntactic insertion or phonological lexicalization.

4.3. Phonological Lexicalization and Extended Projections

In this section, we see that the notion ‘extended projection’ is not a primitive of the system and we do not therefore require the defining constraints elaborated in 3.4. We consider two approaches to defining ‘extended projection’. In the first, an extended projection is a mnemonic for the largest maximal projection headed by a terminal node dominating phonological features. Having presented this approach, we characterise the mechanism of phonological lexicalization within it. We then briefly consider the second way of deriving an extended projection by adopting cyclic numeration. We shall not choose between these two ways here; of most significance in forthcoming chapters is the concept of an extended projection, which proves essential in accounting for South Slavic clitic cluster placement.

4.3.1. *Extended Projections in a Semi-Postlexicalist model*

First, let us see how the defining constraints of an ‘extended projection’ in Grimshaw (1990) and van Riemsdijk (1990, 1997) are redundant in the Minimalist Program. Those constraints bought us three things:

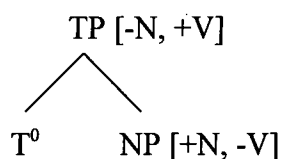
- (9)a. The X-bar framework $XP[XP[X[]]]$
- b. Within an extended projection, functional projections dominate lexical projections and not vice versa.
 - c. (Some version of) categorial uniformity is required within an extended projection.

Considering (a) first, in the Minimalist Program, the syntactic tree derived in the computational component is constructed via the repeated operation of Merge and the projection of one or other of the merged items. This results in a tree of maximal and minimal projections, which can be derivatively defined in terms of tree architecture. The X’ framework is thus already built in to the nature of Merge. Bare Phrase Structure therefore makes (9a) redundant.

Turning to the nature of a well-formed extended projection, both (9b) and (9c) are made redundant by checking theory. A functional projection must attract lexical items in order to be able to check and delete/erase features that are uninterpretable at the interfaces. The attracted item Merges at the top of the tree at that particular stage in the derivation, and the resulting Merge extends the projection. Because the extension of the projection is built in to Merge, Attract cannot trigger downwards movement inside the derivation. For features to be checked, therefore, the ‘attractor’ must c-command the ‘attractee’. Hence, functional projections (=attractors) must be higher than lexical projections because again, Bare Phrase Structure is unable to construct a derivation in any other way. Hence (b) is redundant.

Next, categorial uniformity within an extended projection need not be stipulated because checking theory will cause the derivation to crash if the appropriate features are not available for checking. Consider what would happen if, say, a T^0 merged with an NP. In the constraints of Grimshaw (1991) and van Riemsdijk (1997), the configuration in (10) is ruled out because the categorial specifications for T^0 which projects to TP are not consonant with those of NP.

(10)



However, this restriction at the interface is redundant in a minimalist model given that there is no verb that can raise to check the V features of T. Consequently, if the [V] feature of T is strong, the derivation will crash at the PF interface, because the strong V feature is uninterpretable. If the [V] feature of T is weak, the derivation will crash at the LF interface. (10) is ruled out on independent grounds.

It seems therefore that an interface constraint to ensure a well-formed extended projection is unnecessary.

However, in considering the data for South Slavic clitic cluster placement, we shall find that the notion of ‘extended projection’ is highly significant (sections 5.4.2, 8.4.1 and 9.4). Furthermore, in the next section we shall see that phonological lexicalization works via the notion of extended projection. Hence, we require a definition of extended projection. Importantly, in neither of the options we consider is ‘extended projection’ a primitive of the system.

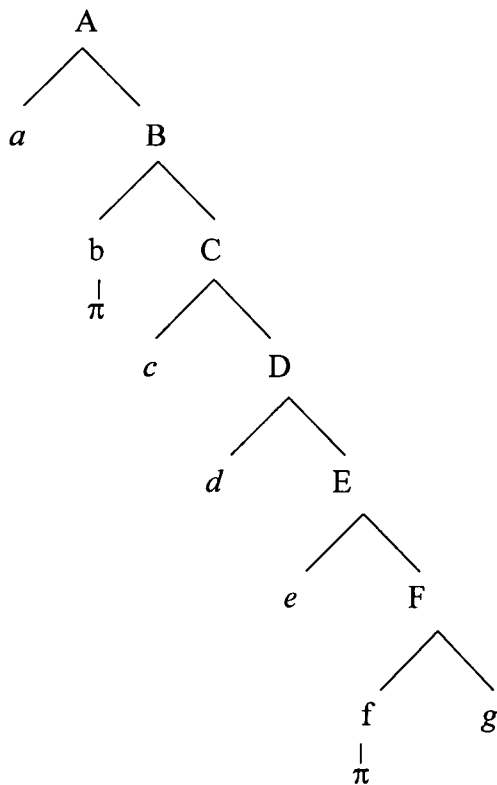
The first is defined derivatively from the presence or absence of phonological features under terminal nodes at the PF interface. Informally, we can characterise this as in (11)².

(11) *An extended projection is the largest projection containing a single head that dominates phonological material.*

For example, the tree in (12) represents the extended projection of *f* prior to any operation of Phonological Lexicalization.

² Evidently, this is a development of the definition of ‘extended projection’ in Emonds (1997), discussed in section 3.4.4. Given that phonological features are uninterpretable at LF, it follows that the notion of ‘extended projection’ is defined at the PF interface alone. The possibility clearly exists for an independent ‘extended projection’ at the LF interface, determined purely on the basis of semantic features. I do not pursue the implications of this here.

(12)



Nodes *c*, *d*, *e* and *g* are either terminal nodes that do not dominate phonological features ('functional heads') or maximal projections that represent separate extended projections. *f* is a lexical head that has been Merged with *g* along with its entire feature matrix in the syntax. As a result, it is the highest head in *C* that dominates π features. This is equivalent to saying that *C* is the extended projection of *f*. The extent of the extended projection of *f* is marked by the fact that *b* dominates a π feature. In a sense, we can say that *b* 'closes off' the extended projection of *f*. In the same way, *f* closes off the extended projection of which *g* is the maximal projection.

Notice that (11) and (12) make reference only to phonological, not syntactic information, as we would expect at the PF interface. The feature π is therefore precisely the information we would expect a mechanism at PF to recognise, as we shall see in the next section.

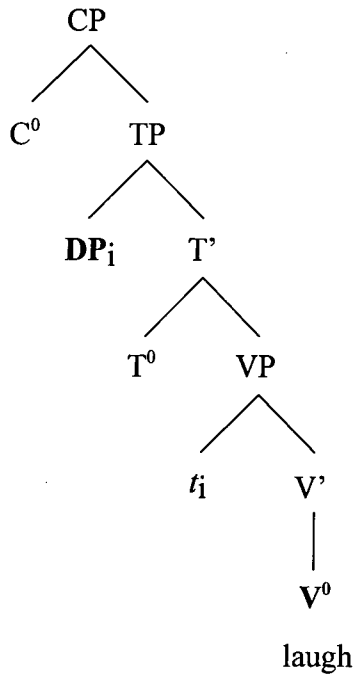
4.3.2 Phonological Lexicalization: the mechanism

Let us now consider in more detail the mechanism of Phonological Lexicalization taking the English embedded sentence *that the boy laughs* as an example.

At the outset, Select takes from the lexicon all the lexical items to be included in the derivation. In this case, this will include all the lexical items in the matrix clause, together with those of the clause we shall concentrate on: *that, the, boy, laugh*, and the inflectional morpheme *-s* for ([-PAST]; 3rd person; [-PLURAL]). Abstract syntactic features are added to the relevant items as they enter the numeration, e.g. Case, Agreement and, in our account, the specification [-PLURAL] on V. The items *the* and *boy* create their own extended projection DP, which we will not focus on here.

First, the lexical item without inflectional morphology *laugh* is taken from the numeration by Select. The item includes a full feature matrix $[[\pi, f] FF]$, hence by (4) and (6), the operation is forced to pied-pipe the full matrix. In the syntax, the node V includes phonological material, which indicates it to be an open class lexical item heading its own extended projection. Next, V Merges with the DP *the boy* and V projects. VP merges with T, and T projects. DP *the boy* is attracted to check features with T; they merge, and T projects. Select takes the lexical item *that* from the numeration. The feature matrix consists of $[\pi, \emptyset, FF]$; the phonological features $\pi(\text{that})$ and the syntactic features $FF(\text{that})$, with no purely semantic feature. By (5) and (6), Select takes only FF for merge with TP and the complementizer projects. This then merges with the matrix verb which also dominates phonological material. (13) represents the derivation as it is taken from Spell-out, ignoring the extended projection represented by DP and the matrix clause above CP.

(13)



The highlighted nodes dominate π features, DP being a separate extended projection.

Phonological lexicalization works bottom-up, beginning with the V^0 node and targeting successively each terminal node in the extended projection. The V^0 node dominates features π [α :f] and is specified for the feature [-PAST]. The morpheme *-s* has features that match those on the V. It also has the contextual feature +V___. Hence it is inserted at this point on the verb³. Next, T^0 is targeted. No remaining phonological features in the numeration match those of T^0 , so nothing is inserted. The next terminal node is C^0 . The FF represented by the features π [$\delta\alpha t$] remaining in the numeration are matched with the FF of C^0 and the phonological features are inserted. The tree in (13) is embedded inside a higher lexical VP, so the next head targeted, V^0 , will dominate π features. This indicates the end of the extended projection of the embedded V^0 in (13). The phonological lexicalization process continues with the new extended projection.

³ This is an example of the ‘alternative realization’ of I (or T) features on the head of a sister node. See section 7.4 for Alternative Realization in Emonds (1987, 1997) and our revised account in 9.3.

Note that a significance departure from Chomsky (1995) here is in the account of the inflectional morpheme *-s*. For Chomsky, the verb stem and inflectional morphology *laughs* is merged in the syntax and checked covertly in English by moving to T. In this account, the verb does not move but receives the inflectional morphology at PF (see footnote 3). We discuss the implication this has for the model of grammar as a whole in section 9.3.1.

In this approach to extended projection, the phonological lexicalization mechanism is able to ‘recognize’ an extended projection from the nodes which dominate phonological features, regardless of the categorial features or the semantic content of any node in the syntactic tree.

4.3.3. Cyclic numeration and extended projections

An alternative way of deriving the notion of an extended projection in a minimalist model comes from adopting cyclic numeration as in (Chomsky 1998). Consider the possibility that each extended projection has its own numeration. The members of this numeration are duly computed in C_{HL} and if the derivation converges at both interfaces, then it may return for further computation in a larger derivation. In this sense, an ‘extended projection’ is simply another term for a ‘successful’ numeration in which all features have been successfully checked and deleted/erased. As we have seen, a minimalist model satisfies the requirements in (9) via the computational procedures, so no further ‘filter’ to ensure a licit extended projection is required.

The phonological lexicalization mechanism is equally able to ‘recognise’ an extended projection when it reaches the top of the structure that is the output of the syntax. At this point, the content of the numeration should be used up to avoid the derivation being disallowed (Chomsky 1998:10). We shall assume this to hold following phonological lexicalization.

For the majority of this thesis, it is immaterial which account of ‘extended projection’ is adopted, though in some cases there may be an issue that favours one over the other. We point these out as they arise.

4.4. Head licensing at PF: English clitic auxiliaries

In this section, we briefly relate the presence or absence of phonological features in the syntax to the licensing of movement traces.

Chomsky (1981) proposed The Empty Category Principle (ECP) whereby empty categories such as movement traces must be ‘properly governed’. In GB theory, an empty category is properly governed if either (i) it is head governed by a lexical category, or (ii) it is antecedent governed by a phrase. Aoun *et al.* (1987) and Rizzi (1990a), among others, have argued against this ‘disjunctive’ ECP in favour of a ‘conjunctive’ ECP: empty categories must be licensed via both head government and antecedent government.

For Aoun *et al.*, head government is a condition that applies at PF: a lexical item can only head govern if it is ‘visible’ at PF. One way in which a lexical item is ‘visible’ is by having phonetic content at PF⁴. They cite the following evidence in favour of head government applying at PF.

(i) *Right Node Raising*: The English complementizer can be null if it is properly governed as in (14a), where it is governed by *believes*. However, the complementizer cannot be null in (14b), where the bracketed phrase has undergone Right Node Raising.

(14)a. *Fay believes (that) the dean lied*

b. *Fay believes and Kay asserted publicly [*(that) the dean lied]*

Right Node Raising is believed to occur after S-structure, given that it does not affect binding relations (Aoun *et al.* 1987:570). The head government requirement must apply after Right Node Raising has applied since the complementizer is clearly head governed in (a) but not in (b).

(ii) *WH-movement*: The WH-element in (15) can be null because it is head governed by the noun *reason*.

⁴See section 6.5.1 for another way in which a head may become ‘visible’ for head government via a spec-head relation with the antecedent of the trace.

(15) *The reason [(why)_i Fay left t_i] disturbed us all*

However, *why_i* must be present in the syntax in order to antecedent govern the trace at LF. Hence, it can only become null at PF, outside the syntax.

(iii) *Preposition stranding*: Assuming some form of extended government across a PP node, English allows preposition stranding in (16a). However, such extended government is blocked in contexts such as (16b).

(16)a. *Who_i will you speak to t_i tomorrow*

b. **Who_i will you speak tomorrow to t_i*

In (b), *tomorrow* intervenes between the head governor and the PP, the result of a stylistic permutation rule. The condition on head government must apply after this rule has applied. Furthermore, this must hold after a level that feeds LF, because preposition stranding is possible at LF (consider *Who spoke to who?* or *Who slept during which concert?* where the WH-element following the preposition raises at LF). Indeed, the fact that preposition stranding is possible at LF also suggests that head licensing must occur at a stage that does not feed LF, i.e. outside the syntax at PF.

Assuming that head government is required at PF by a visible lexical head, consider now the distinction between the clitic and full forms of the English copula, discussed in King (1970), Kaisse (1983), Sells (1983) and Zagona (1982).

(17)a. *You think he 's/is where today?*

b. *Where_i do you think he *'s/is t_i today?*

(Zagona 1982)

c. *John's/is a teacher*

d. *I wonder what_i John *'s/is t_i now*

The full form can license a movement trace via head government in (b,d) but the clitic form cannot.

Labov (1972) shows that a similar distinction exists in Black English Vernacular between a null copula and a full form copula:

- (18)a. *She* \emptyset /**is the first one started us off*
b. *You* \emptyset /**are out the game*
c. *I don't care what_i you are*/** \emptyset t_i*
d. *Do you see where that person is*/** \emptyset t_i*

In (a,b), the full form does not appear, but it is required in (c,d) in order to license a WH-trace.

Syca (1997) demonstrates similar effects in Mauritian Creole and argues for a unified account of these data along the lines of Aoun et al. (1987)⁵. The clitic form of the English auxiliary is equivalent to the phonetically null form in Black Vernacular English and Mauritian Creole in that it is not sufficiently 'visible' at PF.

It is not immediately clear why a clitic form of the auxiliary is any less visible than the full form. For example, allowing either clitic or full form of the English auxiliary to be null is equally unacceptable.

However, in a model with dual lexicalization, an account becomes evident. First, we claim that head government holds before phonological lexicalization occurs. We assume that the clitic auxiliary is always phonologically lexicalized, hence absent at the stage at which head government applies. As a result, it is unable to license a trace in (17b,d). The full form of the auxiliary is identical, but includes a feature that moves into the third class of lexical items (1c), call it [+FOCUS]. This allows the full form to be lexicalized optionally in the syntax or at PF. The full forms in (17b,d) are therefore able to license a trace, being phonetically visible in the syntax, and hence at the stage at

⁵ See also Roberts (1990) for an account of English auxiliaries that assumes Aoun et al.(1987).

which head government applies. In section 5.4.1.1 below, we pursue a similar analysis of the emphatic auxiliary *do*.

It is not clear how data previously related to head movement in the GB theory is accounted for within a minimalist theory. However, we shall see similar instances in South Slavic in which clitic auxiliaries cannot license movement traces and full forms can. Hence, in this thesis we shall assume a conjunctive ECP. Given that the interfaces are the only levels of representation available in the minimalist program, it is appropriate that the head government requirement holds at the PF interface, and is defined in terms of being ‘visible’ at PF.

4.5. Summary and Conclusions

The SP model is so-called because it shares with postlexicalism the late insertion of phonological features. Unlike postlexicalism, this occurs with only closed class items that have no features required at LF. The trigger for this is the absence of a full feature matrix indicating an open class item. Absence of any purely semantic features indicates that the item is, in a sense, a member of the ‘syntactic’ lexicon. Select need take only the syntactic features FF and the phonological features can be inserted at PF.

One direct reflection of this is the array of phonological idiosyncrasies that we have seen associated with closed class items. PF insertion allows such irregularities to occur and, in this account, distinguishes between closed class items that exhibit such idiosyncrasies from open class items that do not.

Open class items are a sound-meaning pair with syntactic features added, hence they display a full set of phonological, purely semantic and syntactic features which cannot be dissociated. Both the phonological and purely semantic features are required at the PF and LF interfaces respectively; Select is consequently forced to pied-pipe the entire feature matrix. In this way, the full feature matrix passes through the computational system.

The third class straddle the other two classes: closed class items with features required at LF, F_2 , can optionally have π features inserted into the syntax.

Observe that we follow Collins (1997) in assuming that economy is not restricted to Attract, but is part of the system as a whole. Hence Select F is more economic than Select α . Select F takes from the numeration only the features that interest the computational system, syntactic features FF, unless forced by interface requirements to pied-pipe additional information. Recall that we have already seen in 1.5 that Select is to some extent subject to economy (Chomsky 1995:294).

We have characterised the phonological lexicalization mechanism as a bottom-up, cyclic process that targets each head and spec position in turn. Empty positions are matched with phonological material remaining in the numeration. An extended projection is not a primitive of the system, and consequently requires no well-formedness filter at the interfaces. However, we can understand 'extended projection' to mean the highest branching node dominating a single head that immediately dominates phonological material prior to phonological lexicalization. This formulation of the bottom-up mechanism will be significant in our account of clitic cluster placement in 9.4.

We also noted that an alternative account is made possible via the introduction of cyclic numeration in Chomsky (1998). If each extended projection has its own numeration, then phonological lexicalization requires no further stipulation concerning the mechanism. Phonological features remaining in the numeration at PF are inserted. Any morphemes remaining in the numeration cause the derivation to be disallowed or to crash.

Finally, we considered the need for lexical head licensing at PF, following Aoun et al. (1987). We proposed that a terminal node dominating a phonological feature (prior to phonological lexicalization) can formally license a movement trace. Lexical items subject to phonological lexicalization cannot license a movement trace. This accounts for the distinction between clitic and full forms of English auxiliaries, and the fact that the clitic forms mirror to some extent the distribution of null copulas in other languages. This distinction cannot be captured by the models discussed in chapter 2.

We now consider the behaviour of certain closed class items in South Slavic.

5. 'Full form' and 'clitic' auxiliaries in Serbian/Croatian/Bosnian

5.1. Introduction

Our discussion of the South Slavic clitic clusters begins with auxiliaries in Serbian/Croatian/Bosnian (henceforth SCB). We focus on the distinction between the full and clitic forms of the copula and auxiliary in periphrastic tenses, and the modal auxiliary *htjeti* 'will' (also 'want, wish, desire'). Although the morphological, prosodic and syntactic differences between these forms has been well-established in generative literature, no analysis to date provides a revealing account of these distinctions, beyond asserting 'cliticness' as the defining feature of the clitic auxiliary in an unrevealing way. Most syntactic accounts (Rivero 1991, 1994; Roberts 1994; Wilder & Ćavar 1994; Ćavar & Wilder 1993, 1994; Franks 1998) allow cliticness to trigger syntactic movement. 'Prosodic Inversion' (Halpern 1995; Schütze 1994; King 1997) accounts allow it to modify the phonological output of the syntax, and Radanović-Kocić (1988, 1996) stipulates that cliticness triggers phonological movement. All of these accounts treat the clitic auxiliaries and clitic pronominals without differentiation, whereas in this thesis, we examine the auxiliaries and pronominal clitics separately before pursuing a unified analysis in chapter nine. We are therefore able to demonstrate that cross-linguistic differences in the distribution of South Slavic clitic clusters stem from the variation in the status of their auxiliaries.

The Semi-postlexicalist (SP) model does not treat [clitic] as the defining characteristic of these items. Instead, the distinguishing factor between the full and clitic forms of the auxiliaries in SCB is the content of their lexical entries, with 'cliticness' an epiphenomenon of Phonological Lexicalization for the reduced forms. One of the aims of this chapter, then, is to demonstrate how the distinction between the full and clitic forms of the auxiliary derives from features which are already independently required in the respective lexical entries.

The full auxiliaries, such as *jesam* 'am' and *hoću* 'will', are members of the third class of lexical items in our typology (section 3.3.3): they undergo

either lexicalization into the syntax or at PF. Presence of the full lexical item in the syntax allows the trace of a VP to be licensed.

In contrast, the clitic auxiliary form lacks any purely semantic content and is phonologically lexicalized. Absence of phonological features in the syntax means that I^0 is unable to license the trace of a topicalized VP. The bottom-up nature of the phonological lexicalization mechanism combines with language-specific restrictions in the lexical entry of the clitic auxiliary to allow lexicalization following the first phonological word as a 'last resort' insertion. A further aim of this chapter is therefore to argue against purely syntactic accounts of the Wackernagel position for the clitic auxiliaries, retaining for a minimalist syntax that which is syntactic, and rendering unto PF only that which is clearly prosodic.

Section 5.2 establishes the differences between the full and clitic forms of the copula/auxiliary that will be the focus of this chapter. Section 5.3 discusses recent approaches to the 'Wackernagel position' in which the clitic auxiliary interrupts a sentence-initial constituent by following the first phonological word. First we review purely syntactic accounts of the majority of second position phenomena as remnant topicalization and note that this approach is unable to deal with all the data. We then focus on the inadequacies of several syntactic accounts of one example of the second position phenomenon called 'long head movement' (Rivero 1991, Roberts 1994). We also review problems encountered in a phonological movement approach (Radanović-Kocić 1988, 1996; Halpern 1995; Schütze 1994). In section 5.4, we consider the SP account of the full and clitic auxiliaries in turn. Section 5.5 provides a summary of the main points and discusses the issue of the exact nature of the clitic auxiliaries in SCB.

5.2. The differences between the full and clitic auxiliary forms

Standard SCB exhibits both full and clitic forms of the copula in the present tense. There is also a full negative form. Each form displays a full person-number paradigm shown in (1).

(1) Present tense full form and clitic auxiliaries

	<i>full form</i>	<i>negative full form¹</i>	<i>clitic</i>
1sg.	<i>jesam</i>	<i>nisam</i>	<i>sam</i>
2sg.	<i>jesi</i>	<i>nisi</i>	<i>si</i>
3sg.	<i>jest(e)</i>	<i>nije</i>	<i>je</i>
1pl.	<i>jesmo</i>	<i>nismo</i>	<i>smo</i>
2pl.	<i>jeste</i>	<i>niste</i>	<i>ste</i>
3pl.	<i>jesu</i>	<i>nisu</i>	<i>su</i>

(Radanović-Kocić 1988: chap.1; Mišeska Tomić 1996:841,846)

The full forms exhibit a stem *je-* or *ni-* plus inflection, whereas the clitic auxiliary has a suppletive form for 3rd person singular *je* contrasting with the *s-* forms². We shall hold over discussion of the past tense for the following chapter.

The modal verb *htjeti* 'will' also has a full and clitic form.

(2) *Htjeti* 'will'

	<i>full form</i>	<i>negative full form</i>	<i>clitic</i>
1sg.	<i>hoću</i>	<i>neću</i>	<i>ću</i>
2sg.	<i>hoćeš</i>	<i>nećeš</i>	<i>ćeš</i>
3sg.	<i>hoće</i>	<i>neće</i>	<i>će</i>
1pl.	<i>hoćemo</i>	<i>nećemo</i>	<i>ćemo</i>
2pl.	<i>hoćete</i>	<i>nećete</i>	<i>ćete</i>
3pl.	<i>hoće</i>	<i>neće</i>	<i>će</i>

¹ Some dialects of SCB and Standard Montenegrin exhibit the following paradigm for the negative auxiliary (N. Leko, pers.comm.):

(i)

	<i>negative full form</i>
1sg.	<i>nijesam</i>
2sg.	<i>nijesi</i>
3sg.	<i>nije</i>
1pl.	<i>nijesmo</i>
2pl.	<i>nijeste</i>
3pl.	<i>nijesu</i>

²We shall discuss the claim that the negative full form consists of a stem with inflectional morphology in 5.4.1.2.

For most of this chapter, we shall focus on the full and clitic forms in (1) for exemplification, the distinctions between full and clitic forms having the same characteristics as the full and clitic forms of *htjeti*. We return to *htjeti* ‘will’ in section 5.4.1.1.

The full form bears stress, whereas the clitic form is cliticised to a host and can bear no stress or emphasis. The full declarative form yields an emphatic assertion:

(3)a. *Ja jesam student*

I be-1sg. student

'I am a student'

b. *Ja sam student*

I be-1sg. student

'I'm a student'

The full and clitic forms occupy different positions in the clause:

(4) *Nedžad tvrdi da...*

N. claims that

a. ...*Ivan i Marija jesu čitali knjigu*³

I. and M. be-3pl. read-ppl.pl. book

'...Ivan and Maria were reading the book'

b. ...*Ivan i Marija nisu čitali knjigu*

I. and M. neg.be-3pl. read-ppl.pl. book

'...Ivan and Maria were not reading the book'

³The abbreviation ‘ppl.’ denotes ‘past participle’. In the South Slavic languages we discuss in this thesis, a past participle carries inflection for gender in the singular, and has a general plural ending. As a rule, we exclude the gender and number from the gloss unless relevant to the point being made.

c. ...*su Ivan i Marija čitali knjigu*
 be-3pl. I. and M. read-ppl.pl. book
 '...Ivan and Maria were reading the book'

d. *...*Ivan i Marija su čitali knjigu*

e. *...*jesu/nisu Ivan i Marija čitali knjigu*

f. *...*su Ivan i Marija jesu čitali knjigu*

In (4a,b), both the full forms appear between the subject DP and participle, whereas the clitic form in (4c) appears earlier, following the complementizer and preceding the subject. (4a) carries strong emphasis, and (4b,c) can be regarded as 'neutral' sentences, carrying no particular emphasis or focus. (4d,e) indicate that the full and clitic auxiliary positions are not interchangeable⁴. Example (4f) where the full and clitic forms co-occur is strongly ungrammatical.

Henceforth, we will assume the full form is in I⁰, raising in the overt syntax to check features.

The clitic auxiliary appears as a member of the 'clitic cluster' along with any pronominal clitics. In (5), the clitic cluster is bracketed:

(5)a. *Stefan tvrdi da [mu ga je] Petar poklonio*
 S. claims that 3sg.Dat. 3sg.Acc. be-3sg. P. give-ppl.
 'Stefan claims that Peter has given it to him as a present'

⁴ N. Leko (pers. comm.) suggests that (4d) and (4e) may be marked ? rather than starred * for some speakers, especially if strong stress is placed on the subject in (d) and on the full auxiliary in (e). Such stress evidently utilises sentence-initial focus/topic positions, and hence disrupts more neutral judgements. See section 5.3.3 below for discussion of the domain of cliticization for the clitic auxiliary.

b. *Ona tvrdi da [smo mu je] predstavili juče*

she claims that be-1pl. 3sg.Dat. 3sg.Acc. introduce-ppl. yesterday

'She claims that we introduced her to him yesterday'

Bošković (1995:245)

The 3rd person singular form *je* follows all pronominal clitics, shown in (a). All other forms in SCB precede the pronominal clitics, as does *smo* 'are' in (b).

The clitic forms are enclitic, requiring a host to their left. As a result, they cannot appear in a sentence-initial position. Hence, although SCB exhibits null subjects, (6a) is ill-formed in contrast to (6b) with an overt subject.

(6)a. **Sam mu ga dala*

be-1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.

b. *Ja sam mu ga dala*

I be-1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.

'I gave it to him'

In contrast, any stressed form can appear in first position. In (7a,b), the sentences have null subjects with full auxiliaries in first position.

(7)a. *Jesam li mu ga dala?*

be-1sg. Q. 3sg.Dat. 3sg.Acc. give-ppl.fem.

'Did I give it to him?'

b. *Nisam mu ga dala*

neg.be-1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.

'I didn't give it to him'

((6b) and (7): Mišeska Tomić 1996:842)

As observed by Rivero (1991, 1994), the full auxiliaries and the clitic auxiliary differ in their respective abilities to license a movement trace:

(8)a. **[Pio vina]i sam ti*

drink-ppl. wine be-1sg.

'I have drunk wine'

b. *[Pio vina]i jesam ti*

drink-ppl. wine be-1sg.

'I *have* drunk wine'

c. *[Pio vina]i nisam ti*

drink-ppl. wine neg.be-1sg.

'I haven't drunk wine'

(Mišeska Tomić 1996:857)

The clitic auxiliary in (8a) is unable to license the trace of the VP. In (8b) and (8c), the full auxiliaries allow a VP to be topicalized. Consider also (9):

(9) **[Jako dosadna] mi je njegova posljednja knjiga*

very boring 1sg.Dat. be-3sg. his last book

'His last book is *very boring* to me'

Browne (1975b:118)

Here, the auxiliary *je* is also unable to license the trace of topicalized AP.

The distinctions we have observed are summarised in the following table.

(10)

SCB auxiliaries	<i>full forms</i>	<i>clitic form</i>
(a) has a stem and a regular inflectional paradigm	✓	✗
(b) syntactic position is I ⁰	✓	✗
(c) can appear in sentence-initial position	✓	✗
(d) bears stress/emphasis	✓	✗
(e) licenses a movement trace of VP or AP	✓	✗

So far, we have glossed over the position of the clitic auxiliary in the clause. In the next section, we focus more closely on the distribution of the clitic auxiliary alone.

5.3. The clitic auxiliary in the 'Wackernagel position'

Among the differences noted in the previous section was the fact that the full and clitic auxiliaries have distinct syntactic distributions. The full auxiliaries behave like open class V, appearing in I⁰ where they have moved to check features and can appear in sentence-initial position. In contrast, the clitic auxiliary appears higher than IP in (4c) and (5a). In this section we focus on the well-known 'second position' phenomenon in which the clitic auxiliary follows the first phonological word, often 'breaking up' syntactic constituents in a way unpredicted by most models of grammar in the Principles and Parameters framework.

Traditionally, the SCB clitic auxiliary is said to appear in a 'second position', often called the 'Wackernagel Position' after Wackernagel (1892). In fact, the second position in SCB consists of two distinct positions: one defined phonologically 'following the first phonological word' (11b) and a syntactic definition 'following the first syntactic constituent' (11a). Henceforth I will term these the 2P (following the first phonological word) and 2S position (following an initial syntactic constituent) respectively.

(11)a. 2S: [*Moj brat*] *je došao*
my brother be-3sg. come-ppl.

b. 2P: [*Moj je brat*] *došao*
'My brother has come' (Hock 1993:8)

In (a), the auxiliary follows the subject DP, hence is in the 2S position. In (b), the auxiliary follows the possessive pronoun *moj* 'my', breaking up the initial DP constituent, hence it is in the 2P position. The following data indicate that the auxiliary is relatively promiscuous in its choice of host.

(12)a. 2S: [*Veoma lepu haljinu*] *si mi kupio*
very beautiful dress be-2sg. 1sg.Dat. buy-ppl.

b. 2P: [*Veoma si mi lepu haljinu*] *kupio*
'You've bought me a *very beautiful* dress'
(Mišeska Tomić 1996:817)

The auxiliary is preceded by a DP in (12a) or the specifier to an AP *veoma* 'very' in (12b).

In (13), the auxiliary has a different host.

(13)a. 2S: [*Koji čovek*] *je voleo Mariju?*
which man be-3sg. love-ppl. M.

b. 2P: [*Koji je čovek*] *voleo Mariju?*
'Which man loved Maria?'
(Halpern 1995:78)

In (13), the auxiliary may follow either a [+WH] DP or its [+WH] determiner.

Next, consider data in which the auxiliary is preceded by a PP. In SCB, P are proclitic, hence form a *phonological word* with the host to their right. Consider (14).

(14)a. 2S: [*S čijim sinom*] ste razgovarali?

with whose son be-2pl. talk-ppl.

b. 2P: [*S čijim ste sinom*] razgovarali?

'With whose son were you talking?'

(Halpern 1995:78-9)

The auxiliary *ste* 'are' follows either the first constituent *S čijom sinom* 'with whose son' or the P and its prosodic host *s čijom* 'with whose'. Again, the choice is between following an initial constituent 2S or the first phonological word 2P.

The auxiliary may also appear in the 2P position following a non-finite verb in a periphrastic tense (15b,f,g).

(15)a. 2S: [*Moj brat*] je odgovorio na njihovo pitanje

my brother be-3sg. answered-ppl. on their question

'My brother answered their question'

b. 2P: [*Odgovorio je na njihovo pitanje*]

answered-ppl. be-3sg. on their question

'He answered their question'

c. *Je [*odgovorio na njihovo pitanje*]

be-3sg. answered-ppl. on their question

d. **[Odgovorio na njihovo pitanje] je*

e. 2S: *Vas dvoje ste bili čekali Marijinu prijateljicu*

you two be-2pl. be-ppl. wait-ppl. M.'s friend

'You two had been waiting for Marija's friend'

f. 2P: *Bili ste čekali Marijinu prijateljicu*

g. 2P: *Čekali ste bili Marijinu prijateljicu*

((e,f,g) from Bošković 1995:256)

In (a), the auxiliary follows an overt subject. The equivalent sentence with a null subject (b) requires the auxiliary to follow the participle rather than appear in first position (c). Recall that the auxiliary is unable to license a VP trace, hence the ungrammaticality of (d). The example in (e) demonstrates the more complex periphrastic tense involving two past participles. In (f) and (g) we see that either participle can appear in the first position.

The constructions in (b,f,g) have been dubbed 'long head movement' by Rivero (1991) and Roberts (1994), who observe that the [non-finite V⁰--auxiliary] word order is incompatible with any other lexical item preceding the clitic auxiliary:

(16)a. [*Kako*] *je odgovorio na njihovo pitanje?*

how be-3sg. answered-ppl. on their question

'How did he answer their question'

b. **Kako odgovorio je na njihovo pitanje?*

how answered-ppl. be-3sg. on their question

c. [*Šta*] *je vidio?*

what be-3sg. see-ppl.

'What did he see?'

d. **Šta vidio je*

what see-ppl. be-3sg.

e. [*Moj brat*] *je* *odgovorio* *na njihovo pitanje*

My brother be-3sg. answered-ppl. on their question

'My brother answered their question'

f. **Moj brat odgovorio je na njihovo pitanje*

my brother answered-ppl. be-3sg. on their question

In (a,c), a WH-element is a host to the clitic auxiliary, but this is incompatible with the [non-finite V⁰--auxiliary] word order in (b,d). The same is true of the subject DP in (e,f). In fact, the incompatibility of the [non-finite V⁰--auxiliary] word order is a reflection of a wider generalisation: the clitic auxiliary is unable to appear lower in the clause than the 'second position'. It cannot, for example, appear in 'third position' in (17).

(17)a. **Ja često sam čitao knjigu*

I often be-1sg. read-ppl. book.Acc.

b. *Ja često čitam knjigu*

I often read-1sg. book.Acc.

'I often read the book'

Wilder & Ćavar (1994)

In (a), the auxiliary cannot follow both the subject and an adverb, though the finite verb can in (b).

We have seen evidence for the fact that the clitic auxiliary may appear either following the first phonological word 2P or following an initial constituent 2S. There is a restriction on the 2S position however: the clitic auxiliary cannot follow a VP. The question now is, how can the descriptive generalization be accounted for in a Principles and Parameters theory?

The fact that the clitic auxiliary may follow an initial syntactic constituent undermines a purely phonological account of clitic auxiliary placement (e.g. Radanović-Kocić 1988). Note that a constituent that precedes the clitic auxiliary in such a construction receives a topicalized or focused reading (Ćavar & Wilder 1994), which suggests the constituent has moved

across the position occupied by the clitic auxiliary into specCP. Henceforth, we shall assume this: when the clitic auxiliary is in 2S position, the initial constituent has moved into a higher position.

Perhaps as an ongoing reflection of 'syntactocentrism' discussed in the opening chapters, a number of authors have also attempted to account for the 2P position via syntactic movement of material across the clitic auxiliary. We turn to these accounts first in 5.3.1 and 5.3.2, before considering the Prosodic Inversion approach that modifies the output of the syntax via phonological movement in section 5.3.3.

5.3.1. *Remnant Topicalization and remaining difficulties*

Consider (18), a further example of the clitic auxiliary in a 2P position.

(18) [*Anina je sestra*] *nudila čokoladu svojim prijateljima*

A.'s be-3sg. sister offer-ppl. chocolate her Dat. friends

'Anina's sister offered chocolate to her friends'

The clitic auxiliary follows the first word *Anina* and hence 'breaks up' the first constituent *Anina sestra* 'Anina's sister'. A number of purely syntactic approaches (Ćavar & Wilder 1993; Progovac 1996; Ćavar 1996; Bošković 1997 and Franks 1998) suggest that such constituent splitting by the clitic auxiliary is possible only if the constituent in question can be split by other material in other contexts. Thus, for example, the constituent *Anina sestra* may be 'discontinuous' in (19):

(19) *Anina dolazi sestra*

A.'s come-3sg. sister

'Anina's sister is coming'

The lexical verb *dolazi* 'comes' intervenes between the possessive adjective and the head noun. This is possible if stress is placed on *Anina*, suggesting movement into a higher focus position.

Ćavar & Wilder (1993) demonstrate that 'discontinuous constituents' are common in SCB:

(20)a. *Ivan kupuje zeleno auto*

I. buy-3sg. green car

'Ivan buys a green car'

b. *Zeleno Ivan kupuje auto*

c. *Kakvo Ivan kupuje auto*

what kind I. buy-3sg. car

'What kind of a car does Ivan buy?'

d. *Ivan razbija tatino auto*

I. ruin-sg. father's car

e. *Tatino Ivan razbija auto*

father's I. ruin-3sg. car

'Ivan ruins his father's car'

f. *Čije Ivan razbija auto*

whose I. ruin-3sg. car

'Whose car did Ivan ruin?'

(Ćavar & Wilder 1993:29)

Example (a) gives a declarative sentence, (b) shows the verb intervening between the adjective *zeleno* 'green' and *auto* 'car', (c) shows a WH-determiner *kakvo* 'what kind' separated from the noun *auto* 'car' that it modifies by a verb and subject. Examples (d)-(f) give further examples: the verb and subject separate a possessive adjective *tatino* 'father's' in (e) and a WH-determiner *čije* 'whose' in (f) from the modified noun.

Ćavar & Wilder (1993) suggest that the fronted item has been 'subextracted' from its constituent and moved to specCP, hence analysing (20b,c), for example, as (21a,b):

(21)a. *Zeleno_i Ivan kupuje t_j auto*

green I. buy-3sg. car

b. *Kakvo_i Ivan kupuje t_j auto*

what kind I. buy3sg. car

In (a), the adjective and in (b) a WH-determiner are extracted from a DP. One drawback of this analysis is that outside this phenomenon, 'subextraction' is not well attested cross-linguistically.

Other authors cited above maintain that cases of constituent splitting by both a clitic auxiliary alone and other lexical material result from 'remnant topicalization', in which the remains of a constituent following scrambling are topicalized. Consider first an example of remnant VP topicalization from Webelhuth & den Besten (1987) in German:

(22) $VP[t_j \textit{ Gelesen}]_i \textit{ habe ich [dieses Buch]}_j \textit{ nicht } t_i$ (German)

read-ppl. have I this book not

'I have not read this book'

Here, the DP *dieses Buch* 'this book' has moved out of the VP, after which the VP is fronted.

This approach to the 2P position asserts that in examples like (18), *sestra* is scrambled out of the DP first, and then the remainder of the constituent including the trace $DP[Anina t]$ is fronted.

Let us consider a more complex example of remnant topicalization. Assuming Abney's (1987) DP structure as $DP[AP[NP[]]]$, Franks (1998:17) proposes that the NP scrambles out of the AP prior to remnant topicalization. In (23), we see remnant topicalization with a PP.

(23)a. PP[*U izuzetno veliku t_i*] *je Jovan ušao* NP[*sobu*]_i
 in exceptionally big be-3sg. J. walked room
 'Jovan walked into an exceptionally big room'

b. ?*PP[*U izuzetno veliku t_i*] *je Jovan ušao* AP[*praznu* NP[*sobu*]]_i
 in exceptionally big be-3sg. J. walked empty room
 'Jovan walked into an exceptionally big empty room'

In (a), the NP *sobu* has scrambled out of the PP, followed by fronting of the remainder of the PP. (b) is deemed less acceptable on account of the fact that the AP has scrambled, which is not possible.

Along similar lines, Progovac (1996) shows the complement of a noun cannot be scrambled out of NP. Hence the ungrammaticality of (24b)

(24)a. [*Roditelji uspešnih studenata*] *su se razišli*
 parents successful.Gen. students.Gen. be-3pl. refl. dispersed
 'The parents of the successful students have dispersed'

b. *[*Roditelji t_i*] *su se razišli* [*uspešnih studenata*]_i

(Progovac 1996:415)

In (a), the clitic auxiliary (and hence the whole clitic cluster) follows the constituent *roditelji uspešnih studenata* 'parents of successful students'. In (b), the remnant DP has fronted following scrambling of *uspešnih studenata* 'of successful students', which is ungrammatical.

Crucial support for a remnant topicalization analysis of the clitic auxiliary position is supposedly derived from the fact that similar restrictions are found in placement of the clitic auxiliary in the 2P position. Thus in (25), like (24b), the clitic cannot intervene between the noun and its complement:

(25) (*)*Roditelji su se uspešnih studenata razišli*
 parents be-3spl. refl. successful.Gen. students.Gen dispersed

Here, the remnant topicalization argument proposes that the complement 'successful students' has scrambled to a position preceding the VP, and the remains of the DP has fronted. This is ruled out for Progovac.

However, these judgements are not shared by all native speakers. N. Leko finds (25) acceptable, hence we bracket the star in the example.

The acceptability of (25) for some speakers is significant. Further well-known examples in the literature are in (26). Again, for speakers like Progovac, these are unacceptable, but for others including N. Leko, they are fine (N. Leko, pers. comm.).

(26)a. (*) [*Prijatelji su moje sestre*] *upravo stigli*

friends be-3pl. my.Gen. sister.Gen. just arrive-ppl.

'My sister's friends have just arrived'

(Progovac 1996:419)

b. (*) [*Studenti su iz Beograda*] *upravo stigli*

students be-3pl. from Belgrade just arrive-ppl.

'Students from Belgrade have just arrived'

(Halpern 1992:94)

In (a) and (b), the auxiliary *su* 'are' intervenes between an N^0 and its complement. Progovac (1996) regards these examples as highly marginal at best. However, Halpern (mentioned in Progovac 1996:418) points out that some SCB speakers accept these sentences.

Such variation in native speaker judgements indicates that we are dealing here with different dialects or languages⁵. In terms of establishing the limits of Universal Grammar, it is more interesting to concentrate on the more 'difficult' data, that which is less widely attested cross-linguistically in Indo-European. Despite this, the problem for the remnant topicalization analysis of the 2P position is that while (25) and (26) are possible to varying extents, *all*

⁵These terms are, of course, sociological, with no linguistic distinction between them.

native speaker judgements agree strongly that (24b) is ungrammatical. If both constructions result from remnant topicalization, this variation in acceptability should not exist.

Further difficulties for the remnant topicalization argument are encountered in the examples in (27).

(27)a. *Na veoma si se lepom mestu smestio*

on very be-2sg. refl. nice place placed-ppl.

'You've placed yourself in a very nice place'

(Schütze 1994:381; Mišeska Tomić 1993:6)

b. *U ovu je veliku sobu Jovan ušao*

in this be-3sg. big room J. enter-ppl.

'Jovan entered this big room'

(Schütze 1994:401)

Assuming again Abney's DP structure, in (a), a remnant topicalization account must assume that *lepom mestu* 'nice place' has scrambled to an adjoined position higher than VP, with subsequent remnant topicalization of the PP. Similarly, in (b), *veliku sobu* 'big room' has apparently scrambled out of the PP prior to topicalization. Yet (23b) suggests that the [A -- N] combination cannot scramble prior to remnant topicalization. There is, in other words, a mismatch between restrictions on bona fide cases of remnant topicalization in (23b) and (24b), and clitic auxiliary placement which the purely syntactic account cannot predict ((25), (26), (27b)).

More problematic still are cases such as (28) where remnant topicalization occurs, followed by still further splitting of the PP constituent by the clitic auxiliary:

(28) ??*U ovu je veliku Jovan ušao sobu*

into this be-3sg. big J. entered-3sg. room

'Jovan entered this large room'

(Schütze 1994)

Assume first that *sobu* 'room' has moved out of the PP [*U ovu veliku sobu*] 'into this large room', and the remainder of the PP has then moved up. Still further splitting of the PP takes place, with the clitic auxiliary following the first phonological word: the proclitic P and the determiner *U ovu* 'into this'. As Franks (1998) concedes, it is not clear how the remnant topicalization account can cope with such examples.

Let us finally consider the data discussed briefly in section 2.4 in which the 2P position occurs inside a Proper Noun:

(29)a. [*Lav Tolstoj*] *je veliki ruski pisac*

L. T. be-3sg. great Russian writer

b. [*Lav je Tolstoj*] *veliki ruski pisac*

'Leo Tolstoj is a Russian great writer'

(Progovac 1996:419)

The clitic auxiliary follows either *Lav Tolstoj* in (a), which consists of a first and second name, or the first name *Lav* in (b).

The example in (29b) is controversial. Progovac (1996) finds (b) unacceptable, and suggests it is only marginally acceptable if the utterance is seen as a self-correction in mid-utterance, on a par with English (30):

(30) **Leo is, Tolstoy, a great Russian writer*

That is, although (30) is clearly ungrammatical, Progovac suggests a speaker might utter it in conversation. This is doubtful; such self-correction requires further additions in English, such as *Leo is, {that is/I mean} Tolstoy, a great writer*. In any case, no English speaker could ever accept (30) as grammatical,

whereas there are many speakers who readily accept (29b) as grammatical, a fact about natural language that is too interesting to push aside.

One would expect that a purely syntactic account of the clitic cluster could never cope with (29b) because we are not dealing with a syntactically distinct item in *Lav*. However, recent analyses (Bošković 1997; Franks 1997, 1998) have suggested that (29b) is also a result of syntactic movement. Franks (1997) argues that *Lav* and *Tolstoj* are syntactically distinct items on the basis of case inflections:

Splitting of proper names is in fact syntactically driven, and can only occur when both first and last names are treated as separate heads. Although one ordinarily declines both parts, it is marginally possible just to decline the first name, as in (9):

(9) ?*Lava Tolstoj čitam*

Leo.Acc. Tolstoi read-1sg.

'I am reading Leo Tolstoi'

Splitting is however only possible when both parts are declined, as shown in (10).

(10)a. ?*Lava sam Tolstoja čitala*

Leo.Acc. be-1sg. Tolstoi.Acc. read-ppl.

'I read Leo Tolstoi'

b. **Lava sam Tolstoj čitala*

Leo.Acc. be-1sg. Tolstoi read-ppl.

(numbering as in Franks 1997:5)

Franks' argument receives further support in Bošković (1997), where it is shown that a name can be split by material other than the clitic auxiliary if both names are inflected:

- (31)a. *Lava čitam Tolstoja*
 L.Acc. read-1sg. Tolstoy.Acc
 'I'm reading Leo Tolstoy'
- b. **Lava čitam Tolstoj*
 L.Acc. read-1sg. Tolstoy

The lexical verb *čitam* 'reads' can only intervene when both first and second names are inflected for accusative case, hence the ungrammaticality of (b). This is claimed to indicate that a purely syntactic account of (29b) is also possible.

Again, there is native speaker variation over the judgements. N. Leko (pers.comm.) suggests that inflecting only the first name in Franks' (9) is strongly ungrammatical, and (31a) is marginal and should be marked ?. In any case, this account to date remains only a promissory note.

Finally, a highly significant fact is that the acceptability of marginal constructions in (26) and (27) (repeated below in (32)) becomes less acceptable if the clitic cluster contains a greater number of morphemes (Browne 1975:114; Radanović-Kocić 1996:436; Franks 1998:19). Compare the judgements in (32):

- (32)a. (??) [*Prijatelji su moje sestre*] *upravo stigli*
 friends be-3pl. my.Gen. sister.Gen. just arrive-ppl.
 'My sister's friends have just arrived'

(Progovac 1996:419)

- b. **Prijatelji su mi ga moje sestre poklonili*
 friends be-3pl. 1sg.Dat. 3sg.Acc. my sister give-ppl.
 'Friends of my sister gave it to me'

c. (??) [*sestra će i njen muž*] *doći u utorak*

sister will and her husband come in Tuesday

'My sister and her husband will come on Tuesday'

(Browne 1975)

d. **Sestra će mi ga i njen muž pokloniti*

sister will 1sg.Dat. 3sg.Acc. and her husband give-inf.

'My sister and her husband will give it to me'

e. *Lav je Tolstoj veliki ruski pisac*

L. be-3sg. T. great Russian writer

'Leo Tolstoy is a great Russian writer'

f. **Lav mi ga je Tolstoj poklonio*

L. 1sg.Dat. 3sg.Acc. be-3sg. T. give-ppl.

'Leo Tolstoy gave it to me'

(examples (b), (d), and (f) in Franks 1998:19)

In (b,d,f), two pronominal clitics and a clitic auxiliary in the clitic cluster in the same position as the auxiliaries in (a,c,e) is worse in acceptability for some speakers. A purely syntactic account will have great difficulty with this fact.

To conclude this section, we have reviewed the purely syntactic accounts of the majority of constructions where the clitic auxiliary appears in the 2P position. It has been suggested that where the clitic auxiliary splits a constituent, the constituent has undergone remnant topicalization: that is, all but the initial phonological word has been scrambled out of the constituent prior to topicalization of the remainder of that constituent. However, this argument is unable to deal with all cases of the 2P position, and requires the marginalization of some 'second position' data that many speakers find acceptable. Finally, we have seen that the acceptability of the clitic cluster in the 2P position in some marginal cases is substantially decreased if more items appear in the clitic cluster.

Our conclusions are as follows. Remnant topicalization admittedly exists in the grammar of SCB, given examples in (20) and (23). However, this is a separate issue from the appearance of the clitic auxiliary in the 2P position. The unique nature of the clitic cluster elements requires more than a simple syntactic analysis. In the next section, we shall find these conclusions confirmed when we consider a further much discussed example of the clitic auxiliary in the 2P position.

5.3.2. Problems with syntactic analyses of [non-finite V--auxiliary] word orders

A construction that has proved particularly difficult to account for via a purely syntactic account is that of (15b) above displaying the [non-finite V⁰--auxiliary] word order, repeated here as (33).

- (33) 2P: *Odgovorio je na njihovo pitanje*
 answered-ppl. be-3sg. on their question
 'He answered their question'

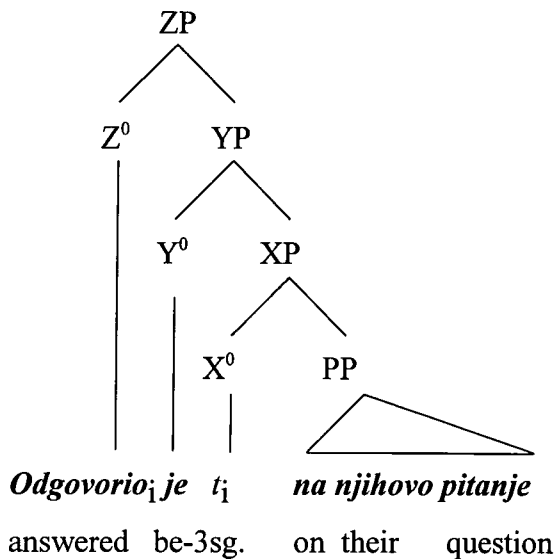
There are two possible syntactic approaches. The first possibility is that this is also a case of remnant topicalization. However, as Wilder & Ćavar (1994:7) observe, a VP cannot front across a clitic auxiliary in SCB as we have seen:

- (34) *[*Odgovorio na njihovo pitanje*]_i je t_i
 answered-ppl. on their question be-3sg.

Hence remnant topicalization is ruled out as a possibility for (33).

The second alternative is to propose that the participle has moved as a head V⁰ across the clitic auxiliary. One formulation of this can be represented in (35).

(35)



Assuming that the clitic auxiliary is in a head position Y^0 , the past participle *odgovorio* 'answered' moves across *je* 'is' to adjoin to Z^0 .

Alternatively, both the participle and the clitic auxiliary might move up and adjoin to the same head position Z^0 . A third alternative is that the participle adjoins to the left of the auxiliary in Y^0 .

In the next three subsections, we consider versions of each of these accounts in turn.

5.3.2.1. Rivero and Roberts' 'Relativized head movement'

In the typology of movements in GB theory, the head movement represented in (35) violates the 'Head Movement Constraint' of Travis (1984). This constraint was later subsumed under the Empty Category Principle in Chomsky (1986) whereby an empty category must be properly governed.

(36) Head Movement Constraint:

$$*[\dots X^0_i \dots [\dots Y^0 \dots [\dots t_i \dots]]]$$

In (36), the trace t_i is not licensed because the head of the chain, X^0 , is unable to antecedent govern t_i on account of the intervening potential governor Y^0 . In Chomsky (1986), this is termed a 'minimality' effect.

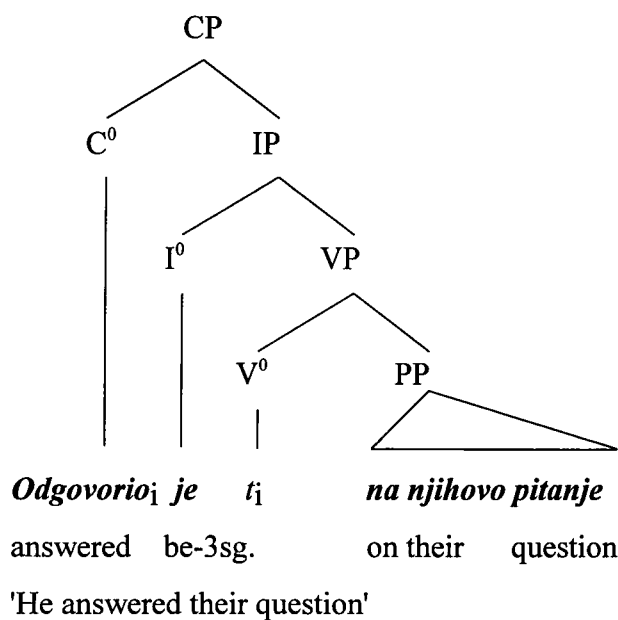
In Rizzi (1990a), minimality is 'relativized' so that the blocking category for XP-movement is sensitive to the A/A' distinction of the XP landing site: a YP constitutes a 'potential intervening governor' if it is of the same A/A' status as the landing site of the moved XP. Roberts (1992,1994) extends Relativized Minimality to X⁰-movement, proposing that the X⁰-chain is similarly sensitive to the A/A' distinction of the landing site and any intervening Y⁰. In this way, X⁰-movement to an A' position is blocked by an intervening Y⁰ in an A' position in (39a), but is *not* blocked by a Y⁰ in an A position in (37b):

(37) a. *[(A'-head)...X⁰_i...[(A'-head)...Y⁰...[...t_i...]]]

b. [(A'-head)...X⁰_i...[(A-head)...Y⁰...[...t_i...]]]

Thus, if C⁰ is an A'-head, a V⁰ may move into it across an intervening I⁰ if that I⁰ is deemed an A position. Assuming for the moment that the SCB clitic auxiliary is in I⁰, the tree in (35) is thus relabelled as in (38):

(39)



The auxiliary verb *je* is regarded as an A-head position, and hence does not block head movement to C⁰. This is later reformulated in terms of L- and non-L-

related heads (from Chomsky & Lasnik 1991) in Roberts (1994): a position is 'L-related' if it is the specifier or complement of a feature of a lexical head L.

Rivero (1991) and Roberts (1992,1994) suggests the motivation for such movement is a combination of the clitic status of the auxiliary verb *je* 'is' in (38) and a general restriction on S-initial clitics ("the Tobler-Mussafia law").

If the ban on first position clitics is a phonological restriction at PF, then syntax must be able to "look ahead" and access information at PF in order to satisfy the [*Sentence-initial] filter. This in turn implies a bi-directional relation between the syntax and the phonology which is problematic in Principles and Parameters Theory.

Lema & Rivero (1989) and Borsley, Rivero & Stephens (1996) adopt Roberts' hypothesis of 'relativized' X^0 -movement, but propose that the trigger for such 'long' participle movement to C^0 is for the purposes of 'Tense licensing'⁶. They suggest that Tense is licensed cross-linguistically either by

(39)a. A verb adjoining to Tense, or

b. If a lexical item appears in a position that c-commands Tense (ie. a filled complementizer, a WH-element, topicalized XP, NegP, etc).

(Borsley, Rivero & Stephens 1996)

A language like SCB is said to utilise both (39a) and (39b) in order to 'license' Tense. In (40a) below, the lexical verb *čítam* 'read' licenses Tense by adjoining to T^0 , according to (39a). It is stipulated that the clitic auxiliary, however, is unable to license Tense. As a result, some other lexical item c-commanding Tense is required, according to (39b).

(40)a. *Ja často čítam knjigu*

I often read-1sg. book.Acc.

'I often read the book'

⁶ The papers cited deal with a number of languages that exhibit the [non-finite V^0 --auxiliary] word order.

b. *Kako je odgovorio na njihovo pitanje?*

how be-3sg. answered-ppl. on their question

'How did he answer their question'

c. **Kako odgovorio je na njihovo pitanje?*

how answered-ppl. be-3sg. on their question

In (40b), the WH-word *kako* 'how' has moved to check its WH-features, and is also available to license Tense. If, however, no other lexical item is available, then the past participle fronts as a 'last resort' in (39) to save the derivation. Participle movement is barred from occurring in (40c) on grounds of Economy: the movement is unnecessary because Tense is licensed by the WH-element preceding it.

This analysis raises a number of questions. First, it accounts for the [non-finite V⁰--auxiliary] word order in (33), but presents no insight into why the auxiliary does not allow VP-topicalization in (34). Given one or other of the triggers mentioned above, it is surprising that VP cannot also front as a 'last resort' movement to save the derivation. If one were to rule it out on grounds of Economy (Chomsky 1991), an additional story is required to show that 'long' V⁰ fronting is more economic than VP fronting, with appropriate independent motivation.

An alternative is to assume that the auxiliary cannot license the movement trace for some reason. However, in Roberts' system, this is not an option. Relativised Minimality is predicated on a conjunctive Empty Category Principle, whereby traces require both antecedent government for purposes of identification *and* formal licensing via head government (Rizzi 1990:87). For Roberts, then, the auxiliary is able to license an X⁰ trace in (38); it should therefore be able to license a VP trace.

The proposal that some verbs are unable to license Tense lacks independent evidence, and remains a stipulation, presumably in the lexicon. The argument that other lexical items c-commanding Tense are alternatively able to license Tense also requires further elucidation. The set of elements that would

appear to be capable of licensing Tense in this way seems a conveniently wide array of syntactic categories: a pronoun in (3b), a complementizer in (5), a subject DP in (11a), a possessive pronoun in (11b), a specAP modifier in (12a) and so on.

Thirdly, given that Roberts' hypothesis proposes a substantial modification to the typology of movements, the evidence from this particular construction is relatively weak, as Iatridou (1994) has argued. Roberts (1994) attempts to show the disinction between L- and non-L-related heads with respect to X^0 -movement by reference to negation in a number of other languages that also exhibit the [non-finite V^0 -- auxiliary] word order. Such languages, Bulgarian being one of them, display the same [non-finite V^0 – auxiliary] word order as SCB, but this word order is blocked in the presence of negation⁷.

- (41)a. *Ne e pročel knjigata* (Bulgarian)
 neg. be-3sg. read-ppl. book-the
 'He hasn't read the book'
- b. **Ne pročel e knjigata*
- c. **Pročel ne e knjigata*

The negative particle is able to host the clitic auxiliary, and hence cannot co-occur with the [non-finite V^0 -- auxiliary] word order, shown in (b,c). If Roberts is correct that the negative *ne* heads a NegP, then data such as (41) is said to indicate that Neg⁰ is a *non-L*-related head, and thus blocks non-L-related head movement to C⁰.

Iatridou (1994) points out that if this is so, supporting evidence should demonstrate that Neg⁰ also allows X^0 -movement to an L-related position, but such evidence is lacking. Consequently, it may well be that (41b,c) are ruled out by some other aspect of the grammar. Indeed, by Roberts' own account of the trigger for participle fronting, (41b,c) are ruled out on grounds of Economy just

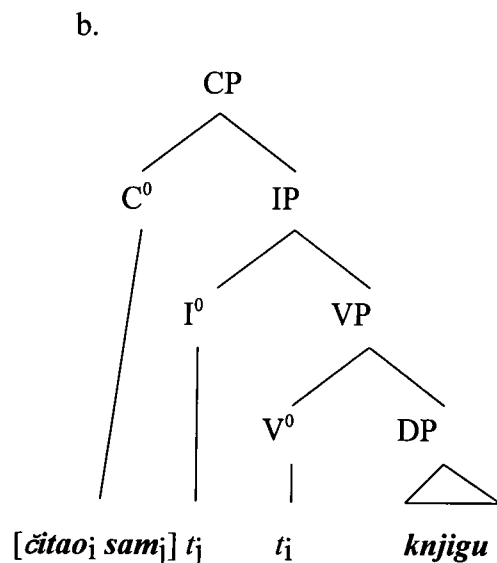
as 'long head movement' is in (40c): there is no possible violation of the *[clitic-first] filter in a negated sentence, as demonstrated in (41a), and hence no reason why the non-finite verb need front in this account.

Finally, there is no evidence that the participle in (33) moves to C^0 . In a minimalist theory where motivation for movement is highly constrained, the question arises as to *why* the participle moves to C^0 , especially given that such participle movement is not well-attested cross-linguistically.

5.3.2.2. Ćavar & Wilder (1994): Feature checking in C^0

Ćavar & Wilder (1994) seek to account for the [non-finite V^0 --auxiliary] word order in Croatian by arguing within the early minimalist framework of Chomsky (1993) that *both* the non-finite verb and the clitic auxiliary are adjoined to C^0 :

- (42)a. *čītao_i sam_j t_i t_j knjigu*
 read-ppl. be-1sg. book
 'I have read the book'



⁷ In SCB, the negative full form auxiliary does not license the [non-finite V^0 --auxiliary] word order either. However, we follow Roberts in exemplifying the point with Bulgarian data.

In this way, ‘long’ head movement is deemed possible because it crosses the trace of an element that has moved to the same position. That is, the trace in I⁰ does not cause a minimality effect because it is ‘non-distinct’ from the chain created by the participle fronting.

Given minimalist notions of feature checking, Ćavar & Wilder are compelled to propose a range of features to motivate such movement. The auxiliary moves to C⁰ overtly to check a strong [finiteness] feature and the non-finite verb moves to C⁰ covertly to check a weak [auxiliary] feature with the auxiliary:

(43) features checked:

- C⁰: [finiteness]
ćitao 'read': [auxiliary (weak)]
sam 'am': [finiteness(strong)] [auxiliary]

The strong feature triggers overt movement of the auxiliary, hence the auxiliary always moves to C⁰ in this account. The weak feature on the participle requires the participle to move to C⁰ in the covert syntax.

In (42), however, Ćavar & Wilder propose that the non-finite V⁰ has moved *early* to check the weak auxiliary feature in order to satisfy the prosodic requirements of the auxiliary. This requirement is characterized in Zec & Inkelas (1990) as a ‘prosodic subcategorization frame’ in the lexical entry of the auxiliary:

(44) *sam* 'be': 1sg.[-PAST], [[]_w__]_w

where]_w indicates a word boundary.

(44) represents the fact that the auxiliary requires a host to its left. It is this subcategorization frame that does the equivalent work to Roberts’ [*S-initial] filter.

In Chomsky (1993), the principle of Greed states that move- α must result in satisfaction of the requirements of α : movement cannot occur for the sake of another item in the tree. The principle of Procrastinate states that no movement occurs before Spell-out unless it is forced by the requirements of the PF interface (ie. a strong feature). The combination of these two principles should predict the ungrammaticality of (42): the participle cannot raise early for the sake of the auxiliary. Therefore, Ćavar and Wilder propose a weakening of Chomsky's Greed to the effect that α can check its own features early in order to save the derivation at PF ('early altruism' in Ćavar & Wilder 1994:59).

First, it is not clear how this account can deal with the more complex periphrastic tense in (15) involving two participles. Recall the following example:

- (45) *čekali ste bili Marijinu prijateljicu*
 wait-ppl. be-2pl. be-ppl. M.'s friend
 'You had been waiting for Marija's friend'

Even accepting Ćavar & Wilder's account of the apparent 'long' movement in (42), the auxiliary participle is distinct from the chain headed by the lexical participle and hence must create a minimality effect. This account therefore still requires some form of violation of the Head Movement Constraint.

Secondly, if minimalism is correct in assuming that all languages are alike at LF, the features in (43) must be universal. However, no independent evidence is given for either the [auxiliary] feature shared by participles and the auxiliary, or the [finiteness] feature shared by C^0 and the finite verb, nor do they have any generality across languages. Before we can reasonably posit the existence of the [auxiliary] feature, evidence is required from a language where the same feature is demonstrably strong, and hence triggers overt movement. If all languages have such a feature and it is always weak, then the hypothesis is unfalsifiable: all movement triggered by the feature is covert, hence invisible at Spell-out except for *ad hoc* proposals for when it is not.

Returning to (44), it should be noted that Zec & Inkelas introduce the prosodic subcategorization frame in a non-derivational theory of grammar that involves a bi-directional relationship between the syntax and the phonology. Although the subcategorization frame in (44) avoids stipulating a general filter as in Roberts (1994) by shifting the burden onto the lexicon, this analysis requires such phonological information to be available in the syntax. Such 'look ahead' by the syntax is clearly at odds with most models adopted in Principles and Parameters Theory.

More seriously, there is evidence in Bošković (1995) that the non-finite verb and auxiliary cannot both be in C^0 (see also similar arguments in Anderson 1996). Jackendoff (1972: chap.3) demonstrates that adverbs with a manner reading are adjoined to VP, whereas adverbs with subject-oriented interpretations are adjoined to IP. In SCB, certain adverbs like *pravilno* 'correctly' and *mudro* 'wisely' are ambiguous between a manner and subject-oriented reading if they are IP-adjoined, shown in (46).

(46)a. *Pravilno odgovori Jovan Mariji*

correctly answer-3sg. J. M.Acc

'Correctly, Jovan answers Maria'

- =
- i. Jovan does the right thing in answering Maria
 - ii. Jovan gives Maria a correct answer

b. *Jovan je [IP pravilno [odgovorio Mariji]]*

J. be-3sg. correctly answer-ppl. M.

'Jovan correctly answered Maria'

- =
- i. Jovan did the right thing in answering Maria
 - ii. Jovan gave Maria a correct answer

In Ćavar & Wilder's analysis, the clitic auxiliary in (b) is in C^0 , and *Jovan* is in a topicalised or focus position, hence *pravilno* is adjoined to IP, as in (a). In both (a,b), there are two possible readings as indicated.

When the adverb *pravilno* is VP-adjoined, it yields a manner reading only:

(47) *Jovan je [odgovorio_{VP}[pravilno Mariji]]*

J. be-3sg. answer-ppl. correctly M.

‘Jovan correctly answered Maria’

- =
- i. *Jovan did the right thing in answering Maria
 - ii. Jovan gave Maria a correct answer

Consider now the [non-finite V⁰ -- auxiliary] construction. If Čavar & Wilder’s analysis is correct, then both the [non-finite V⁰ -- auxiliary] are adjoined to C⁰, and the adverb *pravilno* may be adjoined to IP following the auxiliary.

(48) *Odgovorio je pravilno Mariji*

answer-ppl. be-3sg. correctly M.

‘Jovan correctly answered Maria’

- =
- i. *Jovan did the right thing in answering Maria
 - ii. Jovan gave Maria a correct answer

Bošković (1995:249)

However, this construction yields only the second reading which suggests the adverb is not adjoined as high as IP. The same results occur in (49) with *mudro* ‘wisely’:

(49)a. *Mi smo mu je mudro predstavili juče*

we be-1pl. 3sg.Dat.m. 3sg.Acc.f. wisely introduce-ppl. yesterday

‘We wisely introduced her to him yesterday’

- =
- i. We introduced her to him in a wise manner yesterday
 - ii. It was wise of us to introduce her to him yesterday

b. *Predstavili smo mu je mudro juče*

introduce-ppl. be-1pl. 3sg.Dat.m. 3sg.Acc.f. wisely yesterday

= i. *It was wise of us to introduce her to him yesterday

ii. We introduced her to him in a wise manner yesterday

Bošković (1995:250)

Again, in (b) the adverb carries only a manner interpretation, indicating it is not adjoined to IP when it follows the participle and auxiliary. This strongly suggests that the auxiliary is not in C^0 .

To conclude this subsection, in conceptual terms, we have seen that Ćavar & Wilder's approach is stipulative. Empirically, we have seen evidence that both the participle and the auxiliary are not in C^0 , and noted that the constructions involving two participles in (15f,g) remain unaccounted for. As a final point, observe that this account is wholly language-specific, despite the fact that the [non-finite V^0 -- auxiliary] word order is attested in a variety of languages, including Bulgarian (see 6.3.2 for Bulgarian; see Rivero 1991, 1994 for other languages). As we shall see, there is no evidence that the equivalent clitic auxiliary in Bulgarian appears in C^0 either.

Next we turn to a syntactic account that avoids the pitfalls of proposing movement to C^0 and the syntax 'looking ahead' to PF, but also requires stipulation concerning features and their checking.

5.3.2.3. *Bošković (1995): Optionally weak/strong features*

Bošković (1995) assumes along with Ćavar & Wilder (1994) that participles in SCB periphrastic tenses have an [auxiliary] feature that must be checked against the auxiliary in T^0 . Also, he suggests that the auxiliary has *optionally* strong or weak Agr features that are checked in AgrSP. If the auxiliary has a strong Agr feature, this must be checked before Spell-out by adjoining to $AgrS^0$. If the feature is weak, the auxiliary remains adjoined to T^0 in the overt syntax, moving to $AgrS^0$ at LF. This optionality of a strong/weak feature value allows for more than one structural position for the auxiliary at Spell-out within a language, represented in (50).

(50)a. [_{AgrSP} *Jovan* [_{AgrS} *je* [_{TP} *nesumnjivo* [_T *t*_i *istukaoj* [_{VP} *t*_j *Petra*]]]]]]
 J. be-3sg. undoubtedly beat-ppl. P.
 ‘Jovan undoubtedly beat Peter’

b. [_{TP} [_T *Istukaoj je* [_{VP} *t*_j *Petra*]]]]
 beat-ppl. be-3sg. P.
 ‘He beat Peter’

In (50a), the auxiliary *je* ‘is’ has a strong Agr feature. It excorporates from the participle in T⁰ (following an adaptation of Roberts 1991 in Watanabe 1993) and moves across the adverb (which is assumed to be adjoined to TP) and adjoins to AgrS⁰. In (50b), the feature is weak and the auxiliary remains adjoined to T⁰. In both cases, the participle *istukao* ‘beaten’ has moved out of VP to adjoin to T⁰ in order to check its strong [auxiliary] feature.

Economy of Derivation prevents the participle from being ‘pied piped’ when the auxiliary moves to AgrS⁰, which would result in the participle *istukao* ‘beaten’ appearing with the auxiliary before the TP-adjoined adverb *nesumnjivo* ‘undoubtedly’:

(51) **Jovan je istukao nesumnjivo Petra*
 J. be-3sg. beat-ppl. undoubtedly P.

(Bošković 1995:247)

Bošković characterises the first position restriction on the clitic auxiliary in a subcategorization frame in its lexical entry. However, unlike previous syntactic accounts, this lexical requirement of a host to the left does not trigger syntactic movement, but filters out unacceptable derivations generated by the syntax. Hence, if the auxiliary in (50b) has strong features and moves overtly to AgrSP to check its feature, the derivation will violate the host requirements of the auxiliary and so crash at PF.

In order to account for the complex periphrastic tense data in (15), repeated here as (52), Bošković stipulates that the [auxiliary] feature on the participles may be checked through left *or* right adjunction.

(52)a. $\text{AgrSP}[\text{Vas dvoje}_{\text{AgrS}^0}[\text{ste}_{\text{TP}}[\text{T}[\text{bili čekali}] \text{Marijinu prijateljicu}]]]$

you two be-2pl. be-ppl. wait-ppl. M.'s friend

'You two had been waiting for Marija's friend'

b. $\text{TP}[\text{T}[\text{Bili ste čakali}] \text{Marijinu prijateljicu}]$

c. $\text{TP}[\text{T}[\text{čekali ste bili}] \text{Marijinu prijateljicu}]$

Bošković (1995:256)

For Bošković, both participles in (a,b,c) are left- and right-adjoined respectively to T^0 . In (a), the auxiliary has then raised further to check a strong feature in AgrS^0 . In (b) and (c), the auxiliary has a weak [Agr] feature, so remains in T^0 . The participles both choose alternatively left or right adjunction options.

Again, a number of questions arise in this account: (i) the introduction of optionality for strong/weak features, and choices of left or right adjunction in the same language is a significant weakening of checking theory; (ii) as in Ćavar & Wilder's account in the previous section, participles are stipulated to have an [auxiliary] feature which must therefore be a universal feature. Furthermore, this feature may be checked through right-adjunction in the syntax, contra Kayne (1994) who proposes all syntactic adjunction is to the left. Even if one does not adopt Kayne's theory, one would expect head movement in one language to be consistently left *or* right rather than both. Again, independent evidence is lacking; (iii) note that the inability of the unstressed auxiliary to license a VP trace in SCB in (34) remains a mystery. Finally, this account depends crucially on a model that includes Agreement Phrases in order to enable the auxiliary to appear in more than one position. Later versions of Minimalism dispense with Agreement Phrases as contributing nothing to LF (Chomsky 1995: chapter 4; see section 7.4 for discussion), a position that we also adopt.

5.3.2.4. *Summary of difficulties*

To summarize, in this section, we have discussed three syntactic accounts of the [non-finite V⁰--auxiliary] word order in SCB. The accounts of Rivero (1991), Roberts (1992, 1994) and Ćavar & Wilder (1994) each assume participle movement to C⁰, despite the lack of evidence in its favour. Rivero and Roberts require a substantial adaptation to the typology of movements, and which heads are L-related and which are non-L-related remains stipulative. Both the Rivero/Roberts and Ćavar & Wilder accounts allow the syntax to 'look ahead' to the PF component: that is, a syntactic movement is triggered by the need to satisfy a phonological filter. I will assume the more restrictive hypothesis argued for in Zwicky & Pullum (1988) that the phonology-syntax interface is *uni*-directional.

Both Ćavar & Wilder and Bošković stipulate an [auxiliary] feature on the participle to motivate movement for checking purposes. In Bošković's account, the Agr features of the clitic auxiliary may be optionally strong or weak in order to account for the interesting fact that the clitic auxiliary appears to vary its position in the clause. In support of this, we have seen data from Bošković (1995) that shows the clitic auxiliary is not in C⁰ in SCB constructions with a [non-finite V⁰ -- auxiliary] word order.

Finally, the complex periphrastic tense constructions in SCB cannot be accounted for by Ćavar & Wilder. To address this data, Bošković stipulates that participles may check the [auxiliary] feature via left or right adjunction.

The difficulties for a purely syntactic account of this construction are therefore legion. A particularly interesting problem that has arisen from Bošković (1995) is that the clitic auxiliary does not appear in the same syntactic position. On the basis of data such as we saw in section 5.2, Progovac (1996), Ćavar & Wilder (1994) and Wilder & Ćavar (1994) have proposed that the auxiliary is in C⁰, yet the adverb data in (49) – (51) shows at least in the [non-finite V⁰ – auxiliary] construction that the auxiliary is lower than C⁰.

Combined with the difficulties discussed in 5.3.1, and the phonological criteria that appears to play a role in the 2P position, a 'syntactocentric' approach seems inappropriate.

The widespread variation that we have seen attested amongst native speakers with respect to the 2P position also undermines a purely syntactic account. If the computational system is indeed 'perfect' as Chomsky (1995) hypothesizes, it is most unlikely that significant syntactic operations underlie minute but pervasive dialectal variation for data that is at least partly dependent on phonological factors.

We therefore turn now to approaches that entertain the hypothesis that factors at PF play a crucial role in the distribution of the clitic auxiliary.

5.3.3. Phonological movement accounts

First, we consider the conceptual problems of a purely phonological approach such as that of Radanović-Kocić (1988, 1996), but note the significance of prosodic gaps in a clause in determining the 2P position. Then we turn to 'Prosodic Inversion' (Halpern 1995; Schütze 1994), an approach that is reminiscent of Distributed Morphology (see section 2.3.1) in which the PF component adjusts the output of the syntax. Both accounts employ a mechanism of phonological movement, triggered by the diacritic [+clitic] on the auxiliary.

5.3.3.1. *A purely phonological account: Radanović-Kocić (1988, 1996)*

Radanović-Kocić (1988, 1996) argues that placement of the clitic auxiliary (and hence the entire clitic cluster) is a purely prosodic phenomenon. In her account, the diacritic [+clitic] is assigned to an auxiliary or pronoun that bears no phrasal stress. Items assigned this diacritic are moved to second position in the Intonational Phrase, a level derived from, but not identical to, syntactic structure, as in Nespor & Vogel (1982), Hayes (1984) and Selkirk (1986). 'Second position' is defined as 'following the first phonological phrase', which may consist of one or more phonological words. In other words, the preceding item may be a syntactic constituent but need not be. A stressed initial word alone can constitute a phonological phrase

The motivation for such phonological movement remains unclear, and the significance of 'second position' a mystery. In theoretical terms, the introduction of a phonological movement rule is a substantial addition to our model of the language faculty. It is clearly not widely attested, unlike syntactic displacements which supported the adoption of syntactic movement. Why should movement be only to 'second position', and why should this position be often defined in terms of syntactic constituents?

Furthermore, there is no theory of syntactic categories underlying this account, and so it remains a wholly *ad hoc* analysis that assigns [+clitic] to auxiliaries and pronouns alone.

It is also unclear how this account deals with the negative auxiliary. If Radanović-Kocić analyses this auxiliary as a case of negation + clitic auxiliary in the way that Mišeska Tomić (1996) and Wilder & Čavar (1994) do, then an additional stipulation must 'switch off' the [+clitic] assignment mechanism to the auxiliary verb in just this case. If the negative auxiliary is treated as a lexical item in its own right, as is argued below in 5.4.1., then the [+clitic] assignment mechanism does not apply to this one auxiliary verb. Either approach is stipulative and unexplanatory.

Despite these conceptual drawbacks to a purely phonological approach, there are a number of points in Radanović-Kocić's analysis that are of

significance in further undermining the purely syntactic accounts discussed above.

Some central data concern the prosodic effects of introducing appositives and non-restrictive relative clauses into a clause, and the effect this has on placement of the clitic auxiliary. First, consider (53).

(53)a. *Ja sam ti obećala igračku*

I be-1sg. 2sg.Dat. promise-ppl. toy

'I promised you a toy'

b. *Ja, tvoja mama, obećala sam ti igračku*

I your mum promise-ppl. be-1sg. 2sg.Dat. toy

'I, your mum, promised you a toy'

c. **Ja, tvoja mama, sam ti obećala igračku*

(Radanović-Kocić 1996:437)

In (a), the clitic auxiliary and pronominal clitic follow the subject *Ja* 'I'. If the appositive *tvoja mama* 'your mum' is introduced following the subject, then the clitics appear following the non-finite verb *obećala* 'promised'. They cannot appear following the complex subject, which is followed by a prosodic break. The 'long head movement' accounts cannot predict (53b) because there is no reason why the participle should move up: in the syntax, the clitic auxiliary appears to have a host available in subject position.

Next, consider (54).

(54) *Subject with a restrictive relative clause:*

a. *Ona moja sestra koja je u Sarajevu vas se sjeća*

that my sister who be-3sg. in Sarajevo 2pl.Acc. refl. remember-3sg.

'That sister of mine who is in Sarajevo remembers you'

Subject with a non-restrictive relative clause:

- b. *Moja sestra, koja je u Sarajevu, sjeća vas se*
my sister who be-3sg. in Sarajevo remember-3sg. 2pl.Acc. refl.
'My sister, who is in Sarajevo, remembers you'

- c. **Moja sestra, koja je u Sarajevu, vas se sjeća*

In (a), the clitic cluster (represented here not by an auxiliary but by the pronominal clitics *vas se* 'you herself') appears following the DP subject that includes a restrictive relative clause *koja je u Sarajevu* 'who is in Sarajevo'. In (b,c), the subject DP includes a non-restrictive relative clause. This is followed by a prosodic break, and the clitic cluster obligatorily follows the finite verb *sjeća* 'remembers'. If the word order in (b) is derived syntactically, then the trigger for such movement remains a mystery (at least, if we are to avoid the syntax 'looking ahead' to PF).

Descriptively, then, the clitic clusters in (53b) and (54b) appear to be in a 'third position'. Čavar & Wilder (1993) consider the following additional examples.

- (55)a. [*Čim su ga organizirali*], *bio je zabranjen*
when be-3pl. 3rd.Acc. organize-ppl. be-ppl. be-3sg. prohibited
'As soon as they had organised it, it had been prohibited'
- b. *[*Čim su ga organizirali*], *je bio zabranjen*
- c. [*Čim su ga organizirali*], *sastanak je bio zabranjen*
when be-3pl. 3rd.Acc. organize-ppl. meeting be-3sg. be-ppl. prohibited
'As soon as they had organised it, the meeting had been prohibited'

- d. [*U svakom slučaju*], *Ivan je pametan*
in every case, I. be-3sg. intelligent
'In any case, Ivan is intelligent'

(Ćavar & Wilder 1993:40)

In (a), the clausal adjunct between square brackets co-occurs with the non-finite verb *bio* 'been' preceding the clitic auxiliary. The construction in (b) is ungrammatical if the non-finite verb does not precede the clitic. In (c) the clitic auxiliary is hosted by the DP *sastanak* 'meeting', in (d) by an overt subject *Ivan*. The apparent 'clitic third' position is therefore not restricted to following a verb.

To address this, Ćavar & Wilder stipulate that the domain of cliticization for the clitic auxiliary is CP. That is, the auxiliary's prosodic subcategorization frame must be satisfied by a host to its left within the syntactic domain CP.

They argue that in (55a,c,d) above, the sentence-initial constituents are in a Left Dislocated Position outside CP. This must be so, they argue, because all constituents that are indisputably inside CP cannot co-occur with the [non-finite V^0 -- auxiliary] word order, as we saw in (16).

The argument is not strong. Essentially, it is asserted that the domain of cliticization is CP because all items that can host the clitic auxiliary are inside CP. This, of course, tells us nothing about the crucial items that cannot host the clitic auxiliary in (55a,c,d). Returning to the earlier data, even if we assume that the appositive modifier in (53b) is somehow 'outside' the syntactic structure, this account is also incapable of explaining why a non-restrictive relative clause is 'outside' CP in (54b).

Radanović-Kocić's descriptive observation is more revealing in showing that the crucial factor is the presence of a prosodic break. This is strongly supported by the fact that heavy stress on an initial item alone can create a prosodic break (indicated by // in (56b)) that also allows the 'clitic third' word order.

(56)a. *Marko je čitao knjigu*

M. be-3sg. read-pp. book.Acc.

'Marko read the book'

b. *Knjigu // Marko je čitao*

'As for the book, it was Marko who read it'

(Radanović-Kocić 1996:439)

The clitic auxiliary follows the focused constituent *Marko* in both examples. In (b), the DP *knjigu* 'book' has been fronted and receives particularly heavy stress. For Radanović-Kocić, this results in two Intonational Phrases in (b), [*Knjigu*] and [*Marko je čitao*]. As a result, the clitic auxiliary appears in the second position in its Intonational Phrase.

Each of these examples of 'clitic third' comes within the prediction of Nespor & Vogel's first rule for the construction of the Intonational Phrase:

(57) *Any displaced syntactic constituent, parentheticals and non-restrictive relative clauses obligatorily form at least one Intonational phrase.*

(Nespor & Vogel 1982:232)

Clearly 'displaced syntactic constituent' may include the sentence-initial constituents in (55).

In conclusion, then, Radanović-Kocić demonstrates that the presence of a prosodic break may play a role in determining the position of the clitic auxiliary in the clause. Data in Schütze (1994) and Halpern (1995) provide further extensive support for this fact in SCB.

However, we reject the notion that the presence of a prosodic factor is therefore justification for the introduction of phonological movement, especially only for auxiliaries and pronouns in a single language. In the next section, we shall consider a 'mixed' approach in Halpern (1995) and Schütze (1994) in which the syntax plays a greater role, but still relies on (a more restrictive) phonological movement.

5.3.3.2. *Prosodic Inversion*

An alternative to both the purely syntactic and the purely phonological accounts considered so far is a 'mixed' approach to the SCB clitic auxiliaries. In Prosodic Inversion (henceforth PI) accounts (Halpern 1995; Schütze 1994), the clitic auxiliary (and clitic pronouns) are moved in the syntax to a position above IP. If the output of the syntax leaves the auxiliary without a host to its left, then it moves to the right of the next adjacent phonological word which then becomes its host. As we have seen in the previous section, a prosodic break in the clause may trigger PI. PI was first proposed by Halpern (1992, published 1995) for a number of languages that display a second position phenomenon for clitics and is adapted by Schütze (1994) in an account of SCB. Further versions of PI have been adopted specifically for the Slavic participle - auxiliary word orders by Embick & Izvorski (1995) and King (1996).

For Halpern (1995: chapter 3), the SCB clitic auxiliary and clitic pronouns move in the syntax to an XP position between IP and CP, termed 'CleftP'. For Schütze (1994), the clitic auxiliary moves in the syntax to C^0 . PI then applies if the syntax supplies no further lexical item in specCP or C^0 , either through movement or base generation. The 2P position, then, is a result of phonological movement from a host-less higher position.

The problems of such an account, both empirical and conceptual, are as follows.

(i) *Phonological movement*: Observe first that this is a case of phonological movement, albeit across only one phonological word. The clitic auxiliary is not proclitic on the word to its right, so PI is not a case of modifying a morpheme's status from a proclitic to enclitic for a single host. This is worth noting, in the light of the fact that Schütze rightly rejects Radanović-Kocić's account on the grounds that it involves phonological movement.

(ii) *Syntactic movement*: The PI account makes a number of naive assumptions concerning the syntax. Both Halpern and Schütze assume syntactic movement

of all members of the clitic cluster to a position higher than IP, though no account of the motivation for such movement is given, other than relying on a widespread assumption in the syntactic literature. Again, the diacritic [+clitic] is all-important. It mysteriously triggers this syntactic movement, as in purely syntactic accounts, yet for the PI approach, this same diacritic triggers last resort phonological movement as well. In addition, we have seen data in 5.2. and 5.3.2.2. suggesting that the clitic auxiliary is not in fact in a single syntactic position in all clauses. The data in Bošković (1995) indicate that at least in the [non-finite V⁰--auxiliary] construction, the clitic auxiliary is below C⁰. This does not necessarily present a problem for PI if the auxiliary is seen as having undergone PI in such constructions. However, in his account of SCB, Schütze (1994:434) assumes Rivero's (1991) syntactic analysis of the [non-finite V⁰--clitic cluster] construction, which we have critiqued at some length in 5.3.2.1.

(iii) *Incorrect predictions*: Čavar & Wilder (1993) argue that PI is not predicted to occur in the following contexts.

(58)a. [N⁰ -- infinitive -- clitic cluster]:

Imaš [mnogo vremena čitati ga]
 have-2sg. much time read-inf. 3sg.Acc.
 'You have much time to read it'

b. [conjunction -- non-finite verb -- clitic cluster]:

Ivan je vidio auto [i kupio ga je]
 I. be-3sg. see-ppl. car and buy-ppl. 3sg.Acc. be-3sg.
 'Ivan saw the car and bought it'

In (a), the [non-finite V⁰ -- clitic cluster] word order follows the noun without any prosodic break. In (b) the same word order follows the conjunction *i* 'and', also with no prosodic break. The lack of prosodic break therefore provides no

context for PI to be triggered, yet in both cases the clitic cluster follows the non-finite verb⁸.

The data in (58) and the data in the previous section present an interesting dilemma that ensnares purely syntactic accounts, purely phonological accounts and Prosodic Inversion as well. One horn of the dilemma is that the presence of a prosodic break in the data in section 5.3.3.1. rules out a purely syntactic account, as we have seen. However, the data in (58) constitutes the other horn of the dilemma: it rules out any account that requires simply a prosodic break to determine the 2P position, i.e. both a purely phonological movement account *and* PI.

(iv) *Licensing a movement trace*: Just as with the purely syntactic or phonological accounts, PI has no explanation of why clitic auxiliaries are unable to license the trace of a topicalized VP.

(v) *The lack of a theory of syntactic categories*: On a conceptual level, PI is unable to predict which morphemes undergo 'inversion', and which do not. The diacritic [+clitic] must be stipulated to allow last resort phonological movement, just as in Radanović-Kocić's account. As a result, PI is little more than a fresh encoding of the descriptive facts, barring the examples in (58).

Despite these problems with PI, we have seen from data in the previous section that PI has some observational adequacy in that the 2P position in SCB may partly be determined along prosodic lines. There clearly is some mechanism that, as a last resort, is able to modify the output of the syntax.

⁸ Note that this criticism does not apply to Schütze's treatment of SCB, as he assumes Rivero's (1991) account of [non-finite V⁰ -- clitic cluster] constructions.

5.3.4. Conclusion: against 'syntactocentrism'

The issue of how the clitic cluster appears in a second position has attracted much attention in recent years. In this section, we have summarised the major approaches, focusing on the clitic auxiliary alone, although reference to the clitic cluster has been made when necessary.

We saw first that purely syntactic approaches are inadequate to deal with all of the second position phenomenon. The main points we have made are the following:

(i) The intervention of a clitic auxiliary in a constituent and remnant topicalization do not pattern in the same way in terms of acceptability for some native speakers, which suggests they are distinct operations (compare (23b)/(24b) to (25),(26) and (27b)).

(ii) Constructions exist that cannot be accounted for by remnant topicalization.

(iii) The [non-finite V⁰ -- auxiliary] word order is not a case of remnant topicalization. Attempts at a 'long head movement' account, however, rely on a high degree of stipulation, and provide no insight into the nature of the clitic auxiliary. The same goes for Bošković's (1995) approach, which loosens the restrictiveness of minimalist checking theory to a substantial extent.

(iv) Radanović-Kocić (1988, 1996), Halpern (1995) and Schütze (1994) all present data in which the second position is defined following a prosodic break, not via syntactic criteria. The 'long head movement' accounts cannot deal with this data.

(v) For some speakers, certain examples of the 2P position are degraded if the clitic cluster contains more than one or two morphemes. This strongly suggests the phenomenon does not result from syntactic properties, given that the syntax generally tolerates recursion.

We then turned to accounts that employ some degree of prosodic criteria for determining the second position of the clitic cluster. There were both empirical and conceptual problems with these accounts. On the conceptual side, both accounts required the introduction of a phonological movement rule and have no theory of the lexicon that predicts which syntactic categories may be assigned the diacritic [+clitic]. It therefore remains a stipulation which items undergo movement in the phonology. Empirically, we saw data from Ćavar & Wilder (1993) that neither phonological movement account predicts.

A highly significant issue that has arisen in our discussion of the literature is the fact that the clitic auxiliary, and hence the clitic cluster as a whole, does not appear in the same syntactic position in each construction. In section 5.2., we saw data that supports the idea that the clitic auxiliary is between C^0 and IP, i.e. between the complementizer and a subject DP. Hence a number of authors have assumed that the auxiliary is always right adjoined to C^0 , or, in an *ad hoc* phrase between CP and IP (ie. in Halpern 1995). In this section, we have seen data from Bošković (1995) that strongly suggests that the clitic auxiliary is not always as high as C^0 . In section 8.4.1.3 when we consider the clitic cluster as a whole, we shall present further evidence that the clitic cluster is not always in C^0 .

Clearly these discrepancies create a problem for purely syntactic accounts. Syntactic movement must be triggered by feature checking in minimalism. But even if we propose an *ad hoc* feature that requires 'checking' in a given position, why should checking be required only in some constructions and not others? Bošković (1995) attempts to deal with this via the stipulation that an auxiliary may have either a weak or strong feature.

The problems for syntactic theory are evident: the proposal of features that lack independent evidence is little more than a re-codification of the descriptive facts. The generative power of the system becomes even greater if such features may then be either weak or strong. In order for features to be more than just diacritics for movement, independent evidence is crucial. An all-pervading problem in most accounts is that the diacritic [+clitic] is just this: a

diacritic for movement, either in the syntax or the phonology, and in 'Prosodic Inversion' accounts, in both modules.

Finally, we have seen that on occasions the second position appears to be defined in relation to a prosodic gap, which creates problems for the syntactic account, and on other occasions by means of a syntactic domain in which no prosodic gap appears, which creates problems for phonological movement accounts. We require a domain of cliticization that is partly defined in syntactic terms, and partly via purely prosodic criteria. Furthermore, we require a mechanism that is not purely syntactic nor purely triggered by prosodic factors, as Franks (1998:2.3.2) rightly observes.

5.4. The semi-postlexicalist account of auxiliaries

In this section, we return to the distinctions between the full form auxiliaries and the clitic form repeated here. We can now add to our table the fact that the clitic but not the full form can appear in a phonologically defined 'second position' (59e).

(59)

SCB auxiliaries	<i>full forms</i>	<i>clitic form</i>
(a) has a stem and a regular inflectional paradigm	✓	✗
(b) syntactic position is I ⁰	✓	✗
(c) can appear in sentence-initial position	✓	✗
(d) bears stress/emphasis	✓	✗
(e) can appear in '2nd position':	✗	✓
(f) licenses a movement trace	✓	✗

Emonds has argued that many closed class items undergo phonological lexicalization, and a third class of closed class items optionally undergo syntactic or phonological lexicalization. We shall argue here that the differences in (59) stem from the fact that the clitic auxiliaries always undergo phonological lexicalization, whereas the full form auxiliaries are members of the third class ((1c) in section 4.1). Full form auxiliaries are optionally inserted into the syntax.

We consider the full form auxiliaries first.

5.4.1. Syntactic insertion in SCB and English

In this section, we focus on the full form auxiliaries in turn.

5.4.1.1. Full form auxiliaries and English emphatic do

Recall that the third class of lexical items in 4.1 are distinguished by the presence of formal features that are required at LF. The first question that arises then is what in the lexical entry of the SCB full form auxiliary constitutes such a feature?

A characteristic that marks the full form positive auxiliary is that it yields an emphatic assertion to the sentence. Ćavar & Wilder (1994) relate this to one of the uses in modern English of the auxiliary *do*:

(60)a. *John prefers beer*

b. *John does prefer beer*

c. *John doesn't prefer beer*

Does John prefer beer?

Doesn't John prefer beer?

In modern English, presence of the auxiliary *do* in I^0 in (60b) yields an emphatic assertion, in the same way as the SCB full auxiliary in (3a), repeated below as (61a). This contrasts with the non-emphatic uses of *do* in (62c) and the SCB clitic auxiliary in (61b).

(61)a. *Ja jesam student*

I be-1sg. student

'I am a student'

b. *Ja sam student*

I be-1sg. student

'I'm a student'

Recall that in the earliest treatment of the *do* auxiliary, Chomsky distinguished between emphatic and non-emphatic uses of *do* via distinct kernel sentences; the kernel sentence of an emphatic sentence (60b) includes *do*, whereas non-emphatic uses of *do* (60c) introduce the auxiliary following all other syntactic rules (Chomsky 1957:65). We can assume essentially the same account in the SP model by proposing that emphatic *do* is subject to syntactic insertion, and non-emphatic *do* is not. If so, then the SP model requires that there is a feature in the lexical entry of emphatic *do* that triggers syntactic insertion, a position given support by the semantic interpretation (60b) receives. For mnemonic purposes, let us term this feature [+FOCUS]⁹.

(62) *The feature [+FOCUS] in a lexical entry is required at LF*

We class [+FOCUS] as an F_2 feature. It is evidently a closed class feature that is interpretable at LF. In the SP model, this means that the entire feature matrix may be pied-piped by Select.

It is more parsimonious to assume a single entry in the lexicon for emphatic *do* and 'dummy' *do*, therefore let us assume that a single entry includes the feature [+FOCUS] which is *bracketed*. The auxiliary *do* may therefore be selected from the lexicon with or without the feature [+FOCUS]. If selected with the feature, then the feature F_2 appears at LF and the sentence has emphatic assertion. In this case, it is immaterial to the computational system whether the auxiliary undergoes syntactic insertion or phonological lexicalization: it is optional, though this has no further significance for us here.

⁹See Horvath (1986) on FOCUS in grammar.

If *do* is selected without the feature, it undergoes phonological lexicalization, known as ‘*do*-support’¹⁰.

In a sense, we are arguing here that the English auxiliary *do* is both a second *and* third class lexical item, in the typology in (1), section 4.1. If selected with the F_2 feature, it constitutes a third class item. Without F_2 , the auxiliary is semantically null and can be seen as a ‘place-holder’ only, realizing I^0 features at PF.

Now we return to the SCB full form in (61a). The semantic interpretation given (61a) strongly suggests the presence of the same feature [+FOCUS]. Let us assume the lexical entry of the full form stem (i.e., without closed class agreement morphology) includes this feature.

(63) *je*⁻¹¹, [+V,-N], [+FOCUS]

The auxiliary in (63) therefore contributes to LF, and like emphatic *do*, optionally has its phonological features introduced into the computational system. In terms of feature checking, it behaves syntactically like open class V; (59b) indicates that it raises to I^0 to check strong [V] features in I^0 (=T⁰ in Chomsky 1995: chapter 4), and it hosts inflectional morphology. The auxiliary exhibits no idiosyncratic phonological properties, hence like open class items it may appear in sentence-initial position (59c), and can bear stress (59d). (59e) recalls the fact that this full form does not appear in a phonologically defined ‘second position’. There is, of course, nothing in the Principles and Parameters Theory that would lead us to expect this to be otherwise. Rather, the burden of explanation falls on the characterization of the clitic auxiliary that *is* able to appear in such positions; this is discussed in the next section.

There remains one further characteristic (59f), the fact that the full form auxiliary is able to license a movement trace:

¹⁰See Chomsky (1967) on the psychological reality of bracketing (‘parentheses’).

¹¹Traditional grammarians assume the stem is *jes-*, arrived at by taking the 1st plural form and removing the inflectional morpheme *-mo*. I retain the stem *je-* for continuity with other generative accounts; no issue turns on this choice here.

- (64) [*Pio* *vina*]_i *jesam* *t_i*
 drink-ppl. wine be-1sg.
 'I *have* drunk wine'

The full form auxiliary is able to license the movement trace in (64). This is predicted by our SP model on account of the fact that the full feature matrix of the auxiliary appears in the syntax, and hence is present at the relevant level for PF head licensing (see section 4.4).

Let us briefly turn to the full form of the modal *htjeti* 'will' whose paradigm we saw in (2). Recall that this form also yields an emphatic assertion in (3), repeated here as (65).

- (65)a. *Ja hoću* *čitati knjigu*
 I will-1sg.[+FOCUS] read-inf. book
 'I WILL read the book'
- b. *Čita -ću knjigu*
 read-inf. will-1sg. book
 'I'll read the book'

Given our analysis above, this suggests the full form modal auxiliary is also marked for emphatic assertion in the lexicon:

- (66) *hoć*¹², [+V,-N], [+FOCUS]

The analysis is therefore identical to that of (63) and the characteristics in (59) then follow in the same way.

¹²Traditional grammarians claim the stem is *hoće-*; in our account, it is not clear how this arrives at the 1st singular form *hoću* 'I will' when the inflectional morphemes are inserted at PF.

5.4.1.2. *The negative full form auxiliaries*

The negative full forms pattern in the same way with respect to the characteristics in (59). However, there is an issue here of whether this negative auxiliary results from lexical or syntactic rules.

Wilder & Ćavar (1994:3.2) assume a functional head ('Assertion') that the stems *ni-* and *je-* appear in and to which the clitic auxiliary adjoins (see Laka 1990). Mišeska Tomić (1996) also assumes the negative auxiliary results from cliticization of the weak form to the negative particle in the syntax. In both these accounts, negation is a head to which both the clitic auxiliary and lexical verbs attach (*čitam* 'I read' *ne-čitam* 'I don't read').

If this is true, we find that in the 3rd singular form, *nije* 'not is' in (69b) below, the usually rigid order found in the clitic cluster is violated. The 3rd singular form *je* 'is' in all other cases appears as the final element in the clitic cluster, following all pronominal clitics, as in (67a).

(67)a. *Da li mi ga je dao?*

that Q. 1sg.Dat. 3sg.Acc. be-3sg. give-ppl.

'Did he give it to me?'

b. *Nije mi ga dao*

neg.be-3sg. 1sg.Dat. 3sg.Acc. give-ppl.

'He didn't give it to me'

(Mišeska Tomić 1996:844)

If one assumes that the underlined *je* in (a) and (b) are identical, as these authors do, then in (b) the *je* precedes the entire clitic cluster. This is the only context in which this occurs and therefore raises questions about the nature of the clitic cluster that these authors do not address.

Secondly, recall that the full negative form appears in a different position to the clitic cluster:

(68) *On tvrđi da mu Ivan i Marija nisu pisali*

He claim-3sg. that him.Dat. I. and M. not.be-3pl. write-ppl.

'He claims that I.& M. didn't write to him.'

The clitic cluster is represented by the pronominal clitic *mu* 'him', immediately following C⁰. The full form negative auxiliary appears lower down between the subject and participle.

The distribution of the clitic auxiliary, then, differs just in the case where AssertionP (with negation) is present. Nothing in the above accounts of the clitic cluster and the clitic auxiliary have anything revealing to say about this.

Also, this syntactic adjunction account predicts the ungrammaticality of, say, *jesam* adjoining to negation **nijasam* (Wilder & Cavar 1994:23), because *je-* and *ni-* are generated in the same position. However, we have seen that precisely this form is attested in Montenegrin and some dialects of SCB (see fn.3). Notice that such an account wrongly predicts a 3rd person singular form **jeje* for the declarative full form.

Finally, observe that the morphology of the negative particle *ne* that is proclitic on a lexical verb (*ne-čitam* 'I don't read') is distinct from the negative stem *ni-* in the negative auxiliary (*ni-sam* 'I am not'). This is not predicted in the above account either.

Instead, we assert that *ni-* and *ne-* are two distinct morphemes. The stem *ni-* is a [+V,-N] category in the same way as *je-* in the lexicon, but with the feature [+NEGATION], shown in (69).

(69) *ni-*, [+V,-N], [+NEGATION]

In the lexicon of Standard Montenegrin, the negative auxiliary is rather *nije-* with the paradigm given in fn.1 above.

The inflectional morphemes found on lexical verbs and full form auxiliaries are distinct from the clitic auxiliary: in our account, these are inflectional morphemes inserted at PF, and they are distinct from the clitic

auxiliary we shall treat in the next section. The negative auxiliary does not result from a combination of (69) and the clitic auxiliary.

In the same way as the full declarative auxiliary, the negative auxiliary is a third class lexical item with a feature F_2 that is LF interpretable. In this case, the F_2 feature is [+NEGATION] included in (69). Note that one area of cross-linguistic variation is how such closed class features combine in lexical entries, that is, which feature matrices are listed. We reject the notion that [+NEGATION], for example, should be cross-linguistically realised on the same category (e.g. Neg⁰)¹³.

In the same way, the negative of *htjeti* 'will' is a third class lexical item on account of the feature [+NEGATION], as in (70).

(70) *neć*, [+V,-N], future, [+NEGATION]

It is notable again, however, that if negation were a head position in the clause, we should expect to see the full form co-occur with *ne* 'not'. This prediction is incorrect (**Ne hoću*, **Ne hoće*, **Ne hoćete* etc.). The only possible form of negation with the future auxiliary is the negative form in (70).

5.4.2. Phonological Lexicalization of the clitic form

We have seen ample evidence in earlier sections summarised in table (59) that the clitic form differs markedly from its full form counterpart, both in its morphology, distribution, and prosodic dependency. Radanović-Kocić (1988, 1996) derives the clitic auxiliary from the equivalent full form via the assignment of the [+clitic] diacritic. Wilder & Cavar (1994) construct the full forms in the syntax via adjunction of the clitic auxiliary to an Assertion head that contains what for us is the stem of the full form.

The significant question for their account raised in the previous section is why the clitic auxiliary does not appear as a member of the clitic cluster in the presence of AssertionP. Cross-linguistically, we are also led to wonder why a

¹³ See Ernst (1992) against a uniform NegP analysis of negation cross-linguistically.

language like Bulgarian, as we shall see in chapter 6, has no ‘full form’ auxiliaries that differ in this way from the clitic auxiliary. For Wilder & Cavar, the difference presumably lies in the presence of the functional head Assertion. In the SP account, the difference lies in the lexicon: the distinctions in (59) stem from the fact that we are dealing with distinct lexical entries.

As noted above, the full and clitic forms differ in the interpretation they yield: the clitic form carries no emphasis in (61b). If it is the presence of the feature [+FOCUS] in the lexical entry of the full declarative form (63) that triggers syntactic insertion, then the SP model predicts that the clitic auxiliary form is phonologically lexicalized, for it lacks both the feature [+FOCUS] and any other semantic feature.

We have seen in chapter 2 and section 3.2 that suppletive morphology and prosodic dependency are typical of closed class, phonologically lexicalized items. Hence the lack of a stem and regular inflectional morphology on the clitic auxiliary (59a) and its inability to bear stress (59d) are unsurprising.

In section 4.4, it was established that absence of the full feature matrix from the syntax prevents a lexical item from formally licensing a movement trace prior to the level of phonological lexicalization. This therefore predicts that the clitic auxiliary is unable to license the trace of a VP, as we have seen (59f).

Next, let us consider the distribution of the clitic auxiliary. First we shall address the auxiliary position when it is preceded by the complementizer in (71a) or a syntactic constituent in (71b).

(71)a. *Nedžad tvrdi da su Ivan i Marija čitali knjigu*

N. claims that be-3pl. I. and M. read-ppl. book

‘Nedžad claims that Ivan and Maria were reading the book’

b. *Lav Tolstoj je veliki ruski pisac*

L. T. be-3sg. great Russian writer

‘Leo Tolstoy is a great Russian writer’

Let us assume the syntactic analysis of these constructions by authors cited in section 5.3 is along the right lines. That is, in (a), the clitic auxiliary is right-adjoined to C^0 , and in (b), the syntactic constituent *Lav Tolstoj* has moved into a position higher than the clitic auxiliary.

Rather than stipulate a categorial position for the auxiliary, however, the generalization we shall pursue is that the auxiliary appears right-adjoined to the highest head in the extended projection¹⁴.

(72) *The SCB clitic auxiliary appears on the highest head in the extended projection*

This descriptive generalization captures the fact that the auxiliary appears in C^0 in examples such as (71a), but may appear lower than C^0 in the evidence given in Bošković (1995). That is, if only an IP is projected, the auxiliary appears right adjoined to I^0 . In (71b), the subject *Lav Tolstoj* has moved across the auxiliary, but in the absence of any evidence to the contrary, we need not stipulate a full CP. The auxiliary is in I^0 , and the subject has raised to specIP¹⁵.

Note that if (72) is a more accurate generalization of the auxiliary, this causes serious problems for exponents of a purely syntactic account, such as Franks (1998). If movement is triggered by feature checking, what feature can it be that allows such variability?

In the SP model, such a difficulty does not arise because the auxiliary is not lexicalized in the syntax, but at PF. In (72) then, we are describing the default position for phonological lexicalization.

The next question is why 'the highest head'? In our model, this follows from the nature of the phonological lexicalization mechanism described in section 4.5. Recall that phonological lexicalization occurs bottom-up, targeting each extended projection at a time. For the vast majority of 'late inserted' lexical items, further information in the lexical entry determines which positions

¹⁴ This descriptive generalization has also been arrived at in Franks (1998).

¹⁵ Notice that, by nature of the fact that SCB is a *pro*-drop language, the subject carries additional emphasis by virtue of being overt. This emphasis need not be taken as indicative of movement to specCP.

they are inserted into via matching of features. For the SCB clitic auxiliaries, however, there appears to be no such specification for insertion context.

Given that we have adopted Collins' (1997) position that economy is a feature of the system generally, and not restricted to Attract, we propose that the phonological lexicalization mechanism is subject to economy. It is 'cheaper' for insertion to occur as late as possible as the mechanism works its way up the extended projection. Unspecified items such as the SCB clitic form of the auxiliary are hence inserted in the last head position available. In section 8.4.1, we present further evidence and arguments to support (72) and in section 9.4.1 we derive the underspecification of the SCB clitic auxiliaries from our version of Emonds' 'Alternative Realization' mechanism (section 7.4). For now, however, let us move on to the issue of the phonologically defined second position (2P) of the clitic auxiliary.

Data such as (73) has led us to conclude that there is some form of last resort mechanism that allows the clitic auxiliaries to appear following the first phonological word rather than appear in sentence-initial position.

(73)a. *Na veoma si se lepom mestu smestio*

on very be-2sg. refl. nice place placed-ppl.

'You've placed yourself in a very nice place'

b. *U ovu je veliku sobu Jovan ušao*

in this be-3sg. big room J. enter-ppl.

'Jovan entered this big room'

c. *??U ovu je veliku Jovan ušao sobu*

into this be-3sg. big J. enter-ppl. room

'Jovan entered this big room'

d. *Odgovorio je na njihovo pitanje*

answered-ppl. be-3sg. on their question

'He answered their question'

In (a) and (b), the remnant topicalization argument is unable to account for what appears to be scrambling of an AP out of the PP prior to topicalization, a movement that we independently saw is unavailable. In (c), remnant topicalization has apparently taken place following scrambling of the noun *sobu* 'room', yet the remainder of the PP is still split by the auxiliary. In the so-called 'long head movement' construction in (d), we assume no unique participle movement has occurred: in the absence of any evidence for a full CP, we assume only IP is projected, and for our purposes here, assume the participle is simply in its base VP. In each example in (73), the auxiliary follows the first phonological word.

As we have seen above, *all accounts must capture the restriction on first position in some way*. Let us assume that this restriction is included in the lexical entry of the auxiliary. However, given that the auxiliary is subject to phonological lexicalization, we can characterise this as a restriction on the context of lexicalization only. The restriction on appearing in first position in the clause may therefore be seen as not simply an idiosyncratic phonological restriction, but a direct reflection of phonological lexicalization. For example, the lexical entry for *je* 'is' includes at least the information in (74).

(74) *je*, 3rd pers. sing., [-PAST], +X_____

That is, the auxiliary cannot be inserted into sentence-initial position, or immediately following a prosodic break.

Now let us return to the data in (73). First, assume Franks' (1998) analysis that the PP in each case has scrambled to an adjoined position preceding VP. (In the case of (73c), such PP movement follows the prior scrambling of the noun *sobu* 'room'.) In the model we have established, the clitic auxiliary is introduced via phonological lexicalization into the highest

head position available. In none of the examples in (73) is there a full CP projected. Assuming no more structure than we have evidence for, we assume the auxiliary is to be lexicalized in I^0 . However, if the auxiliary is adjoined to I^0 , then the lexicalization restriction in (74) is violated. Consequently, insertion takes place following the first phonological word.

This analysis is similar to that of the Prosodic Inversion, though they assume a slightly different syntactic output in which a full CP or CleftP is projected for theory internal reasons. However, let us now turn to the data from Ćavar & Wilder (1993) that PI could not account for.

(75)a *Imaš mnogo vremena [čitati ga]*

have-2sg. much time read-inf. 3sg.Acc.

'You have much time to read it'

b. *Ivan je vidio auto i [kupio ga je]*

I. be-3sg. see-ppl. car and buy-ppl. 3sg.Acc. be-3sg.

'Ivan saw the car and bought it'

In neither example is there a prosodic break that could trigger the 'second position' effect for the clitic cluster within the bracketed constituent. However, in the SP definition of extended projections, the bracketed constituent is an extended projection of *čitati* 'to read' in (a) and *kupio* 'bought' in (b). Again, there is no evidence to suggest that these extended projections are syntactically CPs, hence we shall assume the minimal structure of an IP, non-finite in (a) and finite in (b). Furthermore, we do not assume any unorthodox non-finite verb raising, but rather that both lexical verbs remain in VP.

Recall now that the minimal requirement on phonological lexicalization is that closed class items be lexicalized within a relevant extended projection. This means that the lexicalization restriction such as in (74), which all members of the clitic cluster have in common, must be satisfied within the extended projection. Insertion in I^0 in either example in (75) will violate the lexicalization restriction: the clitic in each case will not have a host within the extended

projection. Hence, a last resort post-syntactic insertion takes place following the first phonological word. In (a) and (b), this is the non-finite verb.

So far, we have considered cases where the clitic auxiliary appears in first position in the extended projection. In (73), this was because I^0 is sentence-initial, and in (74), because I^0 is the first position in the extended projection. Next, we turn to data that the purely syntactic analysis cannot account for, in which the auxiliary in question is neither in sentence-initial position, nor arguably in the first position of the extended projection.

(76)a. *Ja, tvoja mama, obećala sam ti igračku*

I your mum promise-ppl. be-1sg. 2sg.Dat. toy

'I, your mum, promised you a toy'

b. *Moja sestra, koja je u Sarajevu, sjeća vas se*

my sister who be-3sg. in Sarajevo remember-3sg. 2pl.Acc. refl.

'My sister, who is in Sarajevo, remembers you'

Assume again that both examples are IP, given the absence of any evidence that a full CP is projected. In both examples, the second position has been triggered by a prosodic break following the subject in specIP, a prosodic break triggered by the presence of the appositive modifier in (a) and the non-restrictive relative clause in (b). The highest head position available for the clitic cluster is I^0 . Again, the lexicalization mechanism is unable to adjoin the clitic cluster to this head position because it immediately follows a prosodic break, hence preventing the auxiliary from having a host. Insertion is therefore following the first adjacent word.

Notice that in (76b), the example does not deal with an auxiliary but pronominal clitics. Evidently insertion of the clitic cluster is into the highest head position, whether or not this cluster includes the clitic auxiliary. We shall return to the reasons for this in 9.2.

Finally, consider again the example in (77).

(77) *Lav je Tolstoj veliki ruski pisac*

L. be-3sg. T. great Russian writer

'Leo Tolstoy is a great writer'

Franks (1998) and Bošković (1997) have suggested that the first and second names are distinct syntactic objects that may undergo remnant topicalization. An important topic for future research will be to determine just how feasible an analysis this is. However, our account of the 2P position given here does not preclude the possibility that some examples of the 2P position result from remnant topicalization. Alternatively, the SP analysis of (77) assumes an IP, with the subject DP scrambled to a position preceding VP but lower than specIP. The auxiliary is inserted following *Lav* in order to avoid insertion into a host-less head position.

A construction that we have not addressed yet is the double participle periphrastic tense in (15e-g). We shall consider this along with the past tense form of the auxiliary in section 6.3.2.

5.6 Summary and conclusions: SCB 'clitic auxiliaries' are not auxiliary

verbs

The purpose of this chapter has been to derive the differences between full and clitic auxiliaries in SCB from the manner in which the full and clitic forms are lexicalized. We have also given further substance to the minimalist account of the late-inserted English auxiliary *do*, deriving the emphatic form from the same lexical entry.

We have argued that the full form auxiliaries *jesam* 'am', *nisam* 'not am', *hoću* 'will' and *neću* 'not will' contain in their lexical entries a feature that is required at LF in the SP model. The feature [+FOCUS] appears in the entries for *jesam*, *hoću*, and also in the emphatic English auxiliary *do*. This feature yields an emphatic assertion reading at LF. The feature [+NEGATION] appears in the lexical entry for *nisam* and *neću* and is similarly required at LF. Consequently, these auxiliaries are members of the third class of lexical items in the typology in (1) of section 4.1. They are optionally lexicalized into the

syntax: the full feature matrix, including phonological material, may be taken from the numeration by Select for computation. In the same way as open class lexical verbs, each of these full form auxiliaries raises to I^0 by Spell-out, and is able to formally license a movement trace, when the full feature matrix is present in the syntax. Note that for English emphatic *do*, the feature [+FOCUS] is bracketed in the lexicon; a single lexical entry for 'dummy' *do* and emphatic *do* is clearly more parsimonious.

One point has been glossed over in the text. This is the fact that third class items only optionally have their phonological features introduced into the syntax. In terms of the data we have addressed so far, the fact that SCB full form auxiliaries may be lexicalized in one of two ways has not been observable. It follows, however, that in each case of the full form licensing a movement trace, the full form must have been fully lexicalized into the syntax.

The clitic auxiliary forms *sam* 'am' and *cu* 'will' contain no purely semantic features required at LF: they represent closed class ϕ - and Tense features which are 'hard-wired' into the system. Through economy, the phonological features remain in the numeration and are lexicalized at PF. These clitic forms are unspecified for a major class feature [V] or [N], hence are lexicalized by default on the highest head in the extended projection. Hence, in a CP, a clitic auxiliary appears in C^0 , and in IP, a clitic auxiliary appears in I^0 .

The clitic auxiliary's requirement of a host to its left, the suppletive morphology in 3rd singular [-PAST] form, and the inability to carry stress are each an epiphenomenon of the phonological lexicalization of these morphemes. The enclitic status of the auxiliary, in particular, ensures that it is right-adjoined to the highest head position. Furthermore, if the highest head position does not provide a phonological host for the auxiliary, then phonological lexicalization inserts the auxiliary following the first adjacent phonological word on the right. Phonological lexicalization occurs following the PF level at which traces are formally licensed (Aoun *et al.* 1987). Consequently, the clitic auxiliary is unable to formally license a VP trace.

The assertion that the SCB clitic auxiliaries are unspecified for a major class feature [V] or [N] is equivalent to stating that these auxiliaries are not, in

fact, auxiliary verbs. The term ‘clitic auxiliary’ used throughout this chapter is therefore misleading; we have employed it as a mnemonic merely to avoid confusion in our discussion of the literature. In the SP model, both *sam* ‘am’ and *ču* ‘will’ are closed class morphemes realizing ϕ - and Tense features in I^0 . In Emonds’ model, they are formally equivalent to inflectional morphemes that appear on finite lexical verb stems. They differ from inflectional morphology on account of the context in which they are lexicalized: inflectional morphology on a verbal stem is evidently +V_____ in its contextual restriction, whereas the SCB ‘clitic auxiliaries’ are +X_____. As we have seen, it is the nature of the phonological lexicalization mechanism and economy that prescribes X to be the highest head in the extended projection.

This account raises two important questions that will be addressed in chapter 9, once we have considered the clitic cluster as a whole.

- (i) What is the independently motivated mechanism that allows I^0 features to be realized in positions other than I^0 ?

- (ii) Given that the ‘clitic auxiliary’ is only one item in the clitic cluster, what significance does this characterization of the SCB ‘clitic auxiliary’ have for the clitic cluster as a whole?

Our response to (i) will be the mechanism of ‘Alternative Realization’ presented in section 7.4 and revised in 9.3. Regarding (ii), we shall argue that the nature of the clitic auxiliary defines the placement of the clitic cluster as a whole. Before addressing the issue of the whole clitic cluster, we turn to the Bulgarian clitic auxiliary in the next chapter. In teasing apart its similarities to, and differences from, the SCB auxiliaries, we shall find confirming evidence for the analysis argued for in this chapter. Interestingly, we shall see that many of the differences between SCB and Bulgarian with respect to clitic auxiliary placement derive from just this lack of categorial specification for the SCB auxiliaries.

6. The Bulgarian clitic auxiliary and the feature [+PAST]

6.1. Introduction

In this chapter we focus on the Bulgarian auxiliary *sâm* 'am' and the significance of the feature [+PAST] in both Bulgarian and SCB auxiliaries. We find that the clitic auxiliary in the present tense [-PAST] provides confirming evidence in favour of the phonological lexicalization of clitic auxiliaries. The Bulgarian [-PAST] auxiliary is unable to license a movement trace and is subject to similar language-specific phonological idiosyncrasies as the SCB clitic auxiliaries: it cannot appear in first position, is clitic on a host, generally does not bear stress and under 'last resort' conditions, may break up a constituent by following the first phonological word. Confirming evidence that remnant topicalization is not a viable analysis to the second position data is found in the fact that 'discontinuous' constituents are not so common in Bulgarian as in SCB.

However, the Bulgarian auxiliary differs from the SCB clitic auxiliaries by never appearing as high as C^0 . We shall conclude it appears in the highest [+V] head available, namely I^0 . Furthermore, the Bulgarian auxiliary is more restricted in terms of last resort phonological lexicalization following the first phonological word: the Bulgarian auxiliary may only appear in second position breaking up a constituent specified as [+V], that is, VP or AP. We relate this to the feature specification of the auxiliary.

A further distinction is drawn between the [-PAST] and [+PAST] forms of the Bulgarian auxiliary in terms of distribution and prosodic properties. In the SP model, the [+PAST] form is a closed class feature required at LF, hence its presence in a lexical entry makes it optionally subject to deep or phonological lexicalization.

Section 6.2 presents the data on which we shall focus in this chapter. The distinctions between the [-PAST] and [+PAST] forms are reviewed and restrictions on constituent splitting by the auxiliary are noted. Section 6.3 returns to the syntactic accounts of second position phenomena in the previous chapter and considers some further problems they encounter with Bulgarian

data. Section 6.4 demonstrates that a Prosodic Inversion account is equally unsatisfactory in accounting for the Bulgarian data. Section 6.5. presents the Semi-postlexicalist account of the Bulgarian auxiliary. This is followed up in section 6.6 with discussion of the distinction in feature specification between the SCB and Bulgarian clitic auxiliaries and the distributional differences this leads to.

6.2. The Bulgarian clitic auxiliary

In (1), the [-PAST] form of the Bulgarian auxiliary *sâm* 'am' has suppletive morphology, seen clearly by comparing its morphology with the inflectional paradigm of the adjacent lexical verb *iskam* 'want'. In contrast, the finite [+PAST] and past participle forms exhibit a stem *b-* and carry the regular inflections, identical to those of the lexical verb.

(1) The clitic form of *buda* 'be' compared to the lexical verb *iskam* 'want':

		clitic auxiliary	<i>iskam</i>		clitic auxiliary	<i>iskam</i>
[-PAST]:	1sg.	<i>sâm</i>	<i>iskam</i>	1pl.	<i>sme</i>	<i>iskame</i>
	2sg.	<i>si</i>	<i>iskaš</i>	2pl.	<i>ste</i>	<i>iskate</i>
	3sg.	<i>e</i>	<i>iska</i>	3pl.	<i>si</i>	<i>iskat</i>

[+PAST]:	1sg.	<i>bjah</i>	<i>iskah</i>	1pl.	<i>bjahme</i>	<i>iskahme</i>
	2sg.	<i>bih</i>	<i>iskaše</i>	2pl.	<i>bjajte</i>	<i>iskahte</i>
	3sg.	<i>beše</i>	<i>iskaše</i>	3pl.	<i>bjaha</i>	<i>iskaha</i>

past participle:	masc.sg.	<i>bil</i>	<i>iskal</i>	pl.	<i>bili</i>	<i>iskali</i>
	fem.sg.	<i>bila</i>	<i>iskala</i>			
	neut.sg.	<i>bito</i>	<i>iskalo</i>			

The auxiliary appears as a copula in (2a) or as the auxiliary verb in a periphrastic tense (2b).

(2)a. ...*če az sâm/bjax mnogo dovolen*
 that I be-1sg.[-/ + PAST] very glad-m.sg.
 '...that I am/was very glad'

b. ...*če toj {e / beše} odgovoril na vâprosa im*
 that he be-3sg.[+/- PAST] answered to question their
 '...that he has/had answered their question'

In both examples, the auxiliary follows both the complementizer and the subject. We shall assume here that both auxiliaries in (a,b) are in I⁰.

More complex periphrastic tenses are as follows. The [-PAST] form may appear in a periphrastic tense following the future modal *šte* 'will' (3a) while the [+PAST] form cannot in (3b).

(3)a. *Šte sâm pročel knjigata*
 will be-1sg.[- PAST] read-ppl. book-the
 'I will have read the book'

b. **Šte bjax pročel knjigata*
 will be-1sg.[+ PAST] read-ppl. book-the

Unlike the SCB future modal, Bulgarian *šte* 'will' has only one form that does not conjugate. It is proclitic on a tensed verb and may appear in first position. Henceforth, we shall refer to the modal auxiliary only insofar as it concerns our discussion of the auxiliary *sâm*¹.

A complex periphrastic tense involving two participles in SCB is also found in Bulgarian (4c-e).

¹ In fact, a [+PAST] form of *šte* 'will' does conjugate regularly for person and number, but has a markedly different syntactic distribution to the [-PAST] form, taking a finite clause complement headed by the quasi-complementizer *da*: e.g. *štjax [da znaja]* 'I would have known'. See Caink (1993) for discussion.

(4)a. *Toj e bil pročel knjigata*

he be-3sg. be-ppl. read-ppl. book-the

b. *Bil e pročel knjigata*

c. *Pročel e bil knjigata*

'(According to someone) he had read the book'

In this double participle construction, either participle may appear in first position, just as in the similar construction in SCB.

Unlike the equivalent SCB auxiliary *jesam/sam* 'am', the Bulgarian auxiliary has only a clitic form in the present. This form in both tenses appears in the Bulgarian 'clitic cluster' along with pronominal clitics:

(5)a. *Az [sâm mu ja] bil dal knjigata*

I be-1sg. 3sg.Dat. 3sg.Acc. be-ppl. give-ppl. book-the

'I had given the book to him'

b. *Toj [mu ja e] bil dal knjigata*

he 3sg.Dat. 3sg.Acc. be-3sg. be-ppl. give-ppl. book-the

'He had given the book to him'

All person-number conjugations appear in the initial position of the cluster as in (5a) except for the 3rd singular, which appears in final position, as in (5b). Despite the fact that Bulgarian is a discourse configurational language allowing a wide variety of word orders in the clause², the order of morphemes within the clitic cluster is rigid.

² See Rudin (1986; 1995) on focus and topic positions above IP in Bulgarian.

6.2.1. Differences between present and past tense forms

In this section we present data showing that the [-PAST] form *sâm* 'am' and the [+PAST] form *bjax* 'was' are in fact highly distinct in their distribution and prosody, reflecting the morphological distinction displayed in (1). We shall see that the [-PAST] form mirrors the SCB clitic auxiliary in all characteristics except its position in the clause.

First, note that the tense forms differ in their ability to appear in sentence-initial position in (6). Both forms may appear in an embedded context following the complementizer *če* 'that' in (6b,d), but only the [+PAST] can appear in first position in a matrix clause in (6c).

(6)a. **Sâm* *tvurde dovolen*

be-1sg.[- PAST] quite glad

'I am quite glad'

b. *Mislja* *če e* *tvurde dovolen*

think-1sg. that be-3sg. quite glad

'I think that he is quite glad'

c. *Bjah* *tvurde dovolen*

be-1sg.[+ PAST] quite glad

'I was quite glad'

d. *Mislja* *če beše* *tvurde dovolen*

think-1sg. that be-3sg. quite glad

'I think that he was quite glad'

Interestingly, the [-PAST] form *can* appear in first position if it is given strong stress.

(7) *Si li napisal trideset knigi, ili ne si?*

be-2sg. Q. write-ppl. thirty books, or not be-2sg.

'Have you written thirty books or not?'

(Hauge 1976; Embick & Izvorski 1995)

This is a significant problem for accounts that employ a [*sentence-initial] restriction or [+clitic] diacritic on the auxiliary to trigger second position effects, either via syntactic or phonological movement. We shall return to this issue below.

Continuing with the differences between the tense forms, data in Krapova (1995) shows that the [-PAST] auxiliary prefers to be adjacent to the participle in periphrastic tenses, unlike the [+PAST] form.

(8)a. *Ivana e (*nabârzo) pročela knigite*

I. be-3sg.[-PAST] quickly read-ppl. books-the

'Ivana has quickly read the books'

b. *Ivana beše nabârzo pročela knigite*

I. be-3sg.[+PAST] quickly read-ppl. books-the

'Ivana had quickly read the books'

c. *Studentite sa (*vsički) pročeli knigite*

students be-3pl.[-PAST] all read-ppl. books-the

'The students have all read the books'

d. *Studentite bjaxa vsički pročeli knigite*

students be-3pl.[+PAST] all read-ppl. books-the

'The students had all read the books'

The adverb *nabârzo* 'quickly' and quantifier *vsički* 'all' may intervene between the [+PAST] auxiliary and the participle, but not between the [-PAST] auxiliary

and the participle. However, some adverbs can intervene between the [-PAST] form and the participle:

(9) *Ivana ne e ošte napisala domašnoto si*

I. neg. be-3sg.[- PAST] still write-ppl. homework-the her

'Ivana has not yet finished her homework'

(Krapova 1995)

The presence of *ošte* 'still' intervenes between the auxiliary and the participle³.

We saw in the previous chapter that the SCB clitic auxiliary appears in the 2P position as a last resort, to avoid appearing in sentence-initial position. Interestingly, although the Bulgarian [+PAST] form *can* appear in sentence-initial position in (6c), *both* forms may also appear following an adjective or a specAP:

(10) *Following A⁰*:

a. *Dovolen sâm*

glad be-1sg.[- PAST]

b. *Dovolen bjah*

glad be-1sg.[+ PAST]

'I am/was glad'

Following specAP:

c. *Tvurde sâm dovolen*

quite be-1sg.[- PAST] glad

d. *Tvurde bjah dovolen*

quite be-1sg.[+ PAST] glad

'I am/was quite glad'

In each case, we see both tense forms follow a single phonological word. In (10c,d) they are clearly intervening within an AP constituent.

³ I.Derzhanski (pers.comm.) informs me that (9) is archaic.

Both present and past copulas may follow a non-finite V^0 in a periphrastic tense, the construction termed 'long head movement' in Lema & Rivero (1989) and Roberts (1994).

- (11)a. **E* *otgovoril* *na vâprosa im*
 be-3sg.[- PAST] answered-ppl. to question their
- b. *Otgovoril* *e* *na vâprosa im*
 answered-ppl. be-3sg.[- PAST] to question their
 'He answered their question'
- c. *Beše* *otgovoril* *na vâprosa im*
 be-3sg.[+ PAST] answered-ppl. to question their
- d. *Otgovoril* *beše* *na vâprosa im*
 answered-ppl. be-3sg.[+ PAST] to question their
 'He had answered their question'

The [-PAST] form obligatorily follows the participle in (11b). The [+PAST] form optionally appears in first position (11c) or follows the participle in (11d).

Evidently, the optionality of (c,d) further undermines an analysis such as that of Roberts (1994) in which the [non-finite V^0 -- auxiliary] word order is triggered by a [*clitic-first] filter (see section 5.3.2.1.)⁴. Prosodic Inversion (Halpern 1995) is equally unable to predict (10b,d) and (11d) unless such phonological movement is in some way divorced from 'clitic-hood'.

As in SCB, initial participle word order is incompatible with any other lexical item preceding the auxiliary:

⁴ Wilder and Cavar (1994) and Cavar & Wilder (1994) also propose that that the [non-finite V^0 -- auxiliary] word order is triggered by the prosodic requirements of the clitic auxiliary (5.3.2.2.). However, their account only addresses SCB and makes no claims for Bulgarian.

- (12)a. **Kude pročel e/beše knjigata?*
 where read-ppl. be-3sg.[-/ +PAST] book-the
 'Where did he read the book?'
- b. **Kakvo pročel e/beše?*
 what read-ppl. be-3sg.[-/ +PAST]
 'What did he read?'
- c. **[Tazi knjiga] pročel e/beše*
 this book read-ppl. be-3sg.[-/ +PAST]
 'It was this book that he read'
- d. **Toj pročel e/beše knjigata*
 he read-ppl. be-3sg.[-/ +PAST] book-the
 'He has/had read the book'
- e. **Ne pročel e/beše knjigata*
 neg. read-ppl. be-3sg.[-/ +PAST] book-the
 'He hasn't/hadn't read the book'
- f. *Pročel *(toj/ne/pravilno/kude) e/beše knjigata?*
 read-ppl. he/neg./correctly/where be-3sg.[-/ +PAST] book-the
- g. **Mislja će pročel e/beše knjigata*
 think-1sg. that read-ppl. be-3sg. book-the
 'I think that he has read the book'

The [non-finite V⁰ -- auxiliary] word order cannot co-occur with a fronted WH-element in (a,b), a topicalized/focused DP in (c,d), or the negative particle (e), and no lexical item may appear between the participle and auxiliary in (f). In (g), the [non-finite V⁰ -- auxiliary] word order is incompatible with an embedded context.

We have seen then that the Bulgarian auxiliary may intervene within a VP or AP constituent, to appear following the first phonological word. In contrast, the auxiliary cannot break up a DP or PP in the same way. First, let us consider data with a PP.

- (13)a. *V тази голема стая е влязел*
 in this big room be-3sg. entered
 ‘In this big room he entered’
- b. **V тази голема е стая влязел*
- c. **V тази е голема стая влязел*
- d. **V е тази голема стая влязел*
- e. *V тази стая е Иван*
 in this room be-3sg. I.
 ‘Ivan is in this room’
- f. **V тази е стая*
 ‘He’s in THIS room’

In (a) and (e), the PP has fronted across the auxiliary and participle. Examples (b)-(d) indicate that the auxiliary cannot intervene in any of the positions within the PP. (f) demonstrates the same restriction in a copula construction. This clearly indicates that a phonological movement account such as Prosodic Inversion (Halpern 1995) is not a viable solution here either.

Next consider data with DPs. Note that the constructions are again similar to those in which constituent splitting *may* take place in SCB.

- (14)a. *Lav Tolstoj e golempi pisatel*
 L. T. be-3sg. great writer
 ‘Leo Tolstoy is a great writer’
- b. **Lav e Tolstoj golempi pisatel*

c. *Hubav čovek e*

pleasant guy be-3sg.

'He's a pleasant guy'

d. **Hubav e čovek*

In (14b) the auxiliary cannot intervene between a first and second name. In (14d), the auxiliary is similarly restricted from appearing between the modifying adjective and noun with the gloss given⁵.

This, then, is a significant difference between the SCB and Bulgaria clitic auxiliaries which we shall return to throughout this chapter: whilst SCB clitic auxiliaries can intervene as a last resort within any constituent, the Bulgarian auxiliary can do so only within constituents specified as [+V].

A final difference between the tense forms we shall focus on here is that of trace licensing. The [-PAST] form cannot license a AP trace (15a,b) or a VP trace (15e), while some speakers suggest the [+PAST] form can do so (15c,f).

(15)a. *?[Poči dovolen] sâm*

quite glad be-1sg.[- PAST]

'I'm quite glad'

b. *?Mislja će poči dovolen e*

think-1sg. that quite glad be-3sg.[- PAST]

'I think that he's quite glad'

c. *?[Poči dovolen] bjah*

quite glad be-1sg. [+ PAST]

'I was quite glad'

d. *?Mislja će poči dovolen beše*

think-1sg. that quite glad be-3sg.[+ PAST]

'I think that he was quite glad'

⁵ Example (14d) is possible as an existential sentence 'Pleasant is a man (...who likes animals), in which case no constituent splitting occurs.

- e. **[pročel knigata]_i e t_i*
 read-ppl. book-the be-3sg.[- PAST]
 'I have *read the book*'
- f. **[procel knigata]_i beše t_i*
 read-ppl. book-the be-3sg.[+ PAST]
 'I had *read the book*'

In (15a-d), the auxiliary is unable to clearly license the trace of an AP. In (15e,f), the auxiliary cannot license the trace of a VP, (15e) being particularly bad.

However, in copula sentences, we find that the trace of a topicalized PP can be licensed.

- (16)a. *[V tazi staj] e*
 in this room be-3sg. I.
 'he's in this room'
- b. *[Na masata s tri kraka] e*
 on table with three legs be-3sg.
 'It's on the three-legged table'
- c. *[Hubav čovek] e*
 pleasant guy be-3sg.
 'He's a pleasant guy'

The 'second positions' for the Bulgarian auxiliary, both 2S and 2P, therefore turn on whether or not the constituent being split or moved is specified [+V]. This is a significant difference from the SCB clitic auxiliaries. It also indicates that a simple phonological movement account of the 2P data is not viable, as such a proposal cannot distinguish between categorial specifications. For Bulgarian, we shall relate the licensing of a movement trace of [-V]

constituents, and the restriction on 2P position to [+V] constituents, to the categorial specification [+V] of the clitic auxiliary.

6.2.2. Summary and conclusions: the significance of [+V] constituents

The Bulgarian distinctions in the copula are summarised in the following table.

(17)

Bulgarian auxiliary	[+PAST]	[-PAST]
(a) has a regular inflectional paradigm	✓	✗
(b) bears stress/emphasis	✓	✗
(c) can appear in sentence-initial position	✓	✗
(d) licenses the movement trace of AP, VP	✓	✗
(e) can appear in '2 nd position' in a [+V] constituent:	✓	✓

Recall that generally the [-PAST] form cannot bear stress or appear in sentence-initial position, as indicated. However, we saw in (7) that that this form *can* appear in sentence-initial position if and only if it bears stress.

We have also seen as an auxiliary, the copula may intervene within a constituent specified for [+V], AP or VP, in the same way as SCB clitic auxiliaries. However, unlike SCB, the Bulgarian auxiliary cannot intervene within constituents specified for [-V]; DP and PP. Furthermore, the auxiliary cannot license the trace of a [+V] constituent, but can apparently license the trace of a [-V] constituent, namely a DP and PP.

Finally, in contrast to the SCB auxiliaries, we saw in (2b) that the Bulgarian auxiliary does not appear as high as C⁰, but rather appears in I⁰. To adopt the terms used in the previous chapter, we can couch this generalization in terms of (18).

(18) *The Bulgarian auxiliary appears in the highest [+V] head available*

Notice that (18) differs from the generalization for SCB auxiliaries repeated here only by the additional specification of [+V]:

(19) *The SCB clitic auxiliary appears on the highest head in the extended projection*

In the next section, we consider how successful the purely syntactic accounts of the strict Wackernagel position are with respect to Bulgarian data.

6.3. *Second position again: further problems for syntax*

We saw in the previous section that Bulgarian displays examples of the last resort second position, in which the auxiliary follows the first phonological word. In section 5.3, we saw a number of attempts to account for such data in SCB via syntactic movement across the auxiliary. In this section, we briefly revisit these approaches and see that they are no more successful in accounting for the Bulgarian data.

6.3.1. *No discontinuous constituents*

The cornerstone of a purely syntactic analysis of the SCB second position data (other than the ‘long head movement’ construction) is the fact that constituents in SCB may be split by material other than the clitic cluster. In contemporary Bulgarian, however, discontinuous constituents are not so widely available. Consider the Bulgarian equivalents to some of the SCB examples discussed in the last chapter.

(20)a. *Kupi Ivan [zelena kola]*

bought-3sg. I. green car

‘Ivan bought a green car’

b. *[Zelena kola] kupi Ivan*

c. **Zelena kupi (Ivan) kola*

d. *Ivan blusna [tatkovata kola]*

I. crashed father's car

'Ivan crashed his father's car'

e. [*Tatkovata kola*] *blusna Ivan*

f. **Tatkovata blusna (Ivan) kola*

g. [*Ivanovata sestra*] *idva*

I.'s sister come-3sg.

'Ivan's sister is coming'

h. **Ivanovata idva sestra*

i. *Ivan vlezī [v tazi golama staj]*

I. came-3sg. in this big room

'Ivan came into this big room'

j. [*V tazi golama staj*] *vlezī (Ivan)*

k. **V tazi golama vlezī staj*

l. **V tazi vlezī golama staj*

In (20), the following constituents cannot be discontinuous: the DP *zelena kola* 'green car' in (c); the DP *Tatkovata kola* 'father's car' in (f); the DP *Ivanovata sestra* 'Ivan's sister' in (h); the PP *v tazi golama staj* 'in this big room' in (k,l).

For the syntactic account, the fact that DP and PP constituents cannot be discontinuous in Bulgarian is expected, given that we saw in the previous section that the clitic auxiliary cannot intervene in such constituents either. However, the auxiliary can clearly intervene within an AP constituent. Data in (21) indicates that an AP may not be split by other material either.

- (21)a. *Čustvam se {tvurde/počti/sufsem} shtjaslif*
 feel-1sg. refl. quite/almost/rather happy
 ‘I feel quite/almost/rather happy’
- b. *{Tvurde/počti/sufsem}shtjaslif se čustvam*
- c. **{Tvurde/počti/sufsem} čustvam se shtjaslif*
- d. **{Tvurde/počti/sufsem} se čustvam shtjaslif*
- e. *Izglezhda {tvurde/počti/sufsem} shtjaslif*
 appear-3sg. quite/almost/rather happy
 ‘He appears quite/almost/rather happy’
- f. *{Tvurde/počti/sufsem} shtjaslif izglezhda*
- g. **{Tvurde/počti/sufsem} izglezhda shtjaslif*

In (b) and (f), the AP is topicalized. However, it is not possible for the same AP to be split by the lexical verb and reflexive clitic in (c,d) or by the lexical verb alone in (g).

It is not possible to account for clitic splitting of an AP in Bulgarian via remnant topicalization or some form of unorthodox ‘subextraction’, given that such movement does not occur independently. This also throws doubt on the purely syntactic account of such phenomena in SCB, given that in both cases we are concerned with the same second position placement.

Let us now consider the other [+V] constituent that may be split by an auxiliary in Bulgarian.

6.3.2. No 'long head movement'

In section 5.3.2.1., we saw an attempt in Rivero (1991, 1994) and Roberts (1994) to account for the [non-finite V⁰ -- auxiliary] word order within a number of languages that include SCB and Bulgarian. We do not reiterate the conceptual arguments against these accounts here, but focus rather on several empirical difficulties such an approach encounters in Bulgarian.

Regarding the trigger for 'long head movement', recall that the [-PAST] form obligatorily takes the order (22b), and that the [+PAST] form optionally allows the relevant word order in (22c,d).

(22)a. **E* *otgovoril* *na vâprosa im*
be-3sg.[- PAST] answered-ppl. to question their

b. *Otgovoril* *e* *na vâprosa im*
answered-ppl. be-3sg.[- PAST] to question their
'He answered their question'

c. *Beše* *otgovoril* *na vâprosa im*
be-3sg.[+ PAST] answered-ppl. to question their

d. *Otgovoril* *beše* *na vâprosa im*
answered-ppl. be-3sg.[+ PAST] to question their
'He had answered their question'

Any account that relies on a simple [*clitic-first] filter or the 'Tense licensing' requirement of Borsley, Rivero & Stephens (1996) as a trigger for 'long head movement' is inadequate: if the [+PAST] form shares the clitic status or 'Tense licensing' inability of its [-PAST] counterpart, then it is inexplicable why 'long head movement' is not obligatory in (22d). On the other hand, if the [+PAST] form differs from the [-PAST] in just this crucial property, then an additional story is required for how (22d) is possible and furthermore why it is optional.

Recall that in the 'relativized head movement' account, a head may move across another head if the landing site and the intervening head differ with respect to their A/A' (or L-/non-L-related) status. It therefore becomes crucial which intervening heads in the tree are deemed A-positions (or L-related) and which are not.

However, it is unclear what constitutes an A and an A' head in Rivero's (1991) account. In (23b), the modal *šće* 'will' is said to prevent a participle from fronting. Rivero proposes that this modal is the head of a Modal Phrase in (23c), and stipulates that it is an A'-position (non-L-related).

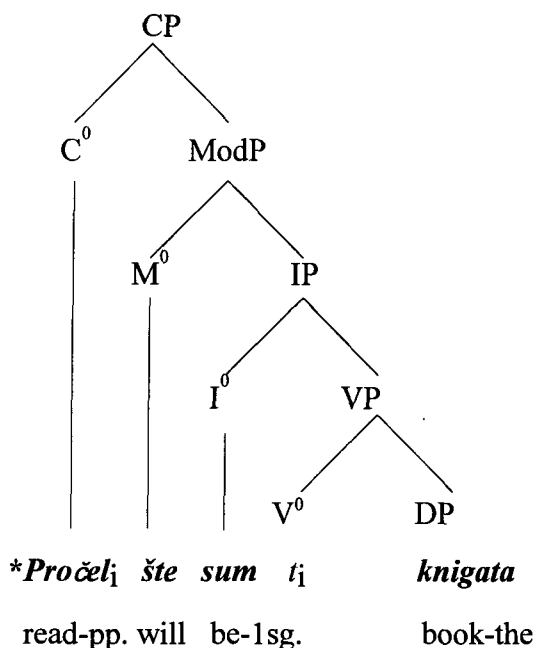
(23)a. *Šće sâm pročel knjigata*

will be-1sg. read-ppl. book-the

'I will have read the book'

b. **Pročel šće sum knjigata*

c.



In Rivero's account, the participle cannot move up to the A' head C^0 because it must cross M^0 , which is said to be an A' head as well. Terzi (1992) argues, on the other hand that the Balkan M^0 is an A head. In fact, if the motivation for

movement is the auxiliary's requirement of a host, then there is no trigger for movement in (23b) in any case: the modal element is proclitic and not barred from first position (23a).

In Slovak, another language that displays the 'long head movement' construction, it appears that the modal element *by* 'would' does allow the [non-finite V^0 -- auxiliary] word order:

- (24)a. *Ja by som napísal list* (Slovak)
 I would be-1sg. written letter
- b. *napísal by som list*
 'I would write a letter'

If *by* is a head of ModP, then the word order in (24b) suggests it must be an A head in this account, in contrast to Bulgarian *šte*. Instead, Rivero suggests *by* 'would' is in the specifier position of a Modal Phrase and thus does not constitute a potential intervening governor for 'long head movement' in (24b), though no independent evidence is given in support of this analysis. Whether *by* is an A or A' specifier of ModP is not made clear, nor what effects its status has on XP movement across it. Assuming relativized minimality (Rizzi 1990aa), the prediction is clear: if *by* is classed as an A specifier, then it should block subject DP movement to specIP (24a), which it does not. If it is classed as an A-bar specifier, then it should block WH-movement, an unlikely scenario.

In fact, the data is not entirely clear, for some native speakers do accept (23b). In Rivero's (1991, 1994) terms, then, this suggests *šte* is an A' head. It seems unlikely that the A or A' status of a head should turn on relatively minor native speaker variation, however.

In the absence of independent evidence, the typology of A/A' heads in such an account becomes merely a re-encoding of the empirical facts, lacking any explanatory power. Ironically, the difficulty in this account stems from what we suggested in 1.4.1. was a weak point in late GB theorizing, namely the tendency to assume a new functional head position for every morpheme in a

derivation. Whilst this provides more specifier and head positions on the one hand, it presents new problems in the restrictions on movement.

However, let us assume for now that the future particle does not head a separate projection, but is a bound morpheme (proclitic) on the finite verb in the clause, realizing modal features in I^0 ⁶.

6.3.3. *Feature checking in C^0 does not travel well*

Ćavar & Wilder (1994, 1997) and Wilder & Ćavar (1994) discuss the Croatian clitic cluster only, and they make no claims about the [non-finite V^0 -- auxiliary] word order in Bulgarian. However, given that the construction appears in both languages, let us briefly consider the possibility of extending their account to the Bulgarian data.

First, a point made in the previous section concerning the motivation for apparent participle fronting in this framework holds here equally strongly. The optionality of the 'long head movement' word order in (22c,d) indicates that the requirement of a host cannot be the trigger for participle movement in Bulgarian.

Secondly, Borsley, Rivero & Stephens (1996) have also expressed doubts over how Ćavar & Wilder's analysis could be applied to Bulgarian (4c), repeated here as (25), where the participle has fronted over both an auxiliary and an auxiliary participle.

(25) *Pročel e bil knjigata*

read-ppl. be-3sg. be-ppl. book-the

‘(According to someone) he had read the book’

Even if both the second participle and auxiliary are in C^0 , one must still explain how the participle has jumped over the first participle, hence running into another apparent violation of the Head Movement Constraint of Travis (1984) (see section 5.3.2).

⁶ See 7.4 for the alternative realization of formal features (Emonds 1994; 1997) and a revised version for the SP model in 9.3.

Thirdly, adverb data in Caink (1995) indicate that the participle and auxiliary cannot both be in C⁰. Just as in SCB, an adverb like *pravilno* 'correctly' yields an ambiguous reading when it is adjoined to IP in (26a,b), but a single reading when it is adjoined to VP in (26c).

(26)a. *Mislja* *če pravilno* _{IP}[*otgovori*_i _{VP}[*t*_i *na vaproša im*]]

think-1sg. that correctly answered-3sg. to question their
'I think that he answered their question correctly'

b. *Mislja* *če pravilno* _{IP}[*e* *otgovoril*_i _{VP}[*t*_i *na vaproša im*]]⁷

think-1sg. that correctly be-3sg. answer-ppl. to question their
'I think that he has answered their question correctly'

= (i) he gave a correct answer,
(ii) he did the right thing in answering

c. *Mislja* *če Ivan* _{IP}[*otgovori*_i *pravilno* _{VP}[*t*_i *na vaproša im*]]

think-1sg. that I. answered-3sg. correctly to question their
'I think that Ivan answered their question correctly'

c. *Mislja* *če Ivan* _{IP}[*e* *otgovoril*_i *pravilno* _{VP}[*t*_i *na vaproša im*]]

think-1sg. that I. be-3sg. answered-3sg. correctly to question their
'I think that Ivan has answered their question correctly'

= (i) he gave a correct answer,
(ii) *he did the right thing in answering

In (a,b), the adverb has IP scope and yields the ambiguity shown. In (c,d), assuming the participle and finite verb have both moved out of VP to check features, the adverb has only VP scope, yielding the single reading shown.

Again, the position of the adverb gives us a diagnostic for determining whether or not the non-finite verb and auxiliary are in C⁰ in the construction in

⁷We assume the participle has moved into a higher projection to check participle features.

question. If neither were in C^0 , it should be possible for the adverb to follow the [participle--auxiliary] in C^0 and yield the same ambiguity as (26a,b). Example (27) shows this is not possible:

(27) *Otgovoril e pravilno na vaprosa im*

answered be-3sg. correctly to question their

- = (i) he gave a correct answer,
(ii) *he did the right thing in answering

Just as in SCB, the adverb in (24) cannot be adjoined as high as IP when the participle is in first position. Therefore, we conclude that the auxiliary and the participle cannot be in C^0 .

Additionally, recall that the auxiliary cannot license a VP trace in (15e,f). This effectively rules out the possibility of a remnant topicalization analysis of the construction.

A purely syntactic account of this data, then, has proved as unsuccessful for Bulgarian as it is for SCB.

6.4. Phonological movement alone: a non-starter

Schütze (1994) specifically rules out the possibility of treating Bulgarian clitic placement in the same terms as SCB because Bulgarian clitics do not appear as high in the CP, and because the 2P effects are more limited in Bulgarian than in SCB. Certainly, if Prosodic Inversion has some difficulties with SCB data, as we have seen, then it has many more problems accounting for Bulgarian.

Recall that Halpern's (1995) Prosodic Inversion crucially relies on the notion of 'cliticness' to trigger phonological movement of the clitic into second position. However, such a mechanism does not occur in (7), repeated here as (28):

(28) *Si li napisal trideset knigi, ili ne si?*

be-2sg. Q. write-ppl. thirty books, or not be-2sg.

'Have you written thirty books or not?'

The auxiliary unusually receives stress and appears in first position. How is the PI mechanism switched off in this case? If 'cliticness' is the defining feature that gives rise to both syntactic and phonological movement, (25) must be dealt with only via stipulation.

Similarly, it is unclear how this mechanism could account for the data in (10b,d) and (11d), in which we saw the [+PAST] form of the auxiliary *optionally* following the first phonological word. Why should phonological movement occur if the item in question has no restriction on its appearing in first position?

A far more serious problem for a phonological movement account is what Halpern (1995) terms 'fortresses' - constituents inside which the clitic auxiliary cannot appear. In SCB, we saw that for some speakers, fortresses are not as significant as has been suggested in the syntactic literature. However, in Bulgarian, the data is less murky. We have seen that the clitic auxiliary *cannot* intervene within a PP or DP in (13) and (14). To account for this, the PI account must either be able to refer to such syntactic information or provide a prosodic analysis that distinguishes between constituents specified for [+V] and [-V], neither of which it is able to do.

Let us now turn to how our SP model accounts for the distribution and morphology of the Bulgarian auxiliary.

6.5. The Semi-postlexicalist account

Let us recall the distinctions drawn between the [+PAST] and [-PAST] forms of the Bulgarian auxiliary.

(29)

Bulgarian auxiliary	[+PAST]	[-PAST]
(a) has a regular inflectional paradigm	✓	✗
(b) bears stress/emphasis	✓	✗
(c) can appear in sentence-initial position	✓	✗
(d) licenses the movement trace of AP, VP	✓	✗
(e) can appear in '2nd position' within a [+V] constituent:	✓	✓

In this section we will treat the [-PAST] and [+PAST] forms separately, and, again, show that the differences in (29) stem from the way in which these forms are lexicalized. We consider the clitic auxiliary first.

6.5.1. The present tense: phonological lexicalization with [+V] specification

We have seen that the Bulgarian clitic auxiliary shares a number of characteristics with the SCB clitic auxiliary and differs in several significant ways. Considering the similarities first, these clitic auxiliaries generally do not bear stress, cannot appear in the first position of a clause and often appear as part of a clitic cluster. Neither auxiliary is able to license the trace of a VP or AP. As a 'last resort', both clitic auxiliaries must appear in a 2P position, following the first phonological word.

Just as for the SCB auxiliaries, the lexical entry of the Bulgarian clitic auxiliary contains no feature that is required at LF. Consequently, the SP model predicts that the Bulgarian auxiliary is also subject to phonological lexicalization. Both its suppletive morphology, its clitic status and its restriction on appearing in first position are the sort of phonological idiosyncrasies we expect to find exhibited by phonologically lexicalized items. In this account, the auxiliary's inability to license a trace follow from phonological lexicalization:

absence from the syntax prevents it from formally licensing a movement trace (see sections 4.4 and 5.4.2).

Consider now the differences, listed in (30).

(30)a. The Bulgarian clitic auxiliary may be stressed and appear in first position.

In SCB, the lexicon provides a separate full form auxiliary with the feature [+FOCUS] in its lexical entry that yields emphasis.

b. The SCB clitic auxiliaries can intervene within any constituent, regardless of categorial specification, whilst the Bulgarian auxiliary can only intervene within a [+V] constituent.

c. Whereas the SCB clitic auxiliaries appear in the highest head of the extended projection, the Bulgarian auxiliary appears in the highest head specified as [+V].

Addressing (a) first, (31) repeats the relevant example of a Bulgarian stressed auxiliary in first position.

(31) *Si li napisal trideset knigi, ili ne si?*

be-2sg. Q. write-ppl. thirty books, or not be-2sg.

'Have you written thirty books or not?'

In a model where 'clitic' is central to the characterization of the auxiliary, this property is highly problematic. However, in our model, cliticness is merely derivative of phonological lexicalization.

We assume that in the absence of a full emphatic auxiliary in the Bulgarian lexicon, the feature [+FOCUS] is optional in the lexical entry of the Bulgarian auxiliary. It seems unlikely that this feature should be added upon introduction to the numeration at the same time as 'optional' formal features (as in Chomsky 1995: chapter 4; e.g. Case features for [+V,-V] items, ϕ -features for [+V,-N] items). Rather, let us assume that in the absence of full form auxiliaries

in the lexicon, the feature [+FOCUS] appears in the lexical entry of the Bulgarian clitic auxiliary. However, it is bracketed in the same way as this feature is bracketed in the lexical entry for English emphatic *do* (section 5.4.2.).

Our provisional lexical entry for the Bulgarian auxiliary in (31) so far includes the information in (32).

(32) *Lexical entry #1:*

si, 2nd pers. sing., [-PAST], ([+FOCUS]), PL restriction: +X_____

The bracketing of the feature [+FOCUS] in the lexicon means that it may be selected with or without this feature. If without, then *si* 'are' contains no features required at LF, hence undergoes phonological lexicalization as proposed above. If it is selected with the feature, then this feature moves (32) into the third class of lexical items in the typology in 4.1. It forces pied-piping of the full feature matrix into the syntax.

The restriction on first position in this model is a restriction on *lexicalization only*, as indicated in (32). Hence if the auxiliary is fully lexicalized into the computational system, the phonological lexicalization restriction is inoperative. This is an important improvement over those accounts that treat the left host requirement as a PF filter (Roberts 1992, 1994; Bošković 1995). However, a more parsimonious way of representing this is with braces:

(33) {+FOCUS / +X_____ }

Either the lexical item is selected for the numeration with the feature [+FOCUS] or with the contextual feature +X____. It is unnecessary to stipulate that the contextual feature is a restriction on phonological lexicalization.

Turning now to the remaining differences between Bulgarian and SCB clitic auxiliaries (30b-c), the central distinction we will make here is that the SCB and Bulgarian auxiliaries differ in terms of categorial feature specification. Whereas the SCB clitic 'auxiliaries' remain unspecified for any major feature (section 5.4.2), the Bulgarian auxiliary is specified [+V,-N]. As a result, when

lexicalised at PF, it is lexicalised within the highest head with a matching specification, namely I^0 .

The [+V] feature evidently has further repercussions for phonological lexicalization. A traditional descriptive approach to Bulgarian clitics observes that clitics are always clitic on a verb. But we have seen that the wider generalization concerns the [+V] feature, on account of the behaviour of the Bulgarian clitic auxiliary in copula constructions where no lexical verb is available as a host. The ‘last resort’ insertion into the Wackernagel position is possible only when the constituent in question is itself specified as [+V]. The feature specification of the auxiliary is then central to determining the contexts in which it is lexicalized. The auxiliary is a ‘true’ auxiliary appearing in I^0 , but in the 2P position, it is also restricted to intervening within an AP or VP as close to I^0 as possible.

A final question remains. The Bulgarian clitic auxiliary appears to be able to license a trace of [-V] constituents, PP and DP.

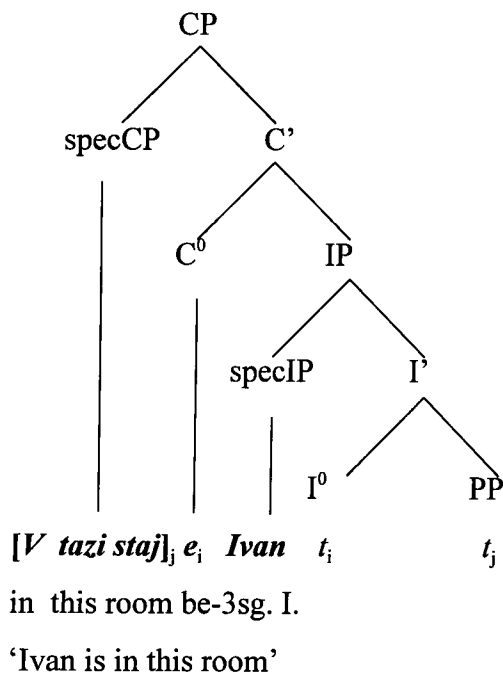
(34)a. [*V tazi staj*] *e Ivan*
in this room be-3sg. I.
‘Ivan is in this room’

b. [*Hubav čovek*] *e*
pleasant guy be-3sg.
‘He’s a pleasant guy’

First, we assume that the constituents shown have moved into specCP. The formal features of the clitic auxiliary have moved into C^0 , as shown in (35).

⁸ Krapova (1995) independently argues for the late insertion of the [-PAST] form in I^0 (= T^0), on a par with English *do*-support.

(35)



As a result of these movements, the auxiliary is now in a spec-head relation with the PP.

In their account of PF head licensing, Aoun *et al.* (1987) argue that a head must be 'visible' at PF in order to be able to license a trace. An element is visible either through lexicalization or through sharing the index of another lexical element. We have argued that the clitic auxiliary is not visible at the necessary stage (prior to phonological lexicalization) for it to be able to license a trace. Sylea (1997) shows that a null copula in Mauritian Creole becomes visible if it enters a spec-head agreement relation with the antecedent of the trace: the null item takes on the index of the antecedent through the agreement relation. Hence the English clitic auxiliary that we argued in 4.4 is not visible to license a trace can become visible in (36b). Similarly, the null copula can only license a trace if it has moved to C in a WH-question (36c,d).

(36)a. *Where_i do you think he *'s/is t_i today?*

b. _{CP}[*Where_i 's_j IP[he t_j t_i today]] ?*

c. *Kot zan ti *(ete) ?*

(Mauritian Creole)

where John tense be

'Where was John?'

d. *Ki zan (ete)*

what John be

'What is John?'

(Syea 1997:28)

In (a), the clitic auxiliary cannot license the trace because it is not inserted until after the level at which head licensing holds. However, the trace of the auxiliary is able to license the trace of the WH-word in (b) because the formal features of the auxiliary in the syntax appear in a spec-head relation with the antecedent of the trace in specCP. In Mauritian Creole, the copula is generally optional. In (c), however, the copula is obligatorily present to license the trace of *kot* 'where'. In (d), it is again optionally present: if null, the auxiliary is still visible to license the trace by virtue of appearing in a spec-head relation to the antecedent of the trace *ki* 'what'.

The data in (36) displays the same properties as the Bulgarian data in (34). The auxiliary is made visible on account of its formal features in the syntax moving into C⁰.

Let us return to our main theme, the lexical entry for the clitic auxiliary. We can now include the categorial features, using *si* 'are' for exemplification.

(37) *Lexical entry #2:*

si, [+V,-N], 2nd pers. sing., [-PAST], {+FOCUS / +X_____ }

Si 'are' is specified as an auxiliary verb form with ϕ -features and a present tense feature. If the feature [+FOCUS] is selected, the form becomes a member of the third class in our typology of lexical items. It includes a feature that is required at LF, hence optionally undergoes either syntactic insertion or phonological

lexicalization. In either case, it is inserted into I^0 . If the contextual feature $+X$ is selected instead, then it includes no features required at LF and so undergoes phonological lexicalization. The contextual feature prevents it from appearing in the first position in the extended projection. Consequently, in a 'last resort' context, it can be inserted into a 2P position, provided the constituent is specified [+V].

6.5.2. *The [+PAST] feature*

Referring back to the table of characteristics in (26), it is apparent that the past tense form of the Bulgarian auxiliary has a curiously hybrid nature. In some ways, it behaves like the full form SCB auxiliaries: its morphology displays a stem which hosts regular inflectional morphology, it may appear in sentence-initial position, it bears stress and appears to be able to license a movement trace. On the other hand, it is similar to the present tense Bulgarian and SCB clitic auxiliaries in appearing in a second position, at least within [+V] constituents.

Given our approach so far, this suggests that the [+PAST] form is subject to deep lexicalization in some cases and phonological lexicalization in others. In other words, it appears to be a class three lexical item in the typology of 4.1.

Let us pursue the hypothesis that the lexical entry of the past tense form, but not the present tense form, contains a feature F_2 .

The question is what feature constitutes F_2 in this case? Although the past tense form can bear stress, it does not necessarily yield an emphatic assertion reading, and neither does it carry negation, both of which are argued to be formal features that are required at LF, yielding a lexical item that in the third class (section 5.4.1). The only distinction between the past and present tense forms is the value for the feature [PAST].

Cross-linguistically, there is evidence for regarding [-PAST] as unmarked and [+PAST] as marked. In Russian and Arabic, for example, the [-PAST] of the copula does not receive any lexical realization at all, whereas the [+PAST] form must be lexicalized.

(38)a. *Marija krašivaja*

(Russian)

M. beautiful
'Mary is beautiful'

b. *Marija *(byla) krašivaja*

M. be [+PAST] beautiful
'Mary was beautiful'

c. *əl wəld zein*

(Arabic)

the boy beautiful
'The boy is beautiful'

d. *əl wəld *(kən) zein*

the boy be [+PAST] beautiful
'The boy was beautiful'

In both languages, the clause becomes ungrammatical if the past tense of the copula is dropped in (38b,d). In Mauritian Creole, a similar distinction exists between tenses in copula clauses:

(39)a. *Zan en profeser / dan lakaz*

(Mauritian Creole)

J. a teacher / in house
'John is a teacher/John is in the house'

b. *Zan ti en profeser / dan lakaz*

J. tense a teacher / in house
'John was a teacher/John was in the house'

(Syea 1997:27)

No copula is required in either tense, but in a [+PAST] copula clause, a tense marker *ti* is required.

Indeed, in Bulgarian, the present tense form may be dropped in the periphrastic tense, the reading being understood as [-PAST], not [+PAST].

(40) *četjal knigata*

read-ppl. book-the

‘He read the book’/*‘He had read the book’

Finally, in English, a distinction exists between the past and present tense of the auxiliary *be* in terms of clitic forms (*am~’m, are~’re, is~’s, was~*’s, were~*’re*).

This marked/unmarked distinction follows if [-PAST] is a hard-wired unmarked value in the computational system, but [+PAST] is not. In terms of our theory, [-PAST] is therefore not required at LF, hence does not itself trigger any syntactic insertion of a lexical item whose lexical entry contains [-PAST].

In contrast, the feature [+PAST] is a closed class feature that is a member of the set of features F_2 that optionally triggers syntactic or phonological lexicalization⁹.

Let us now return to accounting for the Bulgarian data. First, following the discussion in the previous section, we assume the lexical entry for the past form includes the following information.

(41) *Lexical entry:*

b-, [+V,-N], [+PAST], [-ACTIVITY], PL restriction: +X_____

The stem *b-* is specified as a verb with a past tense feature. Presence of the ‘+’ value for [PAST] means (41) is in the third class of lexical items: Select may take the full feature matrix including phonological features or Select may take only

⁹In the case of an open class V, the distinction we have drawn between [+PAST] and [-PAST] has no observable reflexes because the lexical entry also contains a purely semantic feature which triggers syntactic lexicalization. However, see section 9.5.1 for further evidence that [-PAST] is not required at LF in SCB clitic climbing contexts.

the formal features, in which case the remaining features are phonologically lexicalized.

In the first scenario, when (41) is fully lexicalized in the syntax, it is able to appear in sentence-initial position and license a movement trace. It moves to I⁰ to check features and the inflectional morphology is added at PF.

Alternatively, when the verb is phonologically lexicalized, the contextual restriction applies. If the position I⁰ provides no host within the extended projection, then by 'last resort', the auxiliary is lexicalized in a 2P position, following the first phonological word.

Here then, we see that the optional lexicalization of third class items has observable effects.

6.5.2.1. Double participle constructions in SCB and Bulgarian

We have established that the feature [+PAST] allows for optional deep or phonological lexicalization. If this is on the right track, then such a hypothesis predicts a degree of optionality in constructions employing the past participle too. Sure enough, we have already seen that this is the case for double participle constructions in both SCB and Bulgarian, the data for both of which is repeated in (42).

(42)a. *Vas dvoje ste bili čekali Marijinu prijateljicu* (SCB)

you two be-2pl. be-ppl. wait-ppl. M.'s friend

'You two had been waiting for Marija's friend'

b. *Bili ste čekali Mariinu prijateljicu*

c. *Čekali ste bili Marijinu prijateljicu*

d. *Petur e bil pročel knjigata* (Bulgarian)

P. be-3sg. be-ppl. read-ppl. book-the

'(According to someone) he had read the book'

e. *Bil e pročel knjigata*

f. *Pročel e bil knjigata*

The auxiliary past participles in both languages are morphologically related to the [+PAST] finite forms in exhibiting the same stem and hosting participle inflection identical to that found on open class V. In SCB (42b) and Bulgarian (42e), this participle form appears in first position, preceding the clitic auxiliary. For both constructions, (42c) and (42f) are alternative options, whereby the open class participle precedes both the clitic auxiliary and the auxiliary participle.

In neither language can both participles precede the auxiliary:

(43)a. **Čekali bili ste Marijinu prijateljicu* (SCB)

wait-ppl. be-ppl. be-2pl. M.'s friend

b. . **Bili čekali ste Marijinu prijateljicu*

c. **Pročel bil e knjigata* (Bulgarian)

read-ppl. be-ppl. be-3sg. book-the

d. **Bil pročel e knjigata*

When both participles precede the finite auxiliary, either participle order is ruled out.

Bulgarian and SCB are discourse configurational languages and hence allow extensive variation in word orders. Such variability, together with the optionality in (42), make the restrictions in (43) somewhat surprising. This strict morpheme order is in fact more reminiscent of the clitic cluster, both in its external distribution and its internal constituents, a significant clue to the analysis we shall propose here.

The feature [+PAST], as we have seen, allows the auxiliary participle to be optionally subject to deep or phonological lexicalization. When phonologically lexicalized, the participle form of the auxiliary is inserted with the [+PAST] finite auxiliary as part of the clitic cluster, with the participle appearing last in the clitic cluster¹⁰.

¹⁰ The nature of the clitic cluster is discussed in chapters 8 and 9. It is worth noting here that we adopt Schütze's (1994) argument that the clitic cluster is

We shall use the Bulgarian data (42d-f) to exemplify the account. In (42d), where a subject appears in specIP, it is not possible to determine in which way the auxiliary participle has been lexicalized. If phonologically, then it is inserted along with the finite auxiliary *e* 'is' into the highest [+V] head available, I⁰. If the participle is fully lexicalized in the syntax, then the auxiliary alone is phonologically lexicalized.

In (42e), *bil* 'been' is fully lexicalized in the syntax. The construction is *pro*-drop, hence no lexical material precedes I⁰ which is the insertion site for the (phonologically lexicalized) finite auxiliary. Consequently, the finite auxiliary is lexicalized in the last resort position following the first phonological word to its right. In (42e), this is the participle *bil*.

In (42f), *bil* is phonologically lexicalized along with the finite auxiliary in the prescribed order. Again, no material precedes the insertion site, I⁰, hence insertion occurs following the first phonological word to the right, in this case, the lexical participle *procel* 'read'.

The complex set of data in (42) is thus predicted with no further stipulation, other than the fact that the feature [+PAST] appears lexically as the past participle and the auxiliary.

6.6. Summary: features and the minimalist problem of optionality

In this chapter, we have found support for the analysis of the clitic auxiliary in chapter 5: the Bulgarian clitic auxiliary is similarly subject to phonological lexicalization, hence bears the common hallmarks of a closed class, late inserted item: suppletive form, phonologically reduced status, and subject to language-specific PF restrictions on appearing in first position. On account of this latter restriction on phonological lexicalization, the auxiliary may be lexicalized as a last resort into second position following the first phonological word.

However, a number of differences from SCB follow from the fact that the Bulgarian auxiliary is a true auxiliary verb, specified as [+V,-N]. The

lexicalized as a single unit. Unlike Schütze, however, we do not assume that all lexical items are inserted at PF.

Bulgarian auxiliary is restricted to being lexicalized in a head position specified as [+V], or in a second position within a [+V] constituent. Consequently, the Bulgarian auxiliary never appears higher than I⁰.

A further difference from the SCB clitic auxiliary is that the Bulgarian auxiliary may bear stress, in which case it may appear in first position in the clause. We related this to the fact that the Bulgarian lexicon lacks full form auxiliaries. We proposed that the feature [+FOCUS] appears bracketed in the lexical entry of English ('dummy') *do*, allowing the English auxiliary to be either used for emphatic assertion or as a dummy auxiliary. In the present tense form of the Bulgarian clitic auxiliary, the same feature is in complementary distribution with the contextual feature +X____. The auxiliary is therefore able to be stressed and placed in the first position (signalling full syntactic lexicalization), or phonologically lexicalized. If the latter, the contextual feature applies.

We then moved on to considering the feature [+PAST] and argued that it is included in those formal features that are required at LF, hence causes a lexical item to be included within the third class in the typology of lexical items in section 4.1. As a result, Select may optionally pied-pipe phonological features of the past tense auxiliary for computation. Consequently, the [+PAST] forms exhibit characteristics of both full form SCB auxiliaries and the present tense clitic forms in different constructions. That is, they display stems and host regular morphology, license movement traces, may appear in first position and bear stress. However, they can optionally appear in second position as a 'last resort' option if the phonological features have been phonologically lexicalized.

One of the interesting problems that minimalism has given rise to is the issue of how we deal with apparent cases of optionality if movement is triggered by features. If a feature is strong, then overt movement is triggered, if weak, then it is suggested that the same movement occurs at LF (whether or not this has any demonstrable semantic reflexes). Evidently, there is no scope for optionality here, unless the model is substantially weakened by allowing optional weak/strong feature specifications, or optional left or right-adjunction.

The approach pursued here, however, allows for optionality to result from the unproblematic bracketing of features in the lexicon, or in the operation of Select and the optional pied-piping of features. The benefit is that a high degree of 'noise' in the data is removed from the syntax. This is particularly appropriate given that much of this minor cross-linguistic variation has a prosodic factor to it. As we have shown in detail, the purely syntactic alternative is to pursue accounts involving either a bi-directional syntax-phonology interface or extensive syntactic stipulation (or both).

In these two chapters, we have deliberately focused on the auxiliaries in Bulgarian and SCB separate from the more general issue of the clitic cluster. As a result, we have been able to home in on the exact nature of the cross-linguistic differences that ultimately give rise to much of the differences with respect to the clitic clusters in these languages. Now, however, it is time to turn to the other morphemes found in the clitic cluster, the so-called clitic pronominals.

7. Pronominal clitics

7.1. Introduction

Zwicky's (1977) account of clitics draws a distinction between 'Simple Clitics' and 'Special Clitics'. 'Simple Clitics' are lexical items that appear in the same syntactic position as other members of the same syntactic category; they phonologically 'lean' on an adjacent host. One example is the clitic form 's of the English auxiliary *is*. In contrast, 'Special Clitics' both phonologically 'lean' on a host and appear in different positions from their stressed counterparts. The pronominal clitics of Romance and Slavic are classic examples of 'Special Clitics'. This chapter focuses on various approaches to pronominal clitics in generative grammar as a preparation for our discussion of the South Slavic clitic systems in the next chapter.

The treatment of pronominal clitics in generative literature falls largely into two camps, that of a 'movement analysis' following Kayne's (1975) pioneering work on French syntax, and that of an 'in situ' analysis such as Borer (1984). These treatments can be seen in terms of 'derivational' versus 'representational' approaches; for Kayne and subsequent 'movement' analyses, clitics are base generated in canonical argument positions and then moved by the syntax into the 'clitic position', whereas Borer pursues a form of the 'strong lexicalist' approach whereby the constituents of X^0 are formed in the lexicon. That is, in Borer's system, the clitics are attached in the lexicon to the host and the whole complex is inserted at D-structure. The relationship between the clitic form and the null argument position becomes a purely structural relation. Below, we shall consider in detail more recent variations on movement accounts and 'in situ' accounts that employ Agr(reement) Phrases.

In section 7.2, we argue generally against movement approaches to pronominal clitics and in section 7.3. focus in some detail on accounts that adopt an AgrP analysis of pronominal clitics. In 7.4., we introduce Emonds' (1997) alternative to both 'movement' and 'in situ' accounts; he proposes that pronominal clitics in Spanish, Italian and French are the 'Alternative Realizations' of formal features associated with (possibly null) XP. We note some problems with this account and difficulties it encounters in dealing with the South Slavic clitic clusters. This section prepares the ground for a revised version of Alternative Realization in 9.3.

7.2. Pronominal clitics and movement analyses

Consider the data in (1a)¹. Within a movement analysis, the pronoun *lui* 'him' in (a) appears base generated in the canonical argument position and bears stress. The clitic form *l'* 'him' in (b) is said to result from movement of the stressed form in (a). The clitic form cannot be stressed.

(1)a. *Je n'aime que lui* (French)

I love-1sg. only him [+stress]

'It's only him that I love'

b. *Je l' aime* Ø

I 3sg.Acc. love-1sg.

'I love him'

The morphology of the pronoun 'in situ' differs from that of the pronoun in the landing site. Such variation between the stressed and unstressed forms of the pronoun is common cross-linguistically, illustrated in (2) by the Macedonian full and clitic pronoun paradigms.

(2) Macedonian pronouns and pronominal clitics

	Accusative		Dative	
	full form	clitic	full form	clitic
1sg.	<i>mene</i>	<i>me</i>	<i>mene</i>	<i>mi</i>
2sg.	<i>tebe</i>	<i>te</i>	<i>tebe</i>	<i>ti</i>
3sg.masc.	<i>nego</i>	<i>go</i>	<i>nemu</i>	<i>mu</i>
3sg.fem.	<i>nea</i>	<i>ja</i>	<i>nejze</i>	<i>i</i>
1pl.	<i>nas</i>	<i>ne</i>	<i>nam</i>	<i>ni</i>
2pl.	<i>vas</i>	<i>ve</i>	<i>vam</i>	<i>vi</i>
3pl.	<i>niv</i>	<i>gi</i>	<i>nim</i>	<i>im</i>

An example is given in (3):

¹ French and Italian also have nominative clitics, but these are not the focus of this study. 'Clitics' in this chapter refers to the grammatical morphemes related to complement and adjunct XP within VP, unless otherwise stated.

(3) *Ne bi sâm mu go dala*

(Macedonian)

not would be1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.

'I would be unwilling to give it to him'

Tomić (1996:827)

The dative clitic is followed by an accusative pronominal clitic, both underlined. Notice that they are adjacent to the auxiliary *sâm* 'am'. As mentioned in passing in the previous chapters, clitic auxiliaries and pronominal clitics appear as a single unit in a 'clitic cluster'.

The lack of regular morphological alternations between the clitic form and the base pronominal form is standard across Romance and Slavic pronominal clitic systems. It is, however, highly unusual in the various instances of overt movement operations argued for over the years within transformational grammars. Usually, the moved element bears a close morphological relation to the element found in the base position - usually an identical stem, with at most, variations in affixation, but usually not even this. Furthermore, such morphological transformation requires that the moved element alone must either be inserted at PF or undergo an array of *ad hoc* phonological transformations at PF to arrive at the new clitic form. With respect to the latter possibility, any PF machinery devised to arrive at such morphology needs to be remarkably powerful for a single small class of grammatical morphemes.

An additional problem for movement analyses of pronominal clitics is that of 'clitic doubling'. This is where a pronominal clitic co-occurs with a pronoun or full DP in its canonical position, shown in (4) in Spanish, Bulgarian and Macedonian respectively. Clitic doubling is widespread in South Slavic, even more so than in Romance.

(4) Spanish:

- (a) *vimos Juan* (b) *lo vimos* (c) *lo vimos a Juan*
see-1sg. J. 3sg.Acc. see-1sg.

Bulgarian:

- (d) *vizdam Ivan* (e) *Az go vizdam* (f) *Az go vizdam Ivan*
see-1sg. I. I 3sg.Acc. see-1sg.

Macedonian:

- (g) **Mi dadoa smetka-ta*
1sg.Dat. gave-3pl. bill-the
'They gave me the bill'
- (h) *Mi ja dadoa*
1sg.Dat. 3sg.Acc. gave-3pl..
'They gave me it'
- (i) *Mi ja dadoa smetka-ta*
1sg.Dat. 3sg.Acc. gave-3pl.. bill-the
'They gave me the bill'

In the first examples for each of Spanish, Bulgarian and Macedonian (a,d,g), there is a full direct object in post-verbal position with no Accusative clitic. In Macedonian (g), where clitic doubling is obligatory for [+specific] arguments, this is ungrammatical. In the second example for each language (b,e,h), a clitic appears and the argument XP is licensed to be null in all three languages. Clitic doubling occurs in the third examples (c, f, i): in each case an Accusative clitic doubles an overt direct object. Note that in Spanish (c), this is only possible if a dummy preposition appears governing the DP.

According to the 'Kayne-Jaeggli Generalization', clitic doubling is possible only if the argument XP receives case from a dummy prepositional case assigner, because the clitic has 'absorbed' the Accusative Case assigned by the verb. It is clear from Bulgarian (f) and Macedonian (i) that this configuration is not universally true, as several authors

have noted². Clitic doubling therefore presents problems for movement analyses whether one assumes Move- α to leave a trace (Chomsky 1981) or a copy (Chomsky 1993) of the moved element.

If clitics move, this also raises the question of whether they move as XP or X⁰. Emonds (1997) argues, clitics do not incorporate as heads because the locative PP clitics French *y* 'there' and Italian *ci* behave in the same way as pronominal clitics, yet they 'replace' PP adjuncts. Adjuncts do not undergo standard head movement such as Incorporation (Baker 1988) and Dutch/German verb raising (Evers 1975).

Rivero & Terzi (1996) propose that clitics are XP and move as such. However, if clitics move as XP then we are left with the question of why there is a lack of phrasal bounding phenomena, why they may not be stressed, why there are only ϕ -features marked on clitics, and why there is an absence of internal constituent structure. Rivero & Terzi suggest that SCB clitics move to the specifier position of a functional phrase between C⁰ and IP, specWackernagelP, but such proposals never show any alternation with any overt members of these specifier positions. Indeed, the fact that a functional phrase is proposed purely to 'host' a single class of morphemes precludes any such syntactic argument (Cardinaletti & Roberts 1991, Halpern 1995, and Rouveret 1997 make similar proposals for a functional head that exists between CP and IP to host clitics).

Chomsky (1994: chap.4) proposes that clitics are both maximal and minimal projections, and hence may move as maximal or minimal projections as appropriate. This potentially interesting result of Bare Phrase Structure nonetheless seems to date *ad hoc*, given that it applies to few other morphemes that display the same ϕ -features. Moreover, it is not explained how the phrasal and head movement properties are actually explained by the proposal. Whilst Bare Phrase Structure allows for a more parsimonious and elegant theory of the underlying X' framework, it is at the cost here of an unparsimonious array of highly specific lexical items to be learnt by the child. If we are to follow the Borer hypothesis that all inter-language variation results from the lexicon (Borer 1984), then the more idiosyncratic categories of lexical items we posit, the harder this learning must be. The more promising alternative is to demonstrate that

² For other cases of Balkan clitic doubling, See Anagnostopoulou (1997) for Greek, Dobrovie-Sorin (1994) for Romanian and Kallulli (1995) for Albanian.

the apparently idiosyncratic behaviour of such grammatical morphemes is in fact characteristic of a wider class of lexical items, so reducing the extent of learning required by the child, whilst retaining the parsimony of Bare Phrase Structure.

7.3. Clitics 'in situ': against pronominal clitics as Agr⁰

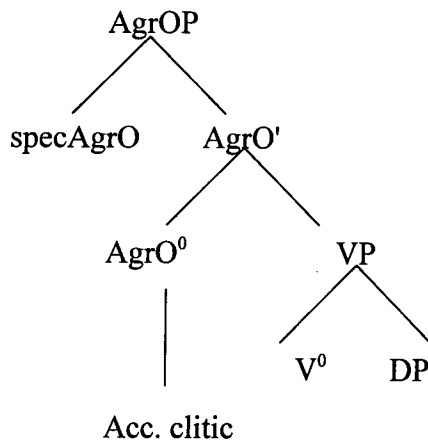
The notion that pronominal clitics move to their surface position is a derivational approach to the problem of how clitics appear where they do. One alternative is to argue that clitics are base-generated in their surface position. It is then a question of what structural relation exists between the clitic and the XP inside the VP with which it is associated.

Borer (1984) argues that the complex [verb + clitics] is formed in the lexicon and inserted at D-structure, a form of the 'strong lexicalist' position. The clitics satisfy the verb's theta grid, hence the full argument DP appears null, or as the object to a dummy preposition. One problem with this account is that the structural mechanisms that exist to license null phrases by clitics on the verb are not translatable to non-clitic contexts. Bouchard (1983) proposed that empty categories should always be licensed by independently motivated mechanisms of the grammar.

With the widespread acceptance of Agreement Phrases for both subject and object agreement, following Pollock (1989) and subsequently Chomsky (1991, 1993) (see 1.4.1.), a new option opened up: Sportiche (1996) sees pronominal clitics as part of an object/indirect object agreement system within the Infl complex. In this theory, the pronominal clitics represent the heads of AgrPs; DP arguments in VP must move overtly or covertly to specAgrP for checking. Several authors working on Balkan languages have followed Sportiche's lead: Kallulli (1995) for Albanian; Rudin (1997) for Bulgarian; Mišeska Tomić (1996) for Macedonian; Stjepanović (1998) for SCB and Franks (1998: section 3) for Slavic generally.

Sportiche proposes a Clitic Criterion (1992:25) that requires a clitic, as the head of an AgrP, to be in a spec-head relation with the argument XP by LF. In (5), this is illustrated by the accusative clitic in Agr⁰:

(5)



In some languages, the spec-head relation between a clitic-head and the moved XP is established overtly, before spell-out, and in other languages this is established covertly at LF. The covert/overt distinction constitutes a parameter (6a). A further parameter differentiates between an overt/covert AgrP head (6b); in other words, the presence or absence of pronominal clitics in a language. A third parameter allows a language to choose between covert or overt settings for argument XPs in VP (6c).

Sportiche therefore has three parameters that allow for inter-language variation:

- (6)a. Movement of XP to specAgrP is covert or overt,
- b. Agr⁰ is overt (= clitic) or covert,
- c. XP is overt or covert.

(Sportiche 1992:26)

One argument in favour of this approach is that the syntax of pronominal clitics therefore mirrors Rizzi's WH-Criterion (Rizzi 1990) and Haegeman's Neg-Criterion (Haegeman 1995); in each case, an XP must move up into a spec-head relation to check a feature.

We shall consider variants of this approach below, but first we turn to general arguments against a syntactic account of the internal structure of the clitic cluster.

7.3.1. Morphology and the clitic cluster

First, consider the fact that there are co-occurrence restrictions within the clitic cluster that are not predicted by a purely syntactic account. Hauge (1976:13-15) observes that 1st and 2nd person Accusative clitics cannot co-occur with Dative clitics:

(7)a. *Az te preporačvam na tjah* (Bulgarian)

I 2sg.Acc. recommend-1sg. to them

'I introduce you to them'

b. **Az im te preporačvam*

I 3pl.Dat. 2sg.Acc. recommend-1sg.

(from Vassiliev 1969)

The full form indirect object *na tjah* 'to them' in (a) is licensed to be null in (b) by the Dative clitic *im* 'to them', but this cannot co-occur with the accusative clitic.

Such restrictions on the co-occurrence of clitics is common in Indo-European ditransitive verbs³. Bonet (1991: chapter 4) argues that such constraints occur in the morphological component, not the syntax. Furthermore, she demonstrates that much dialectal variation in the clitic cluster order exists in Romance languages. If each clitic is a head, this requires a different hierarchy for each head, as well as a battery of language-specific syntactic rules.

Even if one allows for such cross-linguistic variation in the functional hierarchy, an AgrP head analysis of pronominal clitics is further undermined if the Accusative and Dative clitics vary their order in the same language. Bonet shows this is precisely what happens in Catalan:

³ E.g. the French '*Me-lui* constraint' in Kayne (1975). See Bonet (1991) for cross-linguistic data.

(8) *Te 'm van recomanar per a aquesta feina*

2sg. 1sg. recommend-3pl. for this job

(i) 2sg.Dat. 1sg.Acc.: 'They recommended me to you for this job'

(ii) 2sg.Acc. 1sg.Dat.: 'They recommended you to me for this job'

In (8), the clitics *te* 'you' and *'m* 'me' may be interpreted either in the order Dat.-Acc. or Acc.-Dat, giving rise to the ambiguity indicated in (i/ii).

Bonet (1991) also cites the existence of ethical datives (also called 'datives of interest' in traditional accounts) in support of her arguments against the syntactic generation of the Romance clitic cluster.

(9) *No te li faran res* (Catalan)

not ethical 2sg. 3sg.Dat. do-will-3pl. anything

'They won't do anything to him/her'

In (9), *te* is an 'ethical dative' clitic. Crucially, ethical datives play no role in the argument structure of the verb, hence receive neither case nor theta role and have no stressed equivalents in canonical indirect object position⁴.

Similar dative clitics occur in Bulgarian and SCB (10). These clitics again play no syntactic role but appear in the clitic cluster and conform to clitic cluster word order and placement. They indicate a personal, 'endearing' quality to the sentence:

(10)a. *Šte mi hodi (toj) na* (Bulgarian)

will 1sg.Dat. go-3sg. he to

'He will go the cinema (on me)'

b. *Šte ti uvjahnat tsvetjata* (Bulgarian)

wil 2sg.Dat. wilt-3pl. flowers-the

l

'Your flowers will wilt!'

⁴ The English equivalent of an ethical dative is found with the preposition *on*: e.g. *She walked out on me*.

- c. *Jesi li mi se umorila, majko* (SCB)
 be-2sg. Q 1sg.-Dat. refl. get tired mother
 'Are you tired Mum?'
- d. *Juče sam ti bila u Čikago* (SCB)
 yesterday be-1sg. 2sg.-Dat. be-ppl. in Chicago
 'Yesterday I was in Chicago' (Radanović-Kocić 1988:20)

The ethical datives *mi* 'to me' and *ti* 'to you' are underlined. They appear in the dative position within the clitic cluster, but cannot have moved from VP complement position or represent heads of Agr Phrases because they are not in any way associated with the argument structure of the verb.

Bonet (1991) treats the clitic cluster as resulting from a level of morphological form. We shall follow her in regarding both the co-occurrence restrictions and the widespread use of ethical datives in South Slavic as arguments against treating the internal structure of the clitic cluster as a purely syntactic phenomenon.

7.3.2. *The mechanics of the AgrP analyses: a preliminary look at South Slavic clitic clusters*

Let us now look in detail at specific accounts of the AgrP analysis of the clitic cluster. There are several possible approaches that we will consider in turn.

7.3.2.1. *Difficulties in Bulgarian and Macedonian*

For our purposes here, Bulgarian and Macedonian are essentially similar with respect to the behaviour of pronominal clitics, with the significant difference that Macedonian clitics are able to appear in sentence-initial position. For the most part, we shall focus on Bulgarian data here for exemplification.

The first question is to determine the hierarchy of the functional projections in the light of Bulgarian data such as (11). The left right order of the clitic cluster and the lexical verb is indicated alongside each example.

- (11)a. *Toj mi go e dal* 1sg.Dat.--3sg.Acc.--3sg.aux.--V
 he 1sg.Dat. 3sg.Acc. be-3sg. give-ppl.
 'He gave it to me'
- b. *Az sum mu go dal* 1sg.aux.--3sg.Dat.--3sg.Acc.--V
 I be-1sg. 3sg.Dat. 3sg.Acc. give-ppl.
 'I have given it to him'
- c. *Kazvam ti go* V[+finite]--2sg.Dat.--3sg.Acc.
 tell-1sg. 2sg.Dat. 3sg.Acc.
 'I'm telling you it'
- d. *Az ti go kazvam* 2sg.Dat.--3sg.Acc.--V[+finite]
 I 2sg.Dat. 3sg.Acc. tell-1sg.
 'I'm telling you it'

In each case, the pronominal clitics appear in the order Dat.--Acc.. In (a), this order is followed by the 3rd singular auxiliary. All other auxiliary inflections precede the pronominal clitics, as in (b). In *pro*-drop (c), the finite verb *kazvam* 'tell' precedes the pronominal inflections. The finite verb follows the clitic cluster if any other lexical item hosts the clitic cluster in first position: in (11d), the clitics are phonologically enclitic on an overt subject pronoun *az* 'I'.

Several authors have proposed a hierarchy that mirrors the left-right order of the morphemes in the clitic cluster (e.g. Rudin 1997, Franks 1998), assuming that the Dative clitic heads AgrIOP and the accusative AgrOP. A simplified version, setting aside other possible functional projections, is given in (12), with an AgrS/TP projection dominated by or dominating the other Agr phrases (Rudin 1997 proposes (12a); Franks 1998 proposes (12b)).

- (12)a. $\text{AgrIOP}[\text{AgrOP}[\text{AgrSP/TP}[\text{vp}[\text{V}]]]]$
 b. $\text{AgrSP/TP}[\text{AgrIOP}[\text{AgrOP}[\text{vp}[\text{V}]]]]$

Given one or other of these structures, a possible account would involve the finite verb moving up through the functional projections to result in an example like (11c) where the finite verb precedes the clitics. Immediately, we encounter a familiar problem concerning the motivation. Example (11d), where the verb follows the clitics, indicates that this movement only appears to occur when the clitics have no other host. Such movement therefore involves the syntax in fact ‘looking ahead’ to PF.

Consider next when the auxiliary is part of the clitic cluster in (11a,b). When the 3rd singular form is present in (11a), the auxiliary presumably would remain in a head position lower than AgrOP whilst other inflections of the auxiliary move up, such as in (11b). It remains unclear why this should be.

Besides the trigger, another issue involves the nature of the verb movement. One option that arrives at the correct word orders in (11) using the hierarchies in (12) is to assume that each pronominal clitic is in its Agr head position at Spell-out. In that case, in (11c), the finite verb *kazvam* ‘tell’ needs to incorporate and then excorporate from each head successively. This is highly unorthodox head movement, and essentially means circumventing the otherwise justified Head Movement Constraint of Travis (1984).

If each clitic in (11) is in a head position, one loses any explanation for why no other lexical item may intervene within the clitic cluster, giving rise to, say, (13).

(13)a. auxiliary - DAT.clitic - ACC.clitic - **adverb** - 3sg. aux.

b. **Toj mi go pravilno e dal* (Bulgarian)

he 1sg.Dat. 3sg.Acc. correctly be-3sg. give-ppl.

‘He correctly gave it to me’

The adverb in (12b) cannot appear anywhere within the clitic cluster. An alternative way of putting this is to ask why are all the pronominal clitics joined together, and how does this occur?

There are two ways that this exclusive cluster might be arrived at if the clitics are base-generated in Agr head positions, neither of which is particularly satisfactory:

- (i) Phonological subcategorization frames determine the word order, and this information is available in the syntax or acts as a filter on the output of the syntax;
- (ii) The syntax itself excludes the word order.

The first option of a PF subcategorization frame again involves ‘look ahead’ and a bi-directional relationship between the syntax and phonology, hence will not be pursued here. Alternatively, the stipulation of a PF filter will arrive at the facts, just as stipulation of a filter for the co-occurrence restrictions in (7) could achieve observational adequacy, but this is wholly divorced from the AgrP analysis. An analysis that is *expected* to show phonological idiosyncrasies would be preferable.

The second option might be arrived at through the syntactic cliticization of the functional heads, thus excluding any intervening element. Any motivation for such syntactic movement is, of course, unclear. The assumed order of the functional projections in (11) (setting aside the variability of the auxiliary position) requires that the clitics move leftwards and right-adjoin to each other:

- (14) ‘be’ auxiliary ← DAT. clitic ← ACC. clitic ← 3sg. ‘be’ auxiliary⁵.

A version of this is adopted in Franks (1998:52). He basically assumes the hierarchy seen in (12b), with a *vP* above AgrIOP and separate AgrSP and TP projections. The AgrO⁰ morpheme adjoins to AgrIO⁰ (and then they adjoin to the head of *vP*), and T⁰ independently adjoins to AgrS⁰. The verb then moves up independently to check its features in AgrSP.

Given that ‘AgrS’, ‘AgrO’ and ‘AgrIO’ are merely mnemonics with no formal distinction between them, a question arises as to why the AgrS/T agreement always appears right adjoined to the verb, whereas the AgrIO and AgrO morphemes may appear preceding or following the verb in (11).

In fact, Franks (1998:52) does make a distinction between the pronominal clitics and AgrS/T agreement in Bulgarian: the pronominal clitics are base-generated ‘nominal’

⁵The alternative to (13) is rightward movement and left-cliticization of the members of the clitic cluster. This involves a sequence of chains in which the foot c-commands its head. We shall not regard ‘lowering’ in the syntax as an option in the model of grammar adopted.

heads adjoined to Agr⁰, whereas AgrS/Tense is a ‘verbal’ head. Even though the distinction between subject agreement and pronominal clitic distribution exists in both languages, Macedonian pronominal clitics, in contrast, are ‘pure’ Agr heads.

Franks’ account results in a [clitics -- verb] word order at the top of the Infl complex. This is fine for (11d), but problematic for Bulgarian (11c) where the finite verb precedes the clitics. The analysis is then caught between the same Scylla and Charybdis of syntactic ‘look ahead’ or syntactic lowering. That is, either the verb moves to provide a host for the clitics or the clitics lower to ‘find’ a host. To avoid both options, Franks adopts an Optimality Theory account at PF that ensures the relevant order (Franks 1998:55).

Crucially, setting aside the motivation of the various syntactic operations required, the purely syntactic AgrP analysis is unable to account for the data in (11) without some recourse to modification of the syntactic output at PF. Strangely, such PF modification is vigorously ruled out in other cases of second position phenomena we saw in chapter 5.

7.3.2.2. Difficulties in SCB

As we have already established, the clitic auxiliaries in SCB do not appear in any single head position within the clause, they rather appear on the highest head position in the extended projection of the lexical verb. We shall see in the following chapter that the same is true of the whole clitic cluster. This immediately introduces problems for an AgrP analysis of the clitic cluster as a whole. Consider (15).

(15) *Stefan tvrdi da [mu ga je] Petar poklonio*

S. claims that 3sg.Dat. 3sg.Acc. be-3sg. P. give-ppl.

‘Stefan claims that Peter has given it to him as a present’

Assuming the clitic auxiliary *je* ‘is’ appears cliticized to C⁰ (section 5.2) and the subject *Petar* is in specAgrSP, then the pronominal clitics *mu* ‘to him’ and *ga* ‘it’ are also cliticized to the complementizer *da* in C⁰. Why should AgrO⁰ and AgrIO⁰ raise to C⁰ in this way?

Ellipsis data in Stjepanović (1998) introduces a number of further questions for an AgrP analysis of SCB. Consider (16).

(16)a. *Ona mu ga je dala, ...* (SCB)

she 3sg.Dat. 3sgAcc. be-3sg. give-ppl.

...a i ja sam mu ga dala

and also I be-1sg. 3sg.Dat. 3sg.Acc. give-ppl.

'She gave it to him and I did too'

b. *...a i ja sam mu ga dala*

c. *...a i ja sam ~~mu~~ ga dala*

d. *?*...a i ja sam ~~mu~~ ga dala*

In (a), the lexical verb is elided, in (b) the lexical verb and next adjacent pronominal clitic *ga* 'it' is elided, in (c) the verb and adjacent two clitics *mu ga* 'to him' and 'it' are elided. The example in (d) indicates that the linear order is significant; it is not possible for only *mu* and *dala* 'given' to be elided. As Franks (1998) observes, the syntactic account of pronominal clitics cannot cope with such data if ellipsis is a PF phenomenon, and if the pronominal clitics in SCB have gathered together in the highest functional head projected within the syntax⁶.

An alternative account is to suggest that the SCB clitics in (16) are still in their respective Agr head positions at PF when the ellipsis of phrases occurs. Franks (1997) suggests that the elided material is VP (or AuxP) in (a), whereas AgrOP is elided in (b), and AgrIOP in (c). In (d), the dative clitic [*mu*] 'him' and the participle [*dala*] 'given' do not form a constituent and hence cannot be elided. If the dative and accusative pronominal clitics are still in AgrIO⁰ and AgrO⁰ respectively, we return to our original question in the previous section of why no material may intervene within the clitic

⁶ In Franks (1998), it is assumed that SCB pronominal clitics are in fact arguments that have moved to the Infl complex to check features, and consequently moved further to C⁰ if a CP is projected. The pronominal clitics in Macedonian, Bulgarian and SCB therefore receive slightly differing accounts: as mentioned in the main text, in this account, Macedonian 'pronominal' clitics are true Agr heads; Bulgarian pronominal clitics are nominal heads adjoined to Agr heads; SCB pronominal clitics are arguments that move up from VP to check features.

cluster. This account is unable to cope with (15): if the pronominal clitic *ga* 'it' is still in AgrO⁰, a new story is required as to why both the subject and full form auxiliary are still lower.

Finally, let us briefly consider 'clitic climbing' data in which the pronominal clitics of an embedded clause may appear in the matrix clause in (17a,c).

(17)a. *Marija mi ga je zaboravila dati*

M. 1sg.Dat. 3sg.Acc. ne-3sg. forget-ppl. given-inf.

'It was Maria who has forgotten to give it to me'

(Mišeska Tomić 1996:819)

b. *Milan želi da ga vidi*

M. wish-3sg. that 3sg.Acc. see-3sg.

'Milan wishes to see him'

c. ?*Milan ga želi da vidi*

(Progovac 1993:11)

In (a), the embedded verb is non-finite. In (b,c) the embedded verb is marked for present tense and ϕ -features; in (b) the clitics related to the embedded verb appear in the lower clause, following the complementizer, whereas in (c) clitics appear in the matrix clause. (c) is marginally acceptable for Progovac (1993).

Whether the pronominal clitics in (16a,c) have moved to check features in specAgrPs or they are base generated in Agr head positions, it is strange that the AgrP heads appear immediately above the matrix verb. It becomes still more curious if the clitics have moved to the C⁰ of the higher clause, as is claimed by Čavar & Wilder (1993) and Progovac (1996).

7.3.3. Summary and conclusion: the rise and fall of AgrP

The intuition behind the AgrP analysis of pronominal clitics is that underlyingly, the agreement morphology of languages that display object and indirect object agreement is related to the phenomenon of pronominal clitics. This intuition, however, can be captured without resort to the stipulation of so much syntactic structure that plays no role at LF; in the next section we shall see a mechanism that does just this.

The problem with the AgrP analyses is that, in South Slavic at least, the account buys us so little, at the cost of a degree of stipulation regarding syntactic movement that becomes as complex as the data itself. The central problems centre around motivation for movement and the various mechanics of adjunction.

In Chomsky (1995: ch-4) it is noted that Agreement Phrases contribute nothing to LF; hence it is more parsimonious if the model dispenses with them. This reasoning is in keeping with the SP model, in which lexical items that make no contribution to LF should not appear in the syntax but rather undergo phonological lexicalization. An agreement morpheme in the numeration is not selected for computation because it lacks any LF interpretable features. On this point, therefore, Chomsky's 'chapter 4' minimalism and the SP model agree that Agr Phrases are conceptually unnecessary.

We shall argue in the following chapter that the clitic cluster is formed and inserted at PF, and that the existence of co-occurrence restrictions, ethical datives, the clitic nature of the cluster, and its distribution follow from phonological lexicalization.

We shall follow Schütze (1994) in assuming a morphological template (as in Perlmutter 1971). Ironically, exponents of syntactic accounts often reject the notion of a morphological template to describe clitic order because, they suggest, the stipulation of a template is *ad hoc*. The Agr head analysis for South Slavic clitic clusters is, however, merely a notational variant of such a template: each Agr head 'subcategorizes' for only one complement. There is, therefore, no 'subcategorization' in the classical sense of a VP selecting, say, DP or CP, because the hierarchy is fixed in a given language. In fact, such syntactic stipulation is worse than a clitic template: Perlmutter's templates on clitic cluster word orders are stipulations concerning the module(s) in which we expect language-specific idiosyncrasies, the lexicon and PF. The Agr head analysis however represents a template not just for the morpheme order, but for the functional hierarchy in the syntax too.

7.4. Clitics as the Alternative Realization of null XP

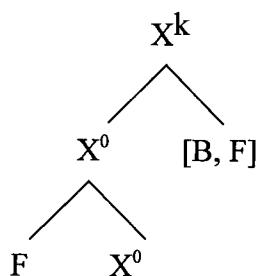
Emonds (1997) argues that pronominal clitics in Italian, French and Spanish are the Alternative Realization of (possibly null) XP. This is therefore a form of ‘in situ’ analysis for pronominal clitics, but a crucial difference between this account and those of section 7.3 is that clitics are grammatical morphemes whose lexical entries contain no semantically interpretable feature, hence are inserted at PF. They are not therefore ‘base generated’ in D-structure or at any point in the syntax. Their appearance at PF via the same mechanism used to generate, say, subject and tense agreement on the English verb reduces pronominal clitics to an aspect of the phonological lexicalization of inflectional morphemes generally. In that sense, this account shares some common ground with the Agr head analysis of pronominal clitics. However, major differences remain, not least the several functional phrases in the Agr head analysis, unneeded in the Alternative Realization framework.

The definition of Alternative Realization is as follows.

- (18)a. *Alternative Realization* (AR): A syntactic feature F matched in UG with category B can be realised in a grammatical morpheme under X^0 , provided X^k is a sister of [B, F].

(Emonds 1987,1997)

b.



With respect to pronominal clitics, the syntactic features FF in question are the ϕ -features and possibly the Case of the XP (=B in (18a)) within VP. Thus, the direct object

in (19a) may be null if its ϕ -features and Accusative Case appear as a grammatical morpheme on V in (19b), V being a sister to the direct object:

(19)a. *je n'aime que lui*

I love-1sg. only him

'It's only *him* that I love'

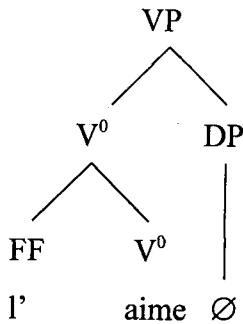
b. *Je l' aime*

(French)

I 3sg.Acc. love-1sg.

'I love him'

c.



Now consider the indirect object *LUI* 'him' in (20). Daughters of the same node are sisters, but clearly the indirect object is not a sister to any projection of V on account of the preposition *à* 'to':

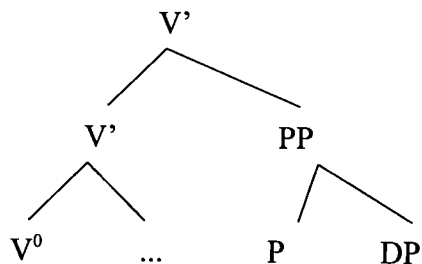
(20)a. *Je donne le livre à LUI*

(French)

I give-1sg. the book to him

'It is to *him* I give the book'

b.⁷



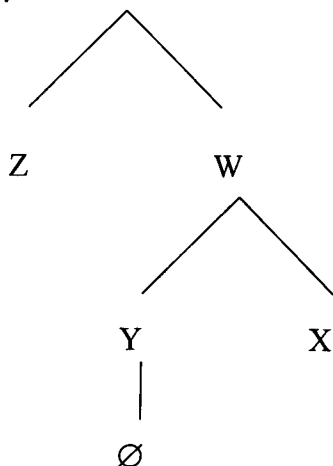
donne à LUI

However, 'sisterhood' is defined recursively as in (21):

(21)a. *Sisterhood*: if W and Z are sisters, W dominates X, and X dominates the only lexical material under W, then X and Z are sisters

(Emonds 1997)

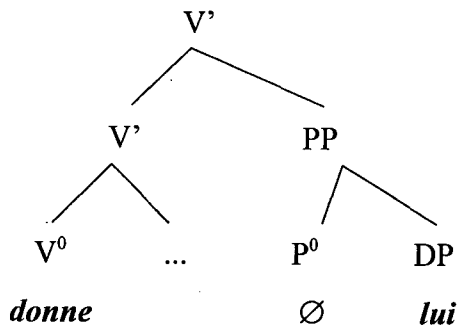
b.



Therefore, in (21b), Z and W are sisters and Z and X are sisters if Y is empty in the syntax. In this way, the projection of a phonologically lexicalized head Y does not block sisterhood between X and Z, because the lexical material is not inserted until PF (Phonological Lexicalization). The preposition *à* in (22) is phonologically lexicalized in this way, and is hence empty in the syntax. *LUI* therefore constitutes the only lexical material under PP:

⁷ I exclude a direct object sister to V⁰ in (20b) and (22) for ease of exposition. Note that many linguists take 'indirect objects' as DP sisters to V with oblique case, in which case

(22)



Consequently, *lui* is in a sisterhood relation to a projection of V and its syntactic features can be alternatively realised on V⁰:

(23) *Je lui donne le livre*

I 3sg.Dat. give-1sg. the book

'I give him the book'

A null indirect object is licensed by the clitic on V⁰.

However, there are five further instances in Standard French, Italian and Spanish where clitics replace XP that superficially do not appear to be in a sisterhood relation with a projection of V⁰. These are the focus of Emonds (1997) and are summarised in sections 7.4.1. to 7.4.3.

7.4.1. *Complements to adjectives*

Pronominal clitics in Italian, French and Spanish license null XP complements of certain adjectives which are themselves complements to a small closed class of verbs, e.g. in French, *être* 'be', *devenir* 'become', *sembler* 'seem', *paraître* 'appear', *rester* 'stay', *demeurer* 'remain'. In (24a,b), the clitics license an empty XP marked Ø across the head *fidèle/fedele* 'faithful', and in (c), the clitic *en* 'thereof' licenses a null XP Ø inside the AP headed by *digne* 'worthy'.

extended sisterhood is not needed here.

(24) *Intransitive linking verbs:*

- a. **Jean** leur **restera** **fidèle** \emptyset (French)
J. them stay faithful
'Jean will stay faithful to them' (Kayne 1975:71)
- b. **Gianni** gli **resterà** **fedele** \emptyset (Italian)
G. him stay faithful
'Gianni will stay faithful'

Transitive verbs with secondary predication:

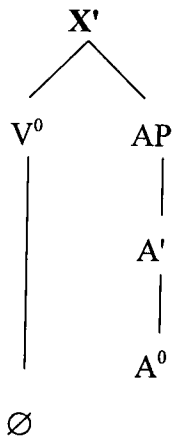
- c. **Tout le monde** en **croit** **Jean** **digne** \emptyset (French)
Everyone thereof thinks J. worthy
'Everyone thinks Jean worthy of it' (Kayne 1975:306)

The small closed class of verbs that appears in this construction have formal features that are required at LF, hence they fall into the third category of lexical items in 3.3.3. In Emonds (1997), these verbs may therefore be inserted either at D-structure or at PF. Recall from section 3.4.4. that a lexical head and its projection is defined in the following terms:

(25) *If Y^0 is the highest lexically filled head in B^x , then Y^0 is the lexical head of B^x and B^x is the projection of Y^0 .*

According to this definition, the X' node highlighted in (26) is part of the projection of A^0 if V^0 is late inserted:

(26)



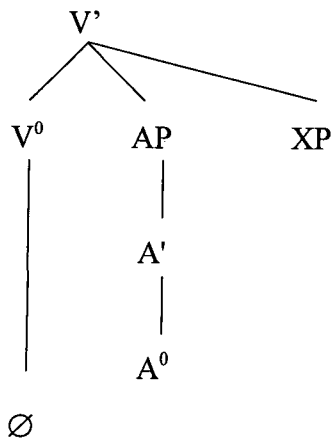
A⁰ constitutes the *highest lexically filled head under X'*, hence X' constitutes a projection of A⁰. According to Emonds' Generalized Subcategorization in (27), a subcategorized complement of A⁰ may optionally attach to A' or X' - ie. anywhere in the projection of A⁰ - for subcategorization to be satisfied.

(27) *X, +__Y is satisfied iff Y⁰ is the lexical head of a complement within a lexical projection of X.*

(Emonds 1997)

Therefore, the null XP subcategorized for by the adjectives in (27) may appear as sister to V', represented in (28)

(28)



XP in (28) is sister to V' and constitutes a complement to A⁰ according to (25) and (27). The required sisterhood relation therefore exists between a projection of V⁰ and the XP and so a clitic may license a null XP complement to A⁰ by appearing on V⁰.

If the verb is inserted at D-structure, then the XP subcategorized for by the A⁰ must appear within the true AP projection, and cliticization will not be possible.

7.4.2. *Obligatory and optional restructuring: periphrastic tenses, causatives, perception and restructuring verbs*

The crucial factor in the preceding account of how pronominal clitics on V⁰ may license null XP within an A⁰ complement was the fact that the 'linking verbs' that subcategorize for the AP complement are a closed class set of verbs. In this section, we briefly consider similar analyses of three further constructions where the Alternative Realization requirement of sisterhood between the XP and a projection of V⁰ also appears to be violated.

First, let us review the constructions under question.

(a) *Periphrastic Tenses*: It is well known that in Romance languages, clitics in a periphrastic tense involving an auxiliary counterpart to English *be/have* and a participle obligatorily appear on the auxiliary verb. This is illustrated in (29).

(29) a. *Il m' a donné le livre* ∅ (French)
 he 1sg.-Dat. have-3sg. give-ppl. the book
 'He has given the book to me'

b. *Los hermanos la han preparado* ∅ (Spanish)
 the brothers 3sg.-Acc.fem/ have-3pl. prepare-ppl.
 'The brothers have prepared it'

Similar constructions are found in Bulgarian and Macedonian:

(30)a. *Az sum mu ja bil dal knjigata* (Bulgarian)

I be-1sg. 3sg.Dat. 3sg.Acc. be-ppl. give-ppl. book-the

'I had given the book to him'

b. *Gi imame kupeno knjigite* (Macedonian)

3pl.Acc. have-1pl. buy-ppl. books-the

'We have bought the books'

In each case, the underlined clitics appear in I^0 on the South Slavic auxiliary, rather than on the lower verb which subcategorizes for the argument. Such 'clitic climbing', as it has been termed in movement analyses, is obligatory. In terms of Alternative Realization, neither the null XPs in (29) nor the doubled direct object XPs in (30) are in a sister relation to a projection of the auxiliary.

(b) *Causative and perception verbs*: a closed class of causative and perception verbs optionally host clitics licensing XP subcategorized for by a non-finite complement V^0 . There is some native speaker variation over which verbs allow the clitics to appear on the first verb (Zagona 1982:46). Consider first an example where the clitics have not climbed, but appear on the lower verb:

(31) *Marie laisse Anne les leur distribuer* \emptyset \emptyset (French)

M. let-3sg. A. 3pl.Acc. 3pl.Dat. distribute-inf.

'Marie lets Anne distribute them to them'

The accusative and dative clitics *les* and *leur* 'them' license null complements to the infinitival verb *distribuer* 'distribute' by appearing on the verb.

Consider next an example in which the clitics have climbed to the higher verb. The overt subject *Anne* follows the infinitival verb.

(32) *Marie les (*leur) laisse distribuer à Anne*

M. 3pl.Acc. 3pl.Dat. let-3sg. distribute to A.

Here, the subject *Anne* follows the verb and the clitics appear obligatorily on the causative verb *laisse* 'lets'. Such 'clitic climbing' is not entirely optional

(33) **Marie les leur laisse Anne distribuer*

The ungrammaticality results from the fact that the two verbs are not adjacent. Similar constructions appear in Italian and Spanish.

Again, superficially the null XP complements to *distribuer* 'distribute' are not in a sisterhood relation to *laisse* 'lets' in (32), yet the clitic *les* 'them' appears on the higher verb.

(c) *Italian and Spanish 'Restructuring verbs'*: Rizzi (1978) discusses a closed class of Italian verbs that subcategorize for bare VP complements and optionally allow the clitics associated with the non-finite complement verb to appear on the lower verb (34a) or on the higher verb (34b):

(34)a. *Piero verrà a parlati* \emptyset *di parapsicologia* (Italian)

P. come-fut. to speak-inf. about parapsychology

b. *Piero ti verrà a parlare* \emptyset *di parapsicologia*

'Piero will come to speak to you about parapsychology'

In (a), the underlined clitic *ti* 'you' is attached to the infinitival verb *parlare* 'speak' and replaces the complement via a sisterhood relation between the complement and V^0 . In (b), the clitic appears on the finite verb *verrà* 'will come' and is also able to license the null complement to *parlare*.

Compare this with (35a,b) below which do not involve a restructuring verb: the optional clitic placement disappears. The clitic may only appear on the lower infinitival verb.

(35)a. *Piero deciderà di parlati* ∅ *di parapsicologia* (Italian)

P. decide-fut. to speak-inf. about parapsychology

b. **Piero ti deciderà di parlare* ∅ *di parapsicologia*

'Piero will decide to speak to you about parapsychology'

(Rizzi 1978:113)

In (a), the clitics appear on the lower verb as expected. In (b) the clitics may not appear on the higher verb *deciderà* 'will decide'.

Thus once again, a closed class of verbs allow clitics to license null XP across an intervening head. As with the causative/perception verbs, there is some native speaker variation as to which verbs allow the clitics to climb higher.

Rizzi argues that restructuring verbs give rise to two optional structures in the syntax. In the first case represented in (36a), the restructuring verb V_x takes a VP complement headed by a lexical verb V_c , and in the second structure in (36b), the verb V_x triggers 'restructuring' such that both verbs form a verbal complex.

(36)a. ... V_x ... $_{VP}$ [V_c WP ZP]

b. ... $_{VP}$ [V_x V_c ... WP ... ZP]

Besides showing variation in clitic placement, Rizzi demonstrates that the constituent $_{VP}$ [V_c WP ZP] in (a) behaves syntactically differently from the string V_c ... WP ... ZP... in (b):

(37) The constituent $_{VP}$ [V_c WP ZP] in (36a), but not the string V_c ... WP ... ZP in (36b), can:

- (i) prepose in non-restrictive relatives,
- (ii) be the focus in a cleft sentence,
- (iii) postpose over adjuncts linked to the higher verb V_x ,
- (iv) undergo 'right-node raising' in conjoined sentences, and
- (v) block attachment of the Italian enclitic *loro* 'to them' to V_x .

As we have seen, clitics can license null WP/ZP in (36) if they appear on V_c in (a) and V_x in (b).

For Emonds, the structural options in (36) arise from the fact that the restructuring verb V_x is a closed class verb that may optionally be inserted into the syntax or at PF. Supporting evidence for this comes from Burzio's observation that the higher the degree of semantic specificity, the less likely a verb is to give rise to restructuring (Burzio 1986:220). In other words, these verbs lack 'purely' semantic features that appear in the lexical entries of open classed verbs. Like causative and perception verbs discussed above, they are a closed class of V that come under the third class of lexical items in the typology of in 3.3.3.

When the restructuring verb is inserted into D-structure, it gives rise to the underlying structure in (36a). As a result, the clitics in (34a) can only appear on V_c , given that WP and ZP are sisters to projections of V_c .

In contrast, when the V_x is inserted at PF, it does not appear in the syntax. At PF it is inserted as a sister to V_c , and at that level constitutes the head of the complex VP, according to the 'righthand head rule'. In a sense, therefore, one might say that the structure in (36b) is double headed: in the syntax, the head of the VP is V_c , and at PF the head is V_x . Clitics are grammatical morphemes also lacking 'purely' semantic features, hence similarly inserted onto the head of the VP at PF - this is now V_x . Hence the example in (34b).

We have seen, then, how restructuring verbs give rise to two distinct syntactic structures in Emonds (1997) on account of their syntactic or phonological lexicalization, which in turn is predicted by the lack of purely semantic features in their lexical entries. Causative verbs and perception verbs were also argued to allow restructuring in the same way. Finally, periphrastic tenses consisting of an auxiliary and participle were seen as *obligatory* restructuring contexts. Romance auxiliary verb counterparts to English *have* and *be* are purely grammatical verbs that never appear in the syntax. Their obligatory phonological lexicalization gives rise to a consistently complex verbal cluster in which the auxiliary constitutes the head of VP at PF. In all these cases, the late insertion of the higher closed class verb allows the pronominal clitics to appear on the higher verb.

In Emonds' revised version (Emonds, pers. comm.), the restructuring verb is optionally inserted at D-structure, in which case it projects a VP and we have the

articulated structure in (36a), or it is inserted later in the syntax, in which case it joins the projection of V_e , creating the flat structure in (36b).

Notice that there is no semantic difference between (34a) and (34b), which might lead one to expect identical LF representations. In our revised account of phonological lexicalization and Alternative Realization in 9.3 and 9.5, we do not adopt flat structures: the SP account relies only on phonological lexicalization and extended projections.

7.4.3. The 'Genitive clitics' *en* (French) and *ne* (Italian) 'off/from it/them/there'

The 'genitive clitics' *en* (French) and *ne* (Italian) 'of/from it/them/there' replace a variety of PP and NP complements by appearing on the sister to the null XP. However, in two constructions, 'sisterhood to a projection of V' is apparently violated. Concentrating on French, *en* may license a null PP inside a DP complement to V^0 [DP *les portes* [PP \emptyset]], as in (38):

- (38) *Il va en repeindre les portes [de l'immeuble = \emptyset] bientôt*
 he will thereof repaint-inf. the doors of the building soon
 'He will repaint the doors of it (= of the building) soon'

(Kayne 1975:109)

Clearly a sisterhood relation does not exist between a projection of the verb *repeindre* 'repaint' and the null PP *de l'immeuble* 'of the building'.

The second construction, termed the '*en*-quantatif' in traditional French grammar, is shown in (39). Here, the *en* licenses an empty NP sister to an indefinite complement to V^0 [*peu* [NP \emptyset]]. Again, no sisterhood relation exists between the \emptyset and any projection of V^0 :

- (39) *Marie en voit peu [de clients= \emptyset] le matin*
 M. thereof see-3sg. few customers the morning
 'Marie sees few (customers) in the mornings'

Similar constructions appear in Italian, all things being equal, but there is no equivalent genitive clitic in Spanish.

How then can Alternative Realization account for the relation between the clitic and the null XP in these constructions? Milner (1978: ch.3) notes that all instances of *en* may co-occur with a 'doubled' XP in right dislocated position, adjoined to VP. Hence (40a,b), which are equivalent to (38) and (39):

(40)a. *Il va* [*en* *repeindre* [*les portes* [\emptyset_i]] *bientôt* [*de l'immeuble*]_i

he will thereof repaint-inf. the doors soon of the building

'He will repaint the doors of the building soon'

b. *Marie* [*en* *voit* [*peu* [\emptyset_i]] *le matin* [*de clients*]_i]

M. thereof see-3sg. few the morning customers

'Marie sees few customers in the mornings'

In both examples, the phrase marked \emptyset appears overtly in a VP adjoined position. These dislocated phrases in (40) are both sisters to a projection of the verb because they are adjoined to VP, and so satisfy the structural requirement for the Alternative Realization mechanism. As we have seen, Alternative Realization varies across languages and constructions whether it licenses a null XP or doubles an overt XP. In (38/39), the clitic licenses the null VP-adjoined XP; in (40) it 'doubles' an overt VP-adjoined XP.

Milner argues that the dislocated phrase results from rightward movement out of the embedded \emptyset position. Whatever the relation between the null embedded XP and the dislocated XP, they are co-indexed and the dislocated XP licenses the empty embedded XP independently of the Alternative Realization mechanism.

7.4.4. Problems with Emonds' account

In this system, a closed class morpheme associated with an XP may be alternatively realised on another node in the tree provided a sisterhood relation exists between that node and the XP, with sisterhood defined partly in terms of the presence or absence of phonological material in the syntax. Such alternative realisation may also license the XP to be null.

Let us observe here several difficulties that arise in adapting this mechanism to the SP model.

(i) Alternative Realization as it is defined in (18) would lead us to conclude that clausal clitics are always realized on the verb as in classical treatments of Romance based on Kayne (1975). In the following chapter, we shall see that SCB clitics appear on C^0 in a CP. Also, Rouveret (1997) shows that Portuguese pronominal clitics appear higher than IP. Veselovská (1996: chapter 6) demonstrates that Czech pronominal clitics appear under a functional head higher than V^0 , and Kayne (1991) argues that all pronominal clitics appear on a functional head higher than V^0 (but lower than the finite position). These facts suggests that Alternative Realization is not necessarily defined in terms of sisterhood. Accordingly, in 9.3, we revise the mechanism in terms of ‘extended projections’ rather than sisterhood.

(ii) Recall the two structures in (36) that are said to underlie the two options with ‘restructuring verbs’ in (34a,b). As observed above, there is no semantic difference between (34a,b), yet this account will result in differing LF representations. Of course, in terms of Bare Phrase Structure, the notion of a flat structure in (36b) is also problematic for binary branching. Technically, no flat structure appears at LF if restructuring verbs are phonologically lexicalized as in Emonds (1997). In his revised version, a restructuring verb may be inserted in the syntax before Spell-out, resulting in a flat structure that will be present at LF.

(iii) The system of subcategorization and Alternative Realization in Emonds’ published version is too powerful. Recall the French example in (41) where the pronominal clitic *leur* ‘them’ licenses an empty PP.

- (41) *Jean leur restera fidèle* $_{PP}[\emptyset]$ (French)
 J. them stay faithful
 ‘Jean will stay faithful to them’ (Kayne 1975:71)

The complement to *fidèle* ‘faithful’ is null, and licensed by the clitic on the verb *restera* ‘will stay’. The null PP complement to A^0 can attach as a sister to A' or V' if the V^0 *restera* ‘will stay’ is inserted late. We saw that this is so because, in the absence of the

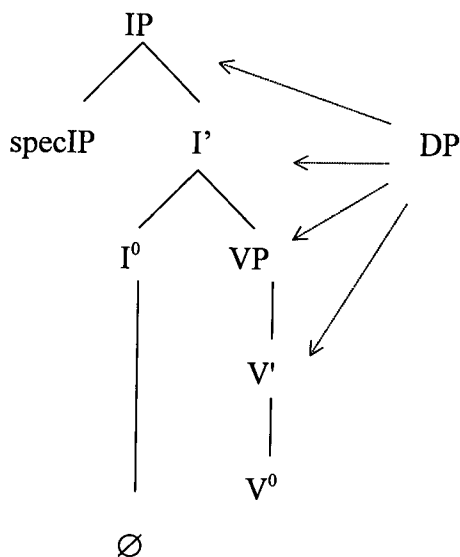
V^0 in the syntax, V' actually constitutes part of the projection of A^0 , the adjective being the 'highest lexical head' under V' .

However, recall the restructuring construction, represented in (36b), where the verb inserted late becomes the head of the complex VP. The verb in (41) can only be prevented from appearing as the head of a complex AP (and hence blocking cliticization) at PF by stipulation. In the SP model, this requires more syntactic knowledge than the phonological lexicalization machinery actually has.

Also, given the formulation of subcategorization and projections in (25) and (27), there are too many possibilities for subcategorization to be satisfied in this system. Consider a periphrastic tense in (42). The auxiliary verb is obligatorily empty in the syntax, hence IP constitutes the projection of V . A direct object will satisfy the subcategorization frame in (42a) if it adjoins to V' , VP, I' or IP, all of which are part of the projection of V^0 , shown in (42b).

(42)a. subcategorization frame for V , + __ DP

b.



Evidently, this is not attested and must be ruled out, but this can only be done by stipulation⁸.

⁸ J.Emonds concedes that it is necessary to stipulate that IP must have only a VP daughter (pers. comm.)

In the discussion of South Slavic clitics in the following chapter, we assume that pronominal clitics are the Alternative Realization of argument XP. However, in 9.3 we propose a revised definition of Alternative Realization compatible with the SP model of chapter 4. In its revised form, the structural requirement will be defined in terms of extended projections rather than sisterhood.

7.5. Summary

We have argued against movement analyses of pronominal clitics, whereby pronouns inside VP are thought to move in the syntax to positions higher in the clause. Secondly, we argued against the equally popular analysis of pronominal clitics as the spell-out of Agreement Phrases. In the third section we summarized Emonds' (1997) analysis of Italian, Spanish and French pronominal clitics as the Alternative Realization of (possibly null) XP inside VP, concentrating particularly on instances where the relation between the clitic host and the XP does not appear to constitute sisterhood. We saw how a dual system of lexicalization together with the definition of Generalized Subcategorization in Emonds (1997) accounts for the distribution of clitics in those languages.

However, we noted both conceptual and empirical problems in applying Emonds' system to a minimalist model of grammar in general and to South Slavic clitic systems in particular. Conceptually, the employment of flat structures and differing LF representations for derivations with identical semantics is problematic in a minimalist framework. Even adopting the framework that Emonds assumes, the subcategorization system is too powerful and makes a number of predictions that are not attested cross-linguistically. Finally, in its current formulation, Alternative Realization is unable to capture the structural relation between SCB pronominal clitics that appear higher than IP (when a CP is projected) and the argument positions in VP.

In the light of this review of approaches to pronominal clitics, let us turn to a closer examination of the clitic clusters in South Slavic.

8. The South Slavic clitic clusters

8.1. Introduction

Following the discussion of clitic auxiliaries in chapters 5 and 6, we now extend the analysis begun there to the clitic cluster of which they form a part. The purpose of this chapter is to outline the significant facts relating to Bulgarian and SCB pronominal clitics, and to establish a number of descriptive generalizations to be addressed theoretically in the final chapter. In conjunction with Bulgarian, we also introduce the Macedonian clitics which provide interesting cross-linguistic variation.

We assume that pronominal clitics are the Alternative Realization of formal features associated with (possibly null) argument phrases within VP (section 7.4). We shall argue that the clitic cluster is lexicalized as a single unit at PF. Furthermore, we see that the distribution of the clitic cluster reflects that of the respective clitic auxiliaries in a given language.

Before considering the clausal clitic clusters, however, we introduce and discuss clitics that appear within the DP in Bulgarian and Macedonian. The similarities between the DP clitic cluster and the clausal clitic clusters deserve particular attention.

Section 8.2 opens with this Bulgarian/Macedonian clitic cluster inside DP. Section 8.3 then addresses the clausal clitic systems in Bulgarian and Macedonian. In section 8.4, we turn to the SCB clitic cluster. The summary in 8.5. reviews the descriptive generalizations we have arrived at and discusses the role played by the auxiliary or determiner in these clitic clusters.

8.2. The DP clitic cluster in Bulgarian and Macedonian

In this section, we focus on what I shall term the 'DP clitic cluster' in Bulgarian and Macedonian¹. The term 'clitic cluster' here includes both (i) postpositional determiners and demonstratives (the latter only in Macedonian), and (ii) the 'dative' possessive. When both morphemes are present in a DP, they appear in the strict order shown in (1a) exemplified in (1b).

¹ SCB does not exhibit a DP clitic cluster.

(1)a. *Bulgarian/Macedonian DP clitic cluster*:

{definite article/demonstrative} -- possessive clitic

b. *Kniga ta mi*

(Bulgarian/Macedonian)

book def. my

'My book/that book of mine'

The members of the clitic cluster in (1) always appear together if both are present in the DP. The position of this cluster is, as we shall see below, following the first lexicalized head in the DP. In (1b), this is the head noun.

Some authors (Halpern 1995, Franks 1998) distinguish between the two members of the clitic cluster in (1) on the grounds that the definite article/demonstratives are 'inflectional' suffixes whilst the possessive morpheme is clearly a 'clitic'. This distinction will surface in the discussion below. In our account, the distinction is immaterial, as both inflectional morphology and pronominal clitics are closed class morphemes that are subject to the same phonological lexicalization (section 3.3.2).

Whilst the content of the lexicons in Bulgarian and Macedonian differ slightly, the syntax of the DP is essentially the same. Before going any further, let us briefly introduce the basic structure of the Bulgarian/Macedonian DP, exemplified in (2) for Bulgarian.

(2) $_{DP}$ [*Tazi dosta glupava* $_{NP}$ [*kniga* $_{PP}$ [*na mene*]]]]

(Bulgarian)

this rather stupid book of mine

'This rather stupid book of mine'

The noun *kniga* 'book' takes a possessive PP complement, and modifying adjectives precede the noun. We assume the demonstrative *tazi* is in D^{02} .

² The example in (2) glosses over the exact structure with respect to the AP in order not to preempt later discussion.

The definite article morpheme varies for gender and number. In the singular, they are feminine *-ta*, neuter *-to*, Bulgarian masculine *â(t)/ja(t)*³, and Macedonian masculine *-ot*. All plurals are generally *-te* (Macedonian *-te/-ta*). These are shown in (3).

(3)a. *Golemi jât mi blok* (Bulgarian)

big def.masc. 1sg.Dat. block-masc.

'My big block'

b. *Visok iot čovek* (Macedonian)

tall def.sg.masc. man

'The tall man'

c. *Dulgo to mi pismo* (Bulgarian)

long.neut. def.neut. 1sg.Dat. letter.neut.

'My long letter'

d. *Goljemi te mi drevi* (Bulgarian)

big.pl. def. 1sg.Dat. clothes-pl.

'My big clothes'

Examples (a) and (b) show the masculine forms, (b) the neuter form and (c) the plural. The feminine form can be seen in (1b) above. As we shall see below, this is in fact a simplification, because the form of the determiner varies depending on both the morphology and phonology of the host. On occasions, the information is purely idiosyncratic, as we shall see below.

Macedonian also exhibits postposition demonstratives:

³ The nominative *ât/jat* and the form used for other cases *â/ja* tend both to reduce to *â/jə* in spoken Bulgarian (Arnaudova 1996:11).

(4). *Kniga va/na*

(Macedonian)

book this/that

(Franks 1998:60)

Bulgarian has only the full form demonstrative which is not enclitic, e.g. *tazi* 'this' in (2). The determiner/demonstrative clitics are in complementary distribution with full form demonstratives in D⁰:

(5)a. **Tazi kniga ta*

(Bulgarian)

this book the

b. **Onovo pismo to*

that letter the

In both examples in (5), the definite article co-occurs with a demonstrative in D⁰. This is reminiscent of the way in which the clitic auxiliaries in SCB cannot co-occur with the full form auxiliaries in I⁰ (section 5.2).

Turning to the possessive clitics, these have the same form as clausal dative pronominal clitics (section 8.3 below) and license a null possessive PP such as that in complement position in (2). The paradigm for Bulgarian is given in (6).

(6) Bulgarian Possessive clitics

	stressed form	'clitic'
1sg.	<i>na mene</i>	<i>mi</i>
2sg.	<i>na tebe</i>	<i>ti</i>
3sg.masc./neut.	<i>na nego</i>	<i>mu</i>
3sg.fem.	<i>na neja</i>	<i>i</i>
1pl.	<i>na nas</i>	<i>ni</i>
2pl.	<i>na vas</i>	<i>vi</i>
3pl.	<i>na tjah</i>	<i>im</i>
reflexive	<i>na sebe</i>	<i>si</i>

The possessive clitic (7a) appears in complementary distribution with possessive pronouns (7b), possessive adjectives (7c), and the possessive PP in (d).

- | | | |
|--|---|--------------------|
| <p>(7)a. <i>Kola ta mi</i>
 car def.fem. 1sg.Dat.
 ‘My car’</p> | <p>b. <i>Moja ta kola</i>
 my.fem. def. car
 ‘My car’</p> | <p>(Bulgarian)</p> |
| <p>c. <i>Ivanova ta kola</i>
 Ivan’s.fem. def. car
 ‘Ivan’s car’</p> | <p>d. <i>Kola ta na mene</i>
 car the of mine
 ‘My car’</p> | |

Both the pre-nominal adjectival possessives (b,c) and the PP form of the possessive in (d) can bear stress, whilst the clitic form in (a) cannot. The possessive adjectives in (b,c) host the definite article and inflect for gender/number like adjectives. The possessive PP is only used for emphasis.

Ewen (1979) argues that the possessive clitic in (a) is derived via a transformational rule from the full pronominal form in (d). In terms of the previous chapter, however, we can say that the possessive clitic form licenses an empty possessive PP in the same way as a Romance pronominal clitic licenses an empty phrase in VP. Notice that a form of ‘clitic doubling’ is possible for certain constructions in (8).

- | | |
|--|-------------------------------|
| <p>(8) <i>Majka mu na Ivan</i>
 mother 3sg.Dat. of Ivan
 ‘Ivan’s mother’</p> | <p>(Bulgarian/Macedonian)</p> |
|--|-------------------------------|

(Franks 1998:65 fn. 74)

Kinship terms such as (8) do not allow a definite article (Scatton 1984:314), but do allow the dative clitic and the PP to co-occur.

The clitic cluster is enclitic on the first available head in the DP, which may be the noun in (1) or (7a), or a modifying adjective in (3). The cluster also appears following quantifiers in (9), and if more than one adjectival modifier is present, the cluster follows the first adjective in (8b):

(8)a. *Vsički te hora*

all def. people

‘All the people’

(Arnaudova 1996:13)

b. *Mnogo to novi knigi*

many the new books

‘The many new books’

(Franks 1998:65)

In each case, the determiner appears in the same position as the possessive; they can never appear in separate positions. Notice that in (8b), the determiner ending is *-to*, rather than the plural ending *-te* that we might expect, given the noun *knigi* ‘books’ is marked for [plural]. This is one of a number of cases where the form of the determiner is not prescribed by the ϕ -features on the noun but by the phonology of its host, here, *mnogo* ‘many’. As we see below in 8.2.2, Franks (1998) takes examples like this to indicate that the determiner is in fact an inflectional suffix.

Interestingly, Ewen (1979) shows that lexical items which are in complementary distribution with the definite article are also in complementary distribution with the possessive clitic *mi* ‘my’.

(9)a. *Vsjako moe kuče e bolno*

every my dog be-3sg. ill

‘Each one of my dogs is ill’

(Bulgarian)

b. **Vsjako to moe kuče e bolno*

every the my dog be-3sg. ill

c. **Vsjako mi kuče e bolno*

d. **Njakoj moj kolegi ne obiĉat da karat ski*

Someone my colleagues not love to drive ski

‘One of my colleagues doesn’t like to ski’

e. **Njakoj to moj kolegi ne obiĉat da karat ski*

Someone the my colleagues not love to drive ski

d. **Njakoj mi kolegi ne obiĉat da karat ski*

(Ewen 1979:172)

In (b) and (e), presence of the determiner creates an ungrammatical sentence. The same is true when the possessive clitic is included in (c) and (d). The presence of the possessive pronoun in the grammatical examples in (a) and (d) indicate that this is not a semantic restriction in (c) and (d).

The data in (9) suggest a closer relation exists between the definite clitic article and the possessive clitic than is recognized in accounts where the article and possessive clitic are treated separately.

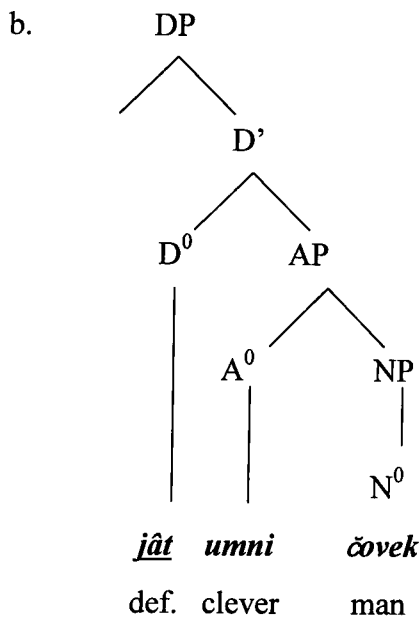
8.2.1. Difficulties for syntactic movement accounts

Fowler & Franks (1994), Arnaudova (1996) and Mišeska Tomic (1996b) propose that the clitic determiner is base-generated in D^0 . These authors arrive at the apparent second position via syntactic movement into a higher position. Assuming Abney's (1987) DP structure, where a modifying AP is a complement to D^0 , (10a) is represented underlyingly by the structure in (10b):

(10)a. *Umni jāt ĉovek*

clever def. man

'The clever man'



(adapted from Arnaudova 1996:15)

The definite article *jât* cannot appear in first position in the DP: **jât umni čovek*, consequently, some form of syntactic movement is supposedly triggered. Such an analysis is similar to purely syntactic accounts of the clitic auxiliaries in 5.3.2.1 and 6.3.2. The trigger for movement is equally problematic, if we are to avoid syntactic ‘look ahead’.

Note that the clitic requirements of the determiner cannot be satisfied by a phonological word outside the DP:

(11)a. **Vidjah ta nova kola na Ivan*

saw-1sg. def. new . car of I.

b. *Vidjah nova ta kola na Ivan*

saw-1sg. new def. car of I.

‘I saw Ivan’s new car’

The determiner does not become enclitic on the preceding verb in (11a), but still appears enclitic on the first adjective *nova* ‘new’ in (b). There is no prosodic break between the verb and its direct object that can be cited as a trigger for some form of ‘adjective movement’ here. We therefore conclude that the clitic determiner requires a host within the extended projection of N. Again, this is reminiscent of the clitic auxiliary

distribution in previous chapters: the domain of cliticization is not defined in purely prosodic terms. Hence the generalization in (12).

(12) *The DP clitic cluster requires a host within the extended projection of N*

A significant problem is that if (12) is to be satisfied via syntactic movement, this cannot simply be a case of (long) X^0 -movement of the next available lexical head across D^0 . Consider data in (13) in which a more complex adjectival phrase modifies the noun.

(13)a. *Ne samo [izklučitelno umno to kuče]*

not only extremely smart def. dog

‘Not only the extremely smart dog’

b. **Ne samo [izklučitelno to umno kuče]*

not only extremely def smart dog

c. *Dosta glupava ta knjiga*

quite stupid def. book

‘The quite stupid book’

d. **Dosta ta glupava knjiga*

quite def. stupid book

e. *Mnogu visok iot čovek*

(Macedonian)

very tall def.sg.masc. man

‘The very tall man’

f. **Mnogu ot visok čovek*

(Mišeska Tomić 1996a)

In Bulgarian (b,d), the clitic determiner follows the first AP, not the first word in the DP which is a specAP in each case. The same is true of Macedonian (e,f). For a syntactic movement account, this suggests that the entire AP immediately following D^0 must raise. If one assumes Abney’s DP structure in which the D^0 takes AP as its complement, then this in turn is problematic, because it requires the complement of the A^0 to

scramble out of the AP, leaving a remnant AP to raise. This would be obligatory each time the DP includes a premodifier. Furthermore, in a case such as (8b) where the DP includes more than one AP, it is the lower AP that must scramble rather than the NP.

Alternatively, we might assume a different internal structure to the DP in which AP is in a specifier position to a functional projection in the DP (as in, e.g. Cinque 1994, Bernstein 1993). AP-fronting then becomes a simpler case of XP movement from one spec to another spec position, but still runs into the problem of what the trigger for such movement to (presumably) specDP could be.

We conclude that a syntactic movement account of the clitic cluster distribution is highly problematic, particularly in the absence of any independent motivation for such movements.

8.2.2. *The determiner: inflection on a complement of D⁰* (Franks 1998)

Halpern (1995) and Franks (1998: sect. 4.4.2) give a number of reasons for arguing that the determiner is an inflectional suffix. For example, summarising some of Franks' points, the morphology of the determiner may depend on a mixture of the morphology and phonology of the host. Consider (14).

- | | | |
|---------------------|-------------------|-------------|
| (14)a. <i>ččoto</i> | [masc.] | (Bulgarian) |
| village-the | | |
| b. <i>baštata</i> | [masc.] | |
| father-the | | |
| c. <i>selata</i> | [neut. plural] | |
| villages-the | | |
| d. <i>horata</i> | [pluralia tantum] | |
| people-the | | |

Recall that the masculine singular determiner is generally *â(t)/ja(t)* (e.g. *Umnijât čovek* 'clever man'), yet in (a,b), the determiner is *-to* and *-ta* respectively (ordinarily the neuter and feminine singular determiners). The plural determiner is generally *-te* (e.g. *knigi-te* 'books'), yet in (c,d), the endings are both *-ta*. This is not simply phonological, however. Compare (15) with (14c):

(15) *sto te sela* [neut. plural]

hundred-the villages

‘the hundred villages’

(Franks 1998:61)

Whereas in (14c), the plural determiner is *-ta*, in (15) it reverts to the canonical plural determiner *-te*. Significantly, if the form of the determiner were phonologically driven, we would expect the determiner in (15) to be *-to*, given that *sto* has the morphology of a neuter singular noun, ending in *-o* (e.g. *pismo* ‘letter’, *selo* ‘village’).

Further quirks exist. Two plural determiners are available for ‘knees’ and ‘shoulders’ (*kolenete/kolenata* ‘knees’; *ramenete/ramenata* ‘shoulders’). An articulated masculine singular stem takes a longer determiner (*interesnija(t) grad* ‘the interesting city’/ *interesen grad* ‘(an) interesting city’), and so on. The information is partly idiosyncratic, required in the lexicon, partly a result of morphology, partly of phonology.

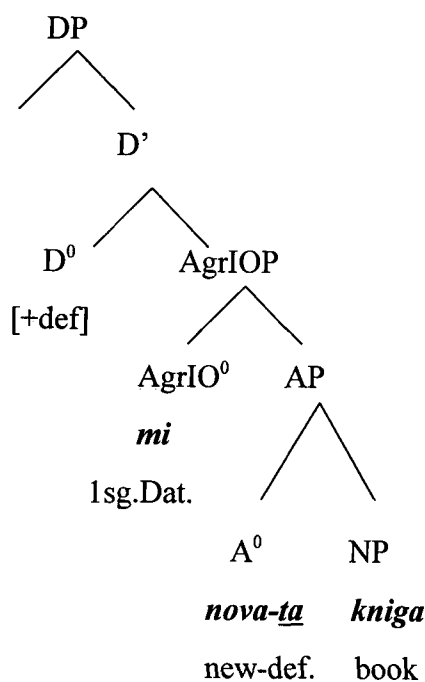
Consequently, Franks maintains that the determiner is an inflection which appears on the (head of the) complement to D^0 , though he remains agnostic about the mechanics of this checking. That is, the head-complement relation alone may be adequate for checking. Alternatively, the XP in question may move overtly to specDP (a scenario we have ruled out in the previous subsection), or the definiteness feature of XP may move covertly to D^0 at LF (Franks 1998:64).

If Franks is right, his definiteness inflection conforms exactly to Emonds’ Alternative Realization ((18) in section 7.4). The determiner is a closed class morpheme that alternatively realizes the formal feature [+definite] in D^0 on the head of a sister to D^0 . The purely structural definition of Alternative Realization is further supported by the fact that the complement to D^0 may be NP, AP, or QP (=Quantifier Phrase, as in (8a)). Whatever the category of the head of the complement phrase, it carries the formal feature of D^0 in the absence of a full lexical demonstrative.

8.2.3. The possessive clitic: problems with AgrP again

Pursuing an AgrP analysis of the 'dative' possessive clitic, Franks (1998:67) proposes two possible accounts. The first is that D⁰ takes AgrIOP as a complement headed by the possessive clitic.

(16)



'My new book'

The possessive clitic appears in AgrIO⁰. In this case, syntactic lowering is required to arrive at the word order *novata mi kniga* 'my new book'.

Clearly syntactic lowering is dubious. However, the structure in (16) also causes problems for the preceding claim that the determiner is an inflection on the complement to D⁰. The determiner inflection appears on the head of the AP *nova* 'new', but on account of the AgrIOP, the AP is no longer the complement to D⁰. This causes problems for the possibility of the head-complement relation being a checking relation between the determiner inflection and D⁰. The only remaining possibilities are remnant AP movement to specDP, which we have already ruled out, or LF movement of the formal [+def] feature, jumping over the intervening head.

Alternatively, Franks suggests that the possessive clitic is adjoined to D^0 , and again lowers to right-adjoin in the syntax to A^0 . Although it is not clear why an AgrIO head should appear adjoined to D^0 , (16) suggests that the possessive clitic can appear as high as D^0 :

- (17) *Tezi ti knigi*
these 2sg.Dat. books
'These books of yours'

(Franks 1998:66, fn.76)

Assuming that the demonstrative *tezi* 'these' is in D^0 , the possessive clitic *ti* 'your' appears right-adjoined to D^0 .

Example (17) shows that in the absence of the clitic determiner, the possessive clitic appears on the highest [+N] head in the extended projection of N^4 . Let us relate the distribution of the possessive clitic to the realization of the D^0 feature and make the following descriptive generalization:

- (18) *The possessive clitic in Bulgarian/Macedonian appears with the morpheme that alternatively realizes the D^0 feature; otherwise, it appears on the highest [+N].*

This generalization supports the hypothesis that the clitic cluster is lexicalized as a single unit at PF.

8.2.4. Conclusion: the DP clitic cluster follows the D^0

The data we have seen suggests that the distribution of the possessive clitic is 'dictated' by the way in which the features in D^0 are realized. If a lexical item appears in D^0 , such as the demonstrative *tezi* 'these' in (17), the possessive clitic right-adjoins to D^0 . If the formal feature of D^0 is alternatively realised on the head of the complement to D^0 , then the possessive clitic follows it in the strict [determiner -- possessive clitic] word order.

Our conclusion, then, is that a unified treatment of these two items in a clitic cluster is fully justified both in terms of cliticization and distribution, hence (19).

(19) *The DP clitic cluster in Bulgarian/Macedonian is phonologically lexicalized as a single unit.*

Let us therefore adapt (18) for the clitic cluster as a whole:

(20) *The DP clitic cluster appears on the highest [+N] head, except when the feature in D^0 is alternatively realised, when it appears on the head of the complement to D^0*

Both (19) and (20) receive support when we consider the clausal clitic clusters in the next sections. In particular, (20) is reflected in the distribution of the SCB clausal clitic cluster, which is dictated by the alternatively realised features of I^0 .

Before moving on to the clausal clitics, a theory-internal issue arises concerning our theory of extended projections. Abney's structure of the DP, such as in the tree in (10), is not compatible with the theory of extended projections in section 4.3.1: merge of a lexical adjective with an NP will close off the extended projection of the noun and begin a new projection. In that case, the DP projection is in the extended projection of the A^0 rather than the N^0 .

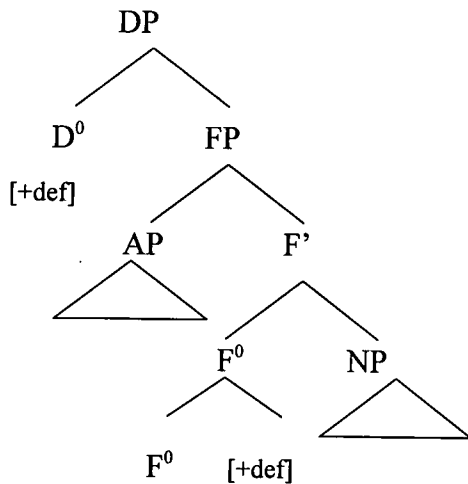
In Bernstein (1993), attributive adjectives such as English *big* or *red* are adjuncts or specifiers⁵. In Bernstein's account, closed class adjectives with 'intentional' or 'modal' meaning such as French *pauvre* (with the meaning 'pitiable') are heads selecting an NP complement similar to the structure in (10). This is more compatible with our theory of extended projections: open class 'lexical' adjectives appear as adjuncts/specifiers, hence have no effect on the extended projection of the noun. Closed class intentional/modal adjectives form part of the extended projection of the lexical noun in the same way as the SCB full form auxiliaries remain part of the extended projection of the verb. We illustrate both structures in (21):

⁴ Observe that this generalization includes structures in which there is no determiner at all: in *Majka mi* 'my mother', the possessive clitic appears on the highest [+N] head available, which is the head noun.

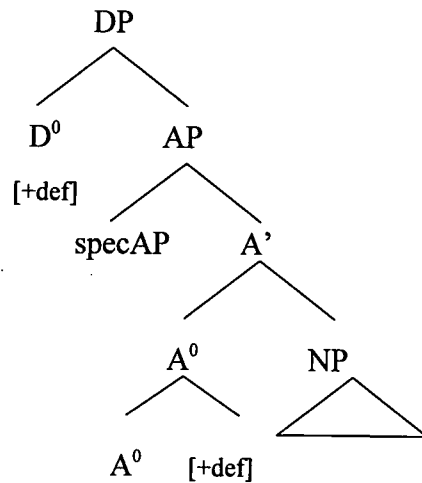
⁵ See also Cinque (1994) on attributive adjectives as specifiers in the DP.

(21)

a. *Attributive AP*



b. *Modal AP*



In (a), an AP headed by an attributive adjective such as *big* appears in the spec of a functional projection, F. The feature [+def] is alternatively realised on the head of the sister to D⁰; in this case, F⁰. The morpheme that alternatively realises the feature has the specification +X___, indicating that it is enclitic. It will consequently be enclitic on the lexical head of the A⁰, assuming the functional head has no phonetic content. In (b), the modal adjective forms part of the extended projection of the N just as, say, IP is part of the extended projection of V. The [+def] feature is alternatively realised on the A⁰ head itself⁶.

⁶ Note that this is a context in which a cyclic numeration is more effective than our notion of extended projection defined in terms of the presence of phonological features in the syntax (section 4.3.1). The modal adjectives are evidently members of the third class of lexical items in the typology in 4.1. Their phonological features are therefore optionally introduced into the syntax. If in the syntax, they should project a separate extended projection from that of the N. This causes a problem for our notion that in the absence of the clitic determiner, the 'clitic cluster' (containing only the possessive dative clitic) appears on the highest [+N] head in the extended projection of N. In other words, the presence of a modal adjective could block the possessive dative clitic appearing as high as D⁰. Instead, if we pursue the notion of cyclic numeration (section 4.3.3), then the possessive clitic simply appears on the highest [+N] head in the derivation.

8.3. Bulgarian and Macedonian clausal clitics on the highest [+V] head

In 6.3, we established that the Bulgarian clitic auxiliary is specified for [+V, -N] in the lexicon. In the present tense it is subject to phonological lexicalization, and appears on the highest [+V] head in the extended projection. The past tense form is optionally subject to phonological lexicalization or deep lexicalization.

We assume the same account for Macedonian auxiliaries, though significantly Macedonian clitic auxiliaries lack any restriction against being in first position, and hence do not undergo last resort lexicalization into the second position.

In this section, we extend this analysis to the Bulgarian and Macedonian clitic clusters, of which the auxiliary forms a part. First, we establish the basic facts concerning pronominal clitics in Bulgarian and Macedonian, and argue that the clitic cluster is inserted as a single unit at PF. In terms of distribution, we see that the clitic cluster similarly appears on the highest [+V] head in the extended projection of the lexical verb, whether an auxiliary is present in the clitic cluster or not. This contrasts with SCB, where the clitic cluster appears on the highest head, without specification. Following 7.4, we assume that the Bulgarian and Macedonian pronominal clitics are the Alternative Realization of formal features in (possibly null) argument phrases within VP. Members of the Bulgarian clitic cluster require a host within the extended projection of the verb. Examples will be principally from Bulgarian except when the languages differ in interesting ways.

The paradigms for Bulgarian accusative and dative pronominal clitics appear in (22a) and for Macedonian in (22b). In both cases, the pronominal clitics appear alongside the respective 'stressed' pronouns that appear in argument positions.

(22)a. Bulgarian pronominal clitics

	Accusative		Dative	
	stressed	clitic	stressed	clitic
1sg.	<i>mene</i>	<i>me</i>	<i>na mene</i>	<i>mi</i>
2sg.	<i>tebe</i>	<i>te</i>	<i>na tebe</i>	<i>ti</i>
3sg.masc./neut.	<i>nego</i>	<i>go</i>	<i>na nego</i>	<i>mu</i>
3sg.fem.	<i>neja</i>	<i>ja</i>	<i>na neja</i>	<i>i</i>
1pl.	<i>nas</i>	<i>ni</i>	<i>na nas</i>	<i>ni</i>
2pl.	<i>vas</i>	<i>vi</i>	<i>na vas</i>	<i>vi</i>
3pl.	<i>tjah</i>	<i>gi</i>	<i>na tjah</i>	<i>im</i>
reflexive	<i>sebe</i>	<i>si</i>	<i>na sebe</i>	<i>si</i>

b. Macedonian pronominal clitics

	Accusative		Dative	
	stressed	clitic	stressed	clitic
1sg.	<i>mene</i>	<i>me</i>	<i>na mene</i>	<i>mi</i>
2sg.	<i>tebe</i>	<i>te</i>	<i>na tebe</i>	<i>ti</i>
3sg.masc.	<i>nego</i>	<i>go</i>	<i>na nemu</i>	<i>mu</i>
3sg.fem.	<i>nea</i>	<i>ja</i>	<i>na nejze</i>	<i>i</i>
1pl.	<i>nas</i>	<i>ne</i>	<i>na nam</i>	<i>ni</i>
2pl.	<i>vas</i>	<i>ve</i>	<i>na vam</i>	<i>vi</i>
3pl.	<i>niv</i>	<i>gi</i>	<i>na nim</i>	<i>im</i>

The full dative pronoun forms are identical to the accusative forms, but always appear as complements to the functional preposition *na* 'to, on, of'. The dative clitics differ in morphology from their accusative counterparts. The dative clitics are identical to the DP possessive clitics discussed in the previous section. One of the hallmarks of the *Balkan Sprachbund* is this syncretization of the Genitive and Dative cases (Joseph 1983).

In both languages, the pronominal clitics appear cliticized in a sequence, immediately adjacent to the clitic auxiliary verb if present. As we saw in 7.3.2, no other item may intervene between the pronominal clitics, or between the pronominal clitics and the auxiliary⁷. Preliminary examples of the clitic cluster are given in (23):

⁷ There is one exception to this statement. The question particle *li* may follow the first member of the clitic cluster if the negative particle is the host:

(23)a. *Az sâm me ja bil dal (knigata)* (Bulgarian)
 I be-1sg. 3sg.Dat. 3sg.Acc. be-ppl. give-ppl.masc. book-the
 'I had given it/the book to him'

b. *Ne bi sâm mu go dala* (Macedonian)
 not would be1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.
 'I would be unwilling to give it to him'

Mišeska Tomić (1996:827)

In both examples, the auxiliary inflected for 1sg. [-PAST] appears in the first position in the clitic cluster, followed by the dative then accusative pronominal clitics. Notice that in (a), the accusative clitic *ja* optionally doubles the direct object DP *knigata* 'book'. In Bulgarian, this is possible when the argument XP is a topic (Rudin 1997). Macedonian exhibits obligatory clitic doubling for [+specific] arguments, hence (24a) vs. (24b).

(24)a. *Mi ja dadoa smetka-ta*
 1sg.Dat. 3sg.Acc. give-3pl. bill-the
 'They gave me the bill'

(Lunt 1952:38)

(i) *Ne mu li go kaza?* (Bulgarian)
 neg. 3sg.Dat. Q. 3sg.Acc. said-3sg.
 'Didn't he tell him it?'

(Hauge 1976:30)

In this case, the clitic hosted by negation receives stress, an interesting problem for accounts that see cliticness as the defining feature of a pronominal clitic. Halpern (1995) proposes that the combination of a proclitic negative particle and an enclitic morpheme constitutes a word, hence can bear stress. See Rudin *et al.* (in press) for arguments that the distribution of the question particle is not purely the result of syntactic operations.

- b. *Toj sekoj den rešava zadačā*
 he every day solve-3sg. problems
 'He solves problems everyday'

(Lunt 1952:81)

In (a), *smetkata* 'the bill' is 'doubled' by the pronominal clitic. In (b), a [-SPECIFIC] object is not doubled. In this thesis we will not focus on the triggers for clitic doubling, but seek to establish the structural relation between the pronominal clitic and its argument XP that allows the XP to be null. Notice in passing that the Macedonian clitics appear in first position in (23a): in our terms, there is no context restriction on phonological lexicalization.

The term 'clitic cluster' is often used to refer to all clitic items found in the Bulgarian/Macedonian clause, including the question particle *li* and the Bulgarian future proclitic *šte* 'will'⁸. This can be unhelpful in determining the nature of the syntactic categories involved and their syntactic, morphological and phonological characteristics. Henceforth, the clausal 'clitic cluster' refers only to the auxiliary and pronominal clitics.

⁸ In Mišeska Tomic (1996a), the question particle *li* is included in the 'clitic cluster' because it often appears preceding the items in (21) and within the clitic cluster (see previous footnote). (i) indicates however that *li* may appear separately from the clitic cluster, and hence requires a separate account. See, for example, Rudin *et al.* (in press).

- (i). [IP *Šte si mi ja pokazali li?*
 will be-2sg. 1sg.Dat. 3sg.Acc. show-ppl. Q
 'Will you have shown her to us?' (Avgustinova 1994:44)]

In (i), the entire IP containing a clitic cluster precedes the question particle.

8.3.1. The internal order of the clitic cluster

The internal order of the Bulgarian clitic cluster is strictly that of (25).

(25) *Bulgarian clausal clitic cluster:*

auxiliary *buda* 'be' -- dative -- accusative -- reflexive -- 3sg.*je* 'be'

Notice that the auxiliary appears in first position in the cluster, as in (23a), unless it is specified for 3rd singular, in which case it appears in final position in the cluster, as in (26).

(26) *Toj* *mu* *go* *e* *dal*

he 3sg.Dat. 3sg. Acc. be-3sg. give-ppl.

'He gave it to him'

The internal order of the Macedonian clitic cluster in (27) is similar to Bulgarian (25), but differs in that both the 3rd person singular *and* plural of the auxiliary 'be' appear in final position:

(27) *Macedonian clausal clitic cluster:*

auxiliary -- dative -- accusative -- 3rd.sg.*e* /pl. *se* of auxiliary 'be'

Purely syntactic attempts to account for the positions of the auxiliary in the cluster via elaborate head movement and a functional hierarchy have so far achieved no more than an encoding of the descriptive facts.

Recall that the Bulgarian clitic cluster displays co-occurrence restrictions in (28) that are not predicted by the syntactic AgrP analysis of Rudin (1997) and Franks (1998).

(28)a. *Az* *te* *preporačvam* *na tjah*

(Bulgarian)

I 2sg.Acc. recommend-1sg. to them

'I introduce you to them'

b. *Az *im te preporačvam*

I 3pl.Dat. 2sg.Acc. recommend-1sg.

(Vassiliev 1969)

In (a), a full PP in argument position *na tjah* 'to them' is compatible with the pronominal clitic *te* 'you', yet the 1st and 2nd person accusative clitics cannot co-occur with a dative clitic in (b)

We also saw in section 7.3.1 that ethical datives unrelated to the syntax of the clause may appear in the dative slot within the clitic cluster:

(29)a. *Šte mi hodi (toj) na kino* (Bulgarian)
will 1sg.Dat. go-3sg. he to cinema
'He will go the cinema (on me)'

b. *Šte ti uvjahnat tsvetjata*
wil 2sg.Dat. wilt-3pl. flowers-the
l
'Your flowers will wilt!'

These ethical datives are not subcategorized for by the verb, but reflect pragmatic factors.

Bonet (1991) argues that similar data in Romance languages is evidence for assuming the internal structure of the clitic cluster is not derived within the syntax. Following the arguments against an AgrP analysis of South Slavic clitic clusters, we will henceforth assume that the internal structure of the clitic cluster in South Slavic results from a morphological template:

(30) *The internal order of the clitic cluster results from a morphological template*

In section 9.2, we argue that the clitic cluster is 'constructed' in the numeration.

8.3.2. The default position: the highest [+V] head

Next, let us consider the default position of the clitic cluster in the clause. In 6.2, we argued that the clitic auxiliary in Bulgarian and Macedonian appears in I⁰, terming this as the ‘highest [+V] head’. We now extend this generalization to the whole clitic cluster in these languages. We have already seen that the pronominal clitics appear in the same position as the auxiliary in (23). Consider also the example in (31), where the auxiliary and pronominal clitics are separated from the lexical verb.

(31) *As sâm mu go veče kazal* (Bulgarian)

I be-1sg. 3sg.Dat. 3sg.Acc. already say-ppl.

‘I’ve already told him’

Such data also supports the idea that the whole clitic cluster appears together in I⁰.

Next, consider the distribution of the pronominal clitics in the absence of a clitic auxiliary in (32).

(32)a. *Ja mi go donesi!* (Bulgarian)

hey 1sg.Dat. 3sg.Acc. bring-impv.

‘hey, bring me it!’

b. *Az go vizdah*

I 3sg.Acc. saw-1sg.

‘I saw him’

c. **Az go isvednuš vizdah*

I 3sg.Acc. suddenly saw-1sg.

d. *Ne mu donasjajki konjaka, ...*

neg. 3sg.Dat. bring-ger. cognac

‘Not bring him the cognac, ...’

In (a), the clitics precede the imperative verb. The finite verb in (b) is in I⁰, and the clitics are clearly adjoined to this position, given the ungrammaticality of an intervening adverb in (c). In (d), the clitics precede the gerund⁹.

It seems then that we can extend our descriptive generalization regarding the clitic auxiliary to the clitic cluster as a whole, with the added observation that the default syntactic position appears to be to the left of the [+V] head:

(33) *The Bulgarian/Macedonian clitic cluster appears left-adjoined to the highest [+V] head in the clause*

Stating the generalization in these terms avoids stipulating a particular syntactic head, such as I⁰, and hence includes the gerund and imperative data: we remain agnostic over the nature of the functional hierarchy in each of these constructions.

⁹ In fact, as Franks (1998:section 4.4.1) shows, the data with respect to the gerund construction is more complex than this. The clitics may optionally follow the gerund:

(i) *Ne donasjajki mu konjaka*
 neg. bring-ger. 3sg.Dat. cognac
 'Not bring him the cognac...'

In the absence of the negation, the clitics always follow the gerund:

(ii)a. *?Bârzo mu donasjajki konjaka, ...*
 quickly 3sg.Dat. bring-ger. cognac
 b. *Bârzo donasjajki mu konjaka, ...*
 'Quickly bringing him the cognac,...'

c. *??Konjaka mu donasjajki,...*
 cognac 3sg.Dat. bring-ger.

d. *Konjaka donasjajki mu,...*
 'Bringing him the cognac,...'

(Franks 1998:59)

In each case, the clitic is appearing on the verb. The descriptive generalization remains that the clitics are appearing on the highest [+V] head, though their proclitic vs. enclitic nature is unclear. See section 8.3.4 below for similar variation in some Macedonian constructions.

8.3.3. *The last resort second position*

We have seen that the clitics appear in the highest [+V] head. We have also seen in (24a) that Macedonian clitics may appear in first position in the sentence. However, Bulgarian clitics require a phonological host to their left and consequently cannot appear in sentence-initial position. Any preceding lexical item satisfies the host requirement.

- (34)a. **Mu go kazah* (Bulgarian)
3sg.Dat. 3sg.Acc. said-1sg.
'I told him'

Wh-element:

- b. *Kakvo mu kazah?*
what 3sg.Dat. said-1sg.
'What did I say to him?'

Complementizer:

- c. *Mislja će go vidjah*
think-1sg. that 3sg.Acc. saw-1sg.
'I think I saw him'

Preverbal adverb:

- d. *Izvednuš go vidjah*
suddenly 3sg.Acc. saw-1sg.
'I saw him immediately'

Topicalized XP:

- e. *V staja ta mu go kazah*
in room def. 3sg.Dat. 3sg.Acc. said-1sg.
'It was in the room that I told him'

Preverbal overt subject:

f. *Az sum mu go *kazal**

I be-1sg. 3sg.Dat. 3sg.Acc. said-ppl.

'I told him it'

Example (a) shows that the Bulgarian clitic cluster is subject to a restriction on appearing in sentence-initial position. Examples (b) - (f) demonstrate that a wide range of syntactic elements may appear to the left of the clitic cluster and satisfy the first position restriction.

The Bulgarian clitic cluster appears in a last resort, strict Wackernagel position in the same way as the clitic auxiliary. Consider (35).

(35)a. *Az mu go *kazah**

I 3sg.Dat. 3sg.Acc. said-1sg.

b. *Kazah mu go*

said-1sg. 3sg.Dat. 3sg.Acc.

'I told him'

c. *Az sum mu go *kazal**

I be-1sg. 3sg.Dat. 3sg.Acc. said-ppl.

d. *Kazal sum mu go*

said-ppl. be-1sg. 3sg.Dat. 3sg.Acc.

'I told him'

In (a) and (c), the clitics precede the lexical verb. If these constructions are *pro*-drop, then the clitics follow the lexical verb in both cases.

We argued extensively against a purely syntactic account of (35b) in 5.3, partly on grounds that 'last resort' V^0 movement to provide a host for the clitic must involve 'look ahead'. Evidently, the same arguments hold against a movement analysis of (35b). Franks (1998:55) proposes that the word order in (35b) is arrived at via syntactic lowering of the clitics, which is equally *ad hoc*.

Further evidence of the last resort nature of this second position is found in the imperative construction:

(36)a. *Ne mi go donesi*
neg. 1sg.Dat. 3sg.Acc. bring-impv.

'Don't bring me it'

b. *Konjaka mi donasjaj*
cognac 1sg.Dat. bring-impv.

'Bring me the cognac'

c. *Na Ivan go davaj*
To I. 3sg.Acc. give-impv.

'Give it to *Ivan*'

d. *Donesi mi go*
bring-impv. 1sg.Dat. 3sg.Acc.

'Bring it to me'

The clitics precede the imperative V^0 in (a)-(d) when a host to the left is present. If no host is present in the syntactic output, then the clitics follow the imperative V in (d).

In our terms, the pronominal clitics are subject to phonological lexicalization because they contain only formal features, no purely semantic features. Furthermore, given that members of the clitic cluster always appear cliticized together, we claim that the clitic cluster is lexicalized as a single unit.

(37) *The clitic cluster is phonologically lexicalized as a single unit.*

Recall next that in 6.5.1, we maintained the Bulgarian clitic auxiliary is subject to a restriction on phonological lexicalization: $+X____$ which forces a last resort lexicalization following the first phonological word. We assume that the clitic cluster contains the same restriction in Bulgarian, but not in Macedonian. Hence (38);

(38) *In the absence of a phonological host, last resort phonological lexicalization occurs following the first phonological word in Bulgarian.*

There are two additional pieces of evidence in support of (38). First, in Bulgarian we see a distinction and possible conflict between left-adjunction to the highest [+V] head (see (32b,c)) and phonological cliticness to the left. The latter leads to the restriction on appearing in first position. The model we established in chapter 4 reflects the distinction: the default insertion site is on the highest head (specified as [+V] in Bulgarian), and the phonological lexicalization restriction +X_____ prevents the clitic cluster appearing in first position.

In SCB, this distinction between syntactic position and phonological cliticization is blurred because of the lack of feature specification on the SCB auxiliary: phonological lexicalization occurs to the right of the highest head, regardless of its category, and this head also becomes its phonological host.

Secondly, evidence for the last resort nature, driven by the need for a phonological host, is found in the contrast between Bulgarian and Macedonian. Recall that Macedonian clitics are not barred from first position. Consequently we predict that there is no restriction on phonological lexicalization such that a last resort insertion occurs into the second position. Sure enough, we do not find the last resort [verb -- clitics] word order for non-finite or finite verbs: In Macedonian, the equivalent of (34b) and (34d) are ungrammatical.

8.3.4. Macedonian clitics that follow the verb

We have proposed in the previous sections that the Macedonian and Bulgarian clitics are left-adjoined at PF to the highest [+V] head. Nonetheless, the clitic patterns of the two languages differ with respect to right adjunction. The Bulgarian clitics appear right-adjoined to the verb only in a subset of the cases in which the clitic cluster is lexicalized in the second position as a last resort. However, there are cases in which the Macedonian clitics are right-adjoined to a [+V] head, even though this cannot be a result of last resort lexicalization.

First, recall instances of the Macedonian clitics appearing left-adjoined to the lexical verb:

(39)a. *Ne bi sâ^um mu go dala* (Macedonian)

not would be 1sg. 3sg.Dat. 3sg.Acc. give-ppl.fem.

'I would be unwilling to give it to him'

b. *Mi ja dadoa smetka-ta*

1sg.Dat. 3sg.Acc. give-3pl. bill-the

'They gave me the bill'

In both examples, the clitics are left-adjoined to the verb. In (a), the cluster is in I⁰, and the verb is in V, hence the cliticization is purely phonological. In (b), the clitics co-occur in I⁰.

Tomić (1996a) cites the following contexts in which the clitic cluster is phonologically *enclitic*:

(40)a. Imperatives:

daj mi ja knjigata

give-imp. 1sg.Dat. 3sg.Acc. book-the

'Give me the book!'

b. Present participles:

Davajki mi ja knjigata, me bakna

giving 1sg.Dat. 3sg.Acc. book-the, 1sg.Acc. kiss-3sg.

'Giving me the book, she kissed me'

c. -no passive participles:

Rečeno mu e da bide točen poveke pati

told 3sg.Dat. be3sg. to be-subj.3sg. punctual more times

'He was told to be punctual more than once'

d. Passive participles:

Izpraznet ke e stanot

emptied will be-3sg. apartment-the

'The apartment will be vacated'

e. Adjectival predicates:

Mil mi e Petko

dear 1sg.Acc. be-3sg. P.

'Petko is dear to me'

(Mišeska Tomić 1996:824)

In (a), the cluster is phonologically proclitic on an imperative verb, in (b) a present participle, and in (c,d) passive forms of the verb. In the copula sentence (e), the cluster is phonologically proclitic on the adjectival predicate.

We do not wish to stipulate such restrictions in the lexical entry of each clitic; besides being enormously unparsimonious, this would distance us from arriving at an underlying system that extends to all South Slavic languages. Also, the phonological lexicalization mechanism cannot distinguish between these different [+V] items. Whilst it remains unclear exactly how to account for these data in our model (and all competing accounts to date), research so far indicates that this is not a variation in phonological lexicalization, but is a result of syntactic movement. We will briefly outline these findings here.

Consider the imperative first. Data in Franks (1998:56) confirms that the clitics in (40a) are not in a last resort second position, because the clitics follow the imperative even when other lexical material precedes the imperative verb:

- (41)a. *Penkaloto kupuvaj mi go!*
 pen-the buy.impv. 1sg.Dat. 3sg.Acc.
 'Buy me *the pen*!'
- b. **Penkaloto mi go kupuvaj!*
- c. *Utre kupuvaj mi go penkaloto!*
 tomorrow buy.impv. 1sg.Dat. 3sg.Acc. pen-the
 'Buy me the pen *tomorrow*!'
- d. **Utre mi go kupuvaj penkaloto!*

In (a) and (c), the clitics are proclitic on the imperative verb. Examples (b) and (d) indicate this is not a simple second position, because the clitics are ungrammatical if they precede the imperative. Presumably, the imperative has raised to a higher position. See Rivero & Terzi (1995) for imperative raising to C⁰ in various Balkan languages.

Next, consider the fact that the Macedonian clitics always follow the gerund, as in (40b). Again, the clitics cannot precede the gerund, as indicated by (42).

- (42)a. **Mi ja davajki knjigata, me bakna*
 1sg.Dat. 3sg.Acc. giving book-the, 1sg.Acc. kiss-3sg.
 'Giving me the book, she kissed me'
- b. **Knigata mi ja davajki, me bakna*

In neither example can the clitics appear before the gerund. Again, this is not a case of last resort lexicalization, so we assume that the gerund in (40b) has moved up into a higher head.

Such instances of syntactic movement to check a feature differ from (40c,d), repeated here as (43a,c), because the word order appears to be somewhat more optional. Compare (a) with (b), and (c) with (d);

(43)a. *Rečeno mu e da bide točen poveke pati*
told 3sg.Dat. be3sg. to be-subj.3sg. punctual more times
'He was told to be punctual more than once'

b. *Mu e rečeno da bide točen poveke pati*

c. *Izpraznet ke e stanot*
emptied will be-3sg. apartment-the

d. *ke e stanot izpraznat*

In (b), the participle follows the clitic cluster and is grammatical. In (d), the passive participle may follow the clitic cluster¹⁰. We are unaware of any account of this data so far that goes beyond observational adequacy.

Finally, regarding the apparent enclisis to a nominal predicate in (40e), repeated as (44a), the data suggests that the clitic cluster is not restricted to being clitic on the adjective.

(44)a. *Mil mi e Petko*
dear 1sg.Acc. be-3sg. P.

b. *Mnogu mi e mil Petko*
very 1sg.Acc. be-3sg. dear P.

c. *Petko mi e mnogu mil*

In (a), the clitic cluster follows the adjective, in (b) it precedes the adjective and follows the specAP *mnogu* 'very', and in (c) it follows the subject *Petko*. Each of the examples in (44) has a different emphasis, suggesting that we are again dealing with syntactic

movement of the sentence-initial item in each case. This is unproblematic in (a) and (c): in (a), the AP has topicalized, and in (c), the DP has topicalized. However, a 'remnant topicalization' account of (b) seems an unlikely way forward, given that this would involve the scrambling of an A', prior to topicalization of the remaining AP containing *mnogu* 'very' present. We leave this construction for future research¹¹.

In this section, we have observed several cases in which the clitics are clitic on a [+V] head, but can, and in some cases must, be proclitic. We have demonstrated some variation between these contexts, indicating that all cases of proclisis should not be treated in the same way. The observation that we can retain however is that the clitic cluster appears on a [+V] head, with variation in phonological cliticization possible, depending on where the verb has moved in the syntax.

8.3.5. Summary of the descriptive generalizations

We have established that the clitic cluster in Bulgarian and Macedonian are phonologically lexicalized as a single unit in the highest [+V] head in the extended projection. The Bulgarian clitic cluster is subject to a restriction on phonological lexicalization such that it cannot appear in first position in the extended projection. Consequently, it undergoes last resort phonological lexicalization following the first phonological word.

The Macedonian clitic cluster has no such restriction on phonological lexicalization, hence can appear in the highest head regardless of whether this is in first position in the extended projection. Cases where clitics in Macedonian are proclitic on a verb form vary according to the syntactic behaviour of the verb form in question.

In 9.4.1, we relate these descriptive generalizations to the Semi-Postlexicalist model.

¹⁰ Ilija Čašule (pers. comm.) suggests that (43b) is 'slightly unusual' and that, similar to Bulgarian, the less stylistically marked form in (43c,d) would be the future *ke* followed by the full non-clitic verb *bide* 'be'.

¹¹ Note that (b) is identical to the Bulgarian construction (10c,d) in section 6.2.1, which we have argued results from 'last resort' phonological lexicalization.

8.4. Serbian/Croatian/Bosnian clausal clitics and clitics within PP

In chapter 5 we established that the SCB clitic auxiliaries are unspecified for any major class feature. When they are phonologically lexicalized, they are consequently lexicalized on the highest head available. If this position does not provide a phonological host to the left of the auxiliary, then a last resort lexicalization takes place into the second position. Following our discussion of the Alternative Realization mechanism in 7.4, we can now characterise the SCB clitic auxiliaries in more detail.

The SCB clitic auxiliaries are *not* auxiliary verbs at all. Rather they are the Alternative Realization of formal features in I^0 , in the same way as are inflectional morphemes on a finite verb in English. Differences between English and SCB on this point stem from the nature of the contextual restriction on the Alternative Realization morpheme. For English, the morpheme is specified to appear on V; for SCB, there is no requirement beyond the need for a phonological host. In 9.3, we shall go into further detail as to the nature of this Alternative Realization and its implications for a minimalist checking theory. For now, let us return to a consideration of the SCB pronominal clitics that may appear with the clitic auxiliaries in a clitic cluster.

As in the previous section, our purpose here is to extend the account of the clitic auxiliaries in SCB to the clitic cluster as a whole. We shall see that the SCB clitic cluster follows the distribution of the so-called clitic auxiliary. That is, the Alternative Realization of I^0 features in SCB dictates the position of the clitic cluster in much the same way as the clitic cluster in the Macedonian/Bulgarian DP is dictated by the realization of the D^0 feature.

As in Macedonian and Bulgarian, we regard SCB pronominal clitics as the Alternative Realization of formal features associated with argument phrases in VP. Appearance of an Alternative Realization morpheme allows the argument phrase to be null, modulo language-specific aspects of clitic doubling. The clitic cluster is phonologically lexicalized as a single unit at PF.

SCB has both clausal pronominal clitics and pronominal clitics inside PPs. The table in (45), from Ćavar & Wilder (1993) for Croatian, refers to these as C-clitics and P-clitics respectively. Again, we see the clitic forms alongside the stressed counterparts that appear in argument positions.

(45)

	Accusative			Dative	
	stressed	clitics P-clitics C-clitics		stressed	clitic
1sg.	<i>mene</i>	<i>me</i>	<i>me</i>	<i>na meni</i>	<i>mi</i>
2sg.	<i>tebe</i>	<i>te</i>	<i>te</i>	<i>na tebi</i>	<i>ti</i>
3sg.masc.	<i>njega</i>	<i>nj</i>	<i>ga</i>	<i>na njemu</i>	<i>mu</i>
3sg.fem.	<i>njû</i>	<i>nju</i>	<i>je, ju</i>	<i>na njoj</i>	<i>joj</i>
1pl.	<i>nâs</i>	<i>nas</i>	<i>nas</i>	<i>na nama</i>	<i>nam</i>
2pl.	<i>vâs</i>	<i>vas</i>	<i>vas</i>	<i>na vama</i>	<i>vam</i>
3pl.	<i>njih</i>	<i>ih</i>	<i>ih</i>	<i>na njima</i>	<i>im</i>

As in Macedonian and Bulgarian, clitic doubling is possible in SCB if the argument XP is topicalized (Ćavar & Wilder 1993:33).

An example of a 'P-clitic' inside a PP is underlined in (46):

- (46) ...*da je Ivan računao na nj*
that be-3sg. I. count-ppl. on him

'...that Ivan counted on him'

(Ćavar & Wilder 1993:34)

The clitic, *nj* 'him' is phonologically enclitic on the preposition and does not form a cluster with the clausal clitic auxiliary *je* 'is'. We shall briefly return to P-clitics in 8.4.2 below.

The order of the clausal clitics in CP is identical to Bulgarian, with only the 3rd person singular of the auxiliary *je* 'is' appearing in final position. Otherwise, the auxiliary appears in initial position.

(47) SCB clausal clitic cluster:

auxiliary -- dative -- accusative -- reflexive -- 3sg. *je* 'is'

Either a clitic form of 'be' or the future *ću* 'will' appears in the 'auxiliary' slot. An example of the full clitic cluster is given in (48):

(48) *Koliko li ti ih se je obratilo!*

how many Q. 2sg.Dat. 3pl.cc. refl. be-3sg. approach-ppl.

'I wonder how many of them approached you!'

(Tomić 1996:816)

The question particle *li* is phonologically enclitic, just as in Bulgarian and Macedonian, hence appears in the same prosodic 'word' as the pronominal clitics and auxiliary in (48). Again, we regard the distribution of the question particle a separate issue, and so henceforth, 'clitic cluster' refers only to the items in (47).

Each member of the clitic cluster is phonologically enclitic. We saw in Chapter 5 that this prevents the auxiliary from appearing in sentence-initial position; the same is true of the pronominal clitics.

(49) **Ga je čitao*

3sg.Acc. be-3sg. read-ppl.

'He read it'

(Ćavar & Wilder 1993)

Any lexical item which can receive stress preceding the clitic cluster may constitute a phonological host for the clitic cluster:

(50)a. *Ivan ga je čitao*

I. 3sg.Acc. be-3sg. read-ppl.

'Ivan read it'

b. *Ja ga čitam*

I 3sg.Acc. read-1sg.

'I read the book'

c. *Često ga je Ivan čitao*

often 3sg.Acc. be-3sg. I. read-ppl.

'Often Ivan read it'

In (a) and (b), the clitic cluster is hosted by a subject DP, and in (c) an adverb.

Progovac (1993) shows that pronominal clitics from a subordinate clause may appear in second position in the matrix clause when a closed class of verbs appear in the matrix clause. This can occur when the subordinate clause is finite or non-finite:

- (51)a. *Marija* *mi* *ga* *je* *zaboravila* *dati*
M. 1sg.Dat. 3sg.Acc. be-3sg. forget-ppl. give-inf.
'It was Maria who has forgotten to give it to me'

(Mišeska Tomić 1996:819)

- b. *Milan* *želi* *da* *ga* *vidi*
M. wish-3sg. that 3sg.Acc. see-3sg.
'Milan wishes to see him'

- c. ?*Milan* *ga* *želi* *da* *vidi*

(Progovac 1993:11)

In (a), the pronominal clitics associated with the dative and accusative arguments of the lower infinitival verb *dati* 'to give' appear in the same clitic cluster as the auxiliary in the matrix clause. In (b)/(c) we see a marginally optional placement of the pronominal clitic *ga* 'him' either following the subordinate complementizer *da* 'that' or following the focused subject *Milan* in the root clause. We focus on 'clitic climbing' constructions in 9.5.

So far we have established that the pronominal clitics together share the same prosodic restrictions as the clitic auxiliary in that they require a host to the left. Also, the whole clitic cluster may occur in a 'last resort' strict second position, following the first phonological word. Consider the data in (52).

(52)a [*Veoma lepu haljinu*] si mi *kupio*
 very beautiful dress be-2sg. me-Dat. buy-ppl.

b. [*Veoma* si mi lepu haljinu] *kupio*

c. [[*Veoma lepu*] si mi *haljinu*] *kupio*
 very beautiful be-2sg. me-Dat. dress buy-ppl.

‘You’ve bought me a *very beautiful* dress’

(Mišeska Tomić 1996:817)

In (a), the constituent *veoma lepu haljinu* ‘very nice dress’ has fronted and is able to host the clitic cluster. In (b), the cluster follows the first phonological word *veoma* ‘very’ and in (c) *veoma lepu* ‘very beautiful’. We assume that remnant topicalization discussed in 5.3.1. accounts for (c): the NP *haljinu* has scrambled to a pre-VP position, and the remains of the DP *veoma haljinu* ‘very beautiful’ has fronted. However, the remnant topicalization account is unable to cope with (b) because the clitic cluster here follows a specAP. It is unlikely that an intermediate projection A’ has scrambled out of the DP prior to remnant topicalization.

Henceforth, we will assume the same analysis for the SCB clitic cluster as for the Bulgarian and Macedonian clitic clusters. That is, no member of the clitic cluster contains a semantically interpretable feature, hence all are subject to phonological lexicalization. Furthermore, following the arguments in section 7.3.1., we assume that the clitic cluster is phonologically lexicalized as a single unit. If the lexicalization site does not provide a host within the extended projection of the lexical verb, then a ‘last resort’ lexicalization occurs placing the clitic cluster into the second position.

Evidence for the relevance of an ‘extended projection’ in phonological lexicalization was found in, for example, a complex DP construction. Recall from chapter 5 that when the clitic cluster appears in an infinitival clause as a complement to N, the clitics follow the verb in the following word order N^0 -- [V^0 -- clitic cluster]:

- (53)a. *Imaš mnogo vremena [čitati ga]*
 have-2sg. much time read-inf. 3sg.Acc.
 'You have a lot of time to read it'
- b. **Imaš ga mnogo vremena [čitati]*
- c. **Imaš mnogo vremena [ga čitati]*

In (a), the clitics are hosted by the infinitive following the noun and quantifier *mnogo* 'much'. They cannot appear in second position in the matrix clause in (b), or be hosted by the noun *vremena* 'time' in (c). This is because the phonological lexicalization restriction +X___ must be satisfied within the extended projection of *čitati* 'to read', hence the clitic follows the infinitive in (a).

So far, our discussion of the clitic cluster has glossed over the exact position of the clitic cluster in the clause, in each construction. Let us now tackle this issue in some detail.

8.4.1. Further evidence in favour of 'the highest head' position

In chapter 5 we argued that the SCB clitic auxiliary is lexicalized on the highest head in the extended projection of the lexical verb. Given that the pronominal clitics always appear with the auxiliary if it is present in the clause, it should therefore follow that the SCB clitic cluster as a whole is lexicalized on the highest head. In this section we shall see confirming evidence that this is so. First however, we entertain the possibility that the pronominal clitics may be in I⁰.

8.4.1.1. Is the clitic cluster in I⁰?

In section 8.3, we established that the Bulgarian and Macedonian clitic clusters are in I⁰. Let us briefly look at whether this might be the case for SCB also. A superficial look at (54) suggests as much.

- (54) *Ivan ga je vidio*
 I. 3sg.Acc. be-3sg. see-ppl.

'Ivan saw him'

(Wilder & Ćavar 1994:33)

The cluster appears between the subject and a non-finite verb. Assuming the subject is in specIP and the non-finite verb is inside VP, this suggests that the clitic cluster is in I⁰.

However, as in all the South Slavic languages, constituents are often fronted for purposes of focus or topicalization. Rudin (1986, 1990) describes the Bulgarian clause as having Topic and Focus Phrases above IP. More recently, Rizzi (1996) has developed a more articulated CP that includes Topic and Focus Phrases. It is uncontroversial that SCB similarly makes use of positions higher than IP in this way, though full analysis is outside the scope of this thesis. This factor therefore undermines the conclusion that the subject in (54) is in specIP. Indeed, Wilder and Čavar (1994:33) assume it is topicalized in (54), hence in a higher spec position than specIP.

In that case, all we can determine from (54) is that the clitic cluster appears somewhere between a specTopicP or specCP (depending on one's theory of topicalization) and the non-finite verb in VP.

A more telling example is (55):

- (55) *Stefan tvrdi da mu ga je Petar poklonio*
 S. claims that 3sg.Dat. 3sg.Acc. be-1sg. P. give-ppl.

‘Stefan claims that Peter has given it to him as a present’

(Progovac 1996:412)

Here, the clitic cluster appears between the complementizer *da* ‘that’ and a subject DP that is not topicalized¹². If the clitic cluster follows both the C⁰ and the subject, it is ungrammatical:

- (56) **Stefan tvrdi [da Petar mu ga je poklonio]*
 S. claims that P. 3sg.Dat. 3sg.Acc. be-1sg. give-ppl.

The clitic cluster cannot appear in ‘third position’.

WH-movement suggests the clitic cluster is attached lower in the tree than specCP:

¹² Like all the South Slavic languages, SCB is *pro*-drop. Hence an overt subject in any position expresses focus to some extent.

(57)a. *Koga je Stefan zbunio?*
who be-3sg. S. beat-ppl.

b. **Koga Stefan je zbunio?*

Here, the clitic cluster represented by the auxiliary *je* 'is' can only appear between the WH-element and the subject.

If we assume that in both (55) and (57a) the subject is in specIP, then we have evidence that the default position for the SCB clitic cluster in CP is between C^0 and specIP. Predictably, researchers have divided into two approaches: positing a separate 'functional' XP between C^0 and IP which hosts the clitic cluster, and proposing that the cluster is right-adjoined to C^0 . Our SP account is closer to the latter in that we do not posit an *ad hoc* projection for clitics, but assert that the clitic cluster is in C^0 when a full CP is projected.

The first of these positions is taken by Halpern (1995) and Rivero (1994). No independent arguments are given for a functional XP between CP and IP in SCB, beyond the fact that the clitic cluster appears there. Whether the cluster appears in a spec position (Rivero & Terzi 1994) or in a head position (Halpern 1995), no other specifiers or heads are cited which are in complementary distribution with the clitics, and the presence of these additional head and spec positions are never shown to have any (relativised) minimality effect on movements across the XP. It is also unclear what the 'function' of this functional phrase might be, beyond hosting a clitic when one is present. In other words, positing such an XP does nothing but announce that the clitic cluster appears between C^0 and IP. Furthermore, if the clitic cluster is in specWP, what is the analysis of the 'clitic cluster' such that a clitic auxiliary can appear in a spec position? There is no evidence that the clitic cluster is a phrase with its own hierarchy. We have argued that Agr phrases are dispensable because they make no contribution to LF; the same argument holds for rejecting a new functional projection above IP purely for clitics.

Instead, let us consider the arguments in favour of the clitic cluster being right-adjoined to C^0 .

8.4.1.2. *If a CP is projected, the clitic cluster is in C⁰*

We now review the arguments in favour of the clitic cluster being right-adjoined to C⁰ in Wilder & Ćavar (1994), Progovac (1996), Rivero (1994) and Mišeska Tomić (1996). As Progovac notes, the evidence is not overwhelming, and we question the validity of some of the arguments. However, we accept that C⁰ is the default syntactic position of the SCB clitic cluster, *but only when a full CP is projected*.

(i) [*Complementizer -- clitics -- subject*] *word order*: As we have seen in (55), repeated below as (59), the clitic cluster appears between the complementizer and an overt subject. However, if it is accepted that the subject is not in specIP in (54), can it be certain that the subject in (55) is in specIP, also assumed by Wilder & Ćavar (1994:20)? The example in (58) with a finite lexical verb suggests the answer is ‘yes’:

(58) ...*da rado Ivan pije pivo*

that gladly I. drink-3sg. beer

‘...that Ivan enjoys drinking beer’

(Wilder & Ćavar 1994:30)

The subject appears between an IP adjoined adverb and the lexical verb in I⁰. Compare the post-subject position of the verb in (58) with the position of the clitic cluster in (59):

(59) *Stefan tvrdi da mu ga je Petar poklonio*

S. claims that 3sg.Dat. 3sg.Acc. be-1sg. P. give-ppl.

‘Stefan claims that Peter has given it to him as a present’

The clitic cluster appears between the complementizer *da* ‘that’ and the subject *Petar*, which suggests the cluster is in C⁰.

This is confirmed by (56) in which we saw the subject cannot appear between the complementizer and the clitic cluster.

(ii) *Adverb data*: Wilder & Ćavar cite (60) in support of the auxiliary appearing in C⁰ on account of the fact that it precedes the adverb *rado* ‘gladly’.

(60)a. *Marija kaže da je rado čitao knjigu*

M. say-3sg. that be-3sg. gladly read-ppl. book

b. **Marija kaže da rado je čitao knjigu*

‘Maria says that she’ll gladly read the book’

(Wilder & Ćavar 1994:21)

In (a) the clitic cluster precedes the adverb and the sentence is grammatical; in (b) it follows, as we would expect if it were in I⁰, and the sentence is ungrammatical. Again, this supports the hypothesis that the cluster is in C⁰.

(iii) *The Question particle*: Assuming that the question particle *li* is generated in C⁰ as the spell-out of a question operator, *li* requires an XP to raise to check its Q-feature. The fact that *li* often appears within the same prosodic word as the clitic cluster is not a convincing argument for saying that the clitic cluster is also right-adjoined to C⁰. It is possible that this occurs simply on account of phonological cliticization at PF. The clitic cluster need simply be adjacent to *li* in the phonological string for all of these clitic elements to be enclitic on whatever XP has raised to check its Q-feature.

However, stronger evidence relating to the question particle is found in Progovac (1996). She points out that IP-adjoined adverbs cannot intervene between *li* and the clitic cluster:

(61)a. *Da li mu ga je možda Goran dao?*

that Q. 3sg.Dat. 3sg.Acc. be-3sg. maybe G. give-ppl.

‘Has Goran perhaps given it to him?’

b. **Da li možda mu ga je Goran dao?*

c. **Da možda li mu ga je Goran dao?*

d. *Ko li je koga predstavio?*
who Q be-3sg. whom introduce-ppl.
'Who was introduced to whom?'

e. **Ko li koga je predstavio?*
f. **Ko koga li je predstavio?*

(Progovac 1996:413)

Considering (a)-(c) first, the adverb *možda* 'maybe' cannot intervene between *li* and the clitic cluster in (b), as we would expect if the clitic cluster were in I^0 . It cannot appear between the complementizer *da* 'that' and *li* in (c) either, which confirms that the problem in (b) is not simply that *li* must be adjacent to the clitic cluster. The only grammatical option is for *možda* to follow the clitic cluster in (a).

Turning to (61d-f), Rudin (1988) has argued that the first WH-element in multiple WH-movement constructions in SCB is in specCP, and the remaining WH-elements are in specIP. Under this analysis, notice that the second WH-element in (d) cannot appear between *li* and the clitic cluster, as we would expect if the auxiliary were in I^0 . Example (e) confirms that the problem in (d) is not that the question particle and the clitic cluster are not adjacent. Example (f) strongly suggests that the clitic cluster together with *li* are adjoined to C^0 .

We have seen then that there is good reason to assert that in a CP, the clitic cluster appears right-adjoined to C^0 .

However, we maintain that the clitic cluster is only in C^0 when a full CP is projected. Next we present evidence that the clitic cluster is not always in C^0 , supporting our argument that the true generalization is that the clitic cluster appears on the highest head available.

8.4.1.3. *The SCB clitic cluster is not always in C⁰*

We have three arguments against the hypothesis that the clitic cluster is always in C⁰.

(i) Consider the construction in (62).

- (62) *Čita* *ga*
read-3sg. 3sg.Acc.
'He reads it'

Those authors who claim that the clitic cluster is always in C⁰ are forced to assert the existence of a full CP each time we have a member of the clitic cluster in the clause. Hence, (62) is a CP in their account. For methodological reasons, it is more parsimonious to assume as little structure as is necessary in our theory. It is therefore better if, in the absence of any independent evidence for a full CP in constructions such as (62), we do not claim a full CP.

Alternatively, we have assumed with Collins (1997:25) that economy is not built into the mechanism Attract alone, but is a general feature of the system. In particular, we have argued in 1.5 and 4.2.2 that Select/Merge is subject to economy. It therefore follows that it is more economic to have as little structure as possible, because this will involve fewer cases of Select/Merge. In the absence of any reason for a complementizer in an example like (62), it is more economic not to project one.

This then is an argument against the 'clitics always in C⁰' approach on the grounds of both parsimony, in terms of methodology, and economy, in terms of a minimalist framework¹³.

(ii) In fact, we can go further and demonstrate that some contexts clearly do not include a CP. Consider the distribution of pronominal clitics in a gerund construction:

¹³ See Franks (1998:23) for a similar argument, assuming a different model of minimalism.

(63)a. [*Dajući joj ružu*], *Damir ju je poljubio*
 Giving 3sg.Dat. rose D. 3sg.Acc. be-3sg. kiss-ppl.
 ‘Giving her a rose, Damir kissed her’

b. **Joj dajući ružu*, ...

c. **Dajući ružu joj*

(Ćavar & Wilder 1993:35)

In (a), the clitic follows the gerund *dajući* ‘giving’ and precedes the direct object *ružu* ‘rose’. As we expect, the clitic cannot appear in first position, hence the ungrammaticality of (b). We are also familiar with the fact that clitics cannot appear lower than the second position, as shown in (c). Ćavar & Wilder (1993) analyse this gerund construction in the same way as the ‘Long Head Movement’ construction: they are committed to the claim that the clitics are in C^0 , hence they assume that the gerund has also moved into C^0 in (a) the bracketed constituent in (a).

Are gerund constructions a full CP? Emonds (1985: chapter 3) argues that English participles and Spanish gerundives are bare VPs, and do not project to IP. In Slavic, Franks (1995) similarly argues that Russian gerund constructions are not CP on account of the lack of WH-movement:

- (64)a. **[Kniga [kotoruju_i [čtaja t_i]]]* (Russian)
 book which-Acc. reading
- b. **Kniga [kotoruju on umer napisav*
 book which-Acc. he died having written
- c. **Sprosil [kuda_i [pobežav t_i]]*
 asked where having run
- d. **Čto [Ivan vosel v komnatu [čtaja t_i]]*
 what Ivan entered into room reading (Franks 1995:259ff.)

In (a,b), it is impossible to construct relative clauses with gerunds, and in (c,d) it is impossible to have WH-movement of an adjunct (c) or a direct object (d) across a gerund. Precisely the same ungrammaticality occurs in SCB:

- (65)a. **[Knjiga [koju_i [čtajući t_i]]*
 book which.Acc. reading
- b. **Zena [koju_i je umro [voleći t_i]]*
 woman who.-Acc. be-3sg. die- loving
 ppl.masc.
- c. *Ivan je ušao u sobu čtajući pismo*
 I. be-3sg. enter-ppl. into room reading letter
 'Ivan entered the room reading a letter'
- d. **Šta je Ivan ušao u sobu [čtajući t_i]]?*
 what be-3sg. I. enter-ppl. into room reading
 'What did Ivan enter the room reading?'

In (a) and (b), a WH-relative is impossible with a gerund. In (d), WH-movement out of the gerund clause in (c) is equally bad.

It seems unlikely therefore that gerunds consist of full CPs in SCB.

Indeed, an SCB gerund clause does not appear to be an infinitival IP either. Consider the following data, comparing the distribution of gerund clauses with infinitival IPs.

(66)a. Gerund clauses cannot be conjoined with an infinitival IP:

Marija je htjela Ivanu dati knjigu i...

M. be3sg. wanted-3sg. I.Dat. give-inf. book and

... **razgovarajući / razgovarati s njim*

talk-gerund talk-inf. with him

'Maria wanted to give Ivan the book and talk with him'

b. Infinitival IP but not a gerund clause can appear as a complement to N:

i. *Imaš vremena čitati knjigu*

have-2sg. time read-inf. book

'You have time to read the book'

ii. **Imaš vremena razgovarajući s njim*

have-2sg. time talk-gerund with him

c. An infinitival IP but not a gerund clause can appear as a complement to verbs like *htjela* 'want':

- i. *Marija je htjela Ivanu dati knjigu*
M. be-3sg. want-ppl. I.Dat. give-inf. book
'Maria wanted to give Ivan the book'

ii. **Marija je htjela razgovarajuću s njim*

We conclude that gerunds are bare VPs. Still, our observation that the clitic cluster appears on the highest head in the extended projection holds true.

(iii) The third argument against clitics being uniformly in C^0 comes from the data in Bošković (1995) discussed in section 5.3.2.2. Adverbs such as *pravilno* 'correctly' and *mudro* 'wisely' carry only a manner interpretation when they are adjoined to VP. When they are adjoined to IP, they are ambiguous between a manner reading and a subject-oriented reading. When such an adverb follows the clitic cluster in (67), it has only VP scope.

- (67) *Odgovorio je pravilno Mariji*
answered-ppl. be-3sg. correctly M.

*'He did the right thing in answering Maria'

'He gave Maria a correct answer'

Bošković (1995:249)

This suggests that the auxiliary, and hence the clitic cluster as a whole, is not in C^0 in (67).

8.4.1.5. Summary

The conclusion of this section is that the provisional analysis for the clitic auxiliaries in chapter 5 is correct and may be extended to the entire clitic cluster: the SCB clitic cluster is phonologically lexicalized on *the highest head* available in the extended projection. If no host within the extended projection is available in such a position, then last resort phonological lexicalization takes place following the first phonological word.

8.4.2. Clitics in PP: extending the generalization 'highest head'

Finally, recall that SCB also has distinct pronominal clitics that appear only in a PP. For Ćavar & Wilder, these are distinguished from clausal clitics and termed 'P-clitics' in order to retain the generalization that clausal clitics always appear adjoined to C^0 . As a consequence, the number of primitives in their system is immediately extended to include two types of pronominal clitics that are stipulated to appear in C and P respectively.

The descriptive generalization we have adopted does not refer to a specific syntactic head, hence it is accurate enough to include the so-called P-clitics in its remit. These clitic pronominals inside the PP appear right-adjoined to the highest head, which is P.

8.5. Summary: the distribution is dictated by the auxiliary/determiner

Let us now bring together the various descriptive generalizations we have established in this chapter. First we have concluded that the clitic cluster in each language is lexicalized as a single unit at PF. Furthermore, we have assumed that the pronominal clitics are the Alternative Realization of argument phrases. The presence of such a morpheme licenses the associated phrase within VP to be null.

We consider the clausal clitics first, and then the clitic cluster inside Bulgarian and Macedonian DPs.

For SCB clausal clitics, our conclusions differ from the published literature to date. A claim first made in Caink (1997) is that the SCB clitic cluster does not always appear in C^0 . Rather, it appears on the highest head in the extended projection. Hence, in

a CP, it appears on C^0 , but in IP it appears on I^0 . In the case of a 'bare VP', such as a gerund construction, the clitic cluster appears on V^0 .

Furthermore, the clitic cluster is restricted from appearing without a host within the extended projection into which it is inserted.

(68) *The SCB clitic cluster :*

- a. *The clitic cluster appears on the highest head in the clause;*
- b. *The SCB clitic cluster has the contextual restriction: +X___*

The SCB clitic cluster has no contextual restrictions beyond that of (68b). Significantly, the cluster does not require insertion into a head of any particular categorial specification. The phonological lexicalization mechanism therefore inserts it into the last head position available. The restriction in (b) triggers last resort insertion following the first phonological word, if the 'highest head' position does not provide a host within the extended projection.

In fact, the idea that pronominal clitics appear as high as C is problematic for the Alternative Realization mechanism discussed in 7.4. In the following chapter we shall revise the structural relation required between an Alternative Realization morpheme and the associated node in canonical position.

A second major claim we have made in this chapter is that the SCB clitic auxiliaries are not in fact auxiliary verbs at all. Instead, we claimed (69).

(69) *SCB clitic auxiliaries are the Alternative Realization of features in I^0 .*

It is on account of this that clitic auxiliaries do not appear in the canonical position for true auxiliary verbs, but are able to appear as high as C^0 when a CP is projected.

In chapter 9, we relate these generalizations (68) and (69) to each other.

Turning to Bulgarian and Macedonian, the summary is relatively straightforward and uncontroversial:

(70) *Bulgarian & Macedonian clausal clitic clusters:*

- a. *The clitic cluster appears on the highest head specified as [+V] in the clause;*
- b. *The Bulgarian clitic cluster has the contextual restriction: +X___*

The significance of requiring a head specified as [+V] results from the categorial specification of C^0 , which is [-V,-N] (see section 3.4.3). Whatever the hierarchy of functional heads may be in a clause, the clitic cluster cannot be inserted as high as C^0 . It is adjoined to the highest head specified for the same '+' value as the head of the extended projection, ie. [+V]. If such a context does not provide a phonological host,

then the clitic cluster is lexicalized following the first phonological word on account of (70b).

Macedonian does not require a last resort phonological lexicalization because it lacks the restriction (70b).

Let us now recall our findings with respect to the Bulgarian and Macedonian clitic clusters within DP. Our descriptive generalization was as follows:

(71) *The DP clitic cluster appears on the highest [+N] head, except when the feature in D^0 is alternatively realised, when the clitic cluster appears on the head of the complement to D^0 .*

Developing Franks' observation (1998), we concluded that the D^0 feature is alternatively realized on the head of the complement to D^0 . Consequently the clitic cluster as a whole is lexicalized on this head. Otherwise, the possessive clitic appears on the highest nominal head in the extended projection.

A significant connection between the DP and clausal clitic clusters is that in each case, there is a sense in which the clitic cluster follows the behaviour of the 'determiner clitic' or 'auxiliary clitic' respectively. This is an interesting observation that we pursue in section 9.2 when we characterise the exact nature of the clitic cluster in our model.

9. The clitic cluster, Alternative Realization and clitic climbing

9.1. Introduction

The purpose of this chapter is to develop a number of aspects of our analysis in previous chapters. We discuss the exact nature of the clitic cluster in our model and present a Semi-postlexicalist version of the 'Alternative Realization' mechanism. Having demonstrated how it accounts for the descriptive generalizations established in the previous chapter, we then address the clitic climbing construction in SCB.

In our terms, Alternative Realization becomes a mechanism purely relevant to the PF interface, an aspect of Full Interpretation. In the light of SCB clitic placement within a CP, we revise the structural definition of Alternative Realization from that of 'sisterhood' in Emonds (1997) to one dependent on extended projections. We propose that the clitic cluster is an abstract 'word' formed in the numeration which takes its contextual and categorial features from the 'head' of the clitic cluster. In the clausal clitic cluster, this is the morpheme realizing the I^0 features; in the DP clitic cluster, this is the morpheme realizing the D^0 feature.

In the second half of this chapter, we turn to the clitic climbing construction in SCB. Given our formulation of extended projections, we show how a small closed class of verbs optionally allows the extended projection of an embedded verb to extend to include the matrix clause. The clitic placement varies its position depending on the lexicalization of this verb. We relate Rizzi's restrictions on VP movement in restructuring contexts to the PF head licensing mechanism.

Section 9.2 addresses the precise nature of the clitic cluster in this model. In section 9.3, we give a Semi-postlexicalist account of Alternative Realization and in 9.4 apply this to the descriptive generalizations we have established concerning South Slavic clitics. In Section 9.5, we turn to the clitic climbing construction, summarising our position and its wider implications in section 9.6.

9.2. The nature of the clitic cluster

We observed that the clausal clitic cluster may include 'ethical' datives that are unrelated to the argument structure of the lexical verb (sections 7.3.1, 8.3.1). We also observed the following wholly language-specific idiosyncrasies:

- (1)a. Co-occurrence restrictions (see 7.3.1);
- b. Sentence-initial position restrictions (see 5.2, 6.2.1, 8.3.3);
- c. Internal clitic cluster word order variations (e.g. see 8.3.1)

Besides drawing a blank on (1), purely syntactic accounts of the clitic cluster were shown to have little interesting to say about the internal order of the cluster. Indeed, in attempts to arrive at the cluster's internal structure, syntactic accounts invariably resort to a high degree of stipulation. Not the least of these has been the stipulation of the functional hierarchy of the clause itself, which, in the absence of independent evidence, is equivalent to stipulating a template. Furthermore, we have seen no evidence that there is an internal 'structure' to the clitic cluster in any case¹. In terms of the clitic cluster found inside the DP, attempts to distinguish between the treatment of the possessive clitic and the

¹ There is one piece of evidence that appears to undermine this claim, namely (i):

- (i) *Ne mú li go kaza?* (Bulgarian)
neg. 3sg.Dat. Q. 3sg.Acc. told-3sg.
'Didn't he tell him it?'

In this case, the pronominal clitic *mu* 'to him' is cliticized to the proclitic negative particle *ne*. It bears stress as indicated and is split from the rest of the clitic cluster by the question particle. Even if we assume here that *ne-mu* has in some way raised above the the question particle in C, if this were evidence of some structure within the clitic cluster, we would expect to see that this operation can be repeated with more elements in the clitic cluster. This is not possible:

- (ii) **Ne mu go li kaza?*

It is not clear why a supposed AgrIO head should behave differently from an AgrO head in this way. Whilst we have no revealing account of (i), some notion

clitic determiner/demonstrative leaves the fact that they always occur in the same position as a puzzling coincidence.

Instead, we chose to assume a linear template for the clitic cluster, but not one that makes any unlikely claims about the syntax. Given that idiosyncratic language-specific variation is located in the lexicon and the phonology, it is appropriate that such a stipulation should be associated with these two modules. We also asserted that the clitic cluster is phonologically lexicalized as a single unit. However, like most competing accounts, we have glossed over what the clitic cluster 'unit' *is*. Here we briefly speculate on the nature of this primitive in our system.

We regard the clitic cluster as an abstract 'word', abstract in the sense that it varies in terms of the morphemes it contains. The template in, say, the Bulgarian clausal clitic cluster in (2a) and the DP clitic cluster in (2b) are abstract blueprints of the clitic cluster unit, restricting members only in terms of left-right order.

(2) *Bulgarian clausal clitic cluster:*

auxiliary *buda* 'be'-- dative -- accusative -- reflexive -- 3sg.*je* 'be'

Secondly, we regard the 'head' of this abstract word to be the morpheme that realizes I^0 features. By 'head', we mean that the contextual restrictions (e.g. +X___) and the categorial specifications of the clitic cluster derives from the clitic auxiliary, morphemes that realize I^0 features. We assume a flat structure among the clitics (see fn.1).

For example, the Bulgarian pronominal clitics appear on the highest [+V] head of the clause, regardless of whether or not an auxiliary is present. In the same way, the pronominal clitics of the SCB clitic cluster appear on the highest head available, regardless of whether an auxiliary is present.

Why should the auxiliary pass its categorial specifications and contextual restrictions to the clitic cluster in this way? By claiming that the

of linear morpheme order in the template may well be relevant here, just as in our discussion of the ellipsis data in section 7.3.2.2.

clitic auxiliary is in fact the 'head' of the clitic cluster, we claim that the distribution of the clitic cluster stems from the nature of the clitic auxiliary. Hence, because the clitic auxiliary in Bulgarian is specified as [+V,-N], the clitic cluster as a whole, regardless of which members it contains in a given derivation, is similarly specified as such. This in itself is not so revealing. It becomes more interesting when we consider the SCB clitic auxiliaries and make the same analysis of the Macedonian/Bulgarian DP clitic clusters.

Recall that SCB clitic auxiliaries are not auxiliary verbs *but the Alternative Realization of I⁰ features*. These are unspecified for any class feature and include only the contextual feature +X___. Their placement determines the behaviour of the clitic cluster as a whole.

In the same way, in the Bulgarian/Macedonian DP clitic cluster, the determiner is the 'head' of the clitic cluster. The clitic determiner is the Alternative Realization of D⁰ features, specified to appear on the head of a sister to D⁰. Again, the clitic cluster as a whole, including up to one other member, the possessive dative clitic, appears on the complement head. A slight difference follows here. If the clitic determiner is not present, then the possessive clitic appears on the highest [+N] head available.

It now follows why all members of the clitic cluster in a given language individually behave in the same way in terms of idiosyncratic behaviour such as phonological cliticization. We also claim an element of parsimony in this account: the contextual restrictions, for example, need not be listed in the lexicon for each individual member of the cluster.

The clitic cluster blueprint for any given language must evidently exist in the lexicon, given minor cross-linguistic variation in its internal order. We will assume it is 'constructed' in the numeration.

9.3. A revised Alternative Realization mechanism

Recall that overt movement in the minimalist framework is triggered by PF interface requirements. In adopting a form of Emonds' Alternative Realization, which has not previously been integrated into any type of minimalist account, questions immediately arise as to the relation between this device and checking abstract morphological features.

This section adapts Alternative Realization so that it is essentially not a syntactic phenomenon, but a reflection of Full Interpretation at PF. We discuss the implications this mechanism has for a minimalist model of grammar more generally. Then in the following subsection we establish that as it stands, Alternative Realization is unable to account for the placement of SCB pronominal clitics. We propose a revision to the structural definition of Alternative Realization given in section 7.4.

9.3.1. Checking and Alternative Realization

Let us take the Bulgarian data in (3) as examples to focus on.

- (3) a. *Viždam tozi čovek* (Bulgarian)
see-1sg. this guy
'I see this guy'
- b. *Az go viždam*
I 3sg.Acc. see-1sg.
'I see him'
- c. *Tozi čovek go viždam*
this guy 3sg.Acc. see-1sg.
'It's this guy I see'

In (a), the full XP *tozi čovek* 'this guy' is the direct object of the verb. In (b), the full XP is null and alternatively realized by the pronominal clitic *go* 'him'. In (c), the full XP is topicalized and 'doubled' by the clitic.

Let us assume for the moment that a pronominal clitic carries the following feature matrix when it appears in the numeration:

(4) Pronominal feature matrix: $[\pi, \emptyset, FF]$

where π = phonological features, \emptyset indicates the lack of 'purely semantic' information, and FF = the closed class syntactic features.

To suggest that the feature matrix (4) appears in the numeration causes a problem, because according to the system proposed in chapter 3, the FF in (4) will be selected for computation. This will result in the pronominal clitic appearing in the syntax in the same derivation as the full DP. In other words, in (4b,c), we have two direct objects in the derivation. This is equivalent to the issue of whether the clitic 'absorbs' the accusative case feature and direct object theta role or not in earlier GB treatments (e.g. Kayne 1975; Borer 1984).

The pronominal clitic cannot therefore include FF, but is rather as in (5).

(5) Pronominal clitic feature matrix: $[\pi, \emptyset, \emptyset]$

Only π features are present which are subject to phonological lexicalization.

All that is required in a language is that π in (5) is associated with the FF of the full DP. That is, *go* in (3) is associated with '3rd singular accusative' in the lexicon. A pronominal clitic is not an argument of the verb in the syntax. Indeed, unlike in Emonds' account, the features of alternatively realized morphemes do not appear in the syntax at all. The clitic is simply the π spell-out of the FF in the syntax.

Pronominal clitics either alternatively realize a null XP, or they 'double' a full XP, (3b,c) respectively. Let us consider (3b) first. The full DP is syntactically present, but the π features dominated by DP are null. The features that the DP node dominate are therefore as in (6).

(6) $[\emptyset, f, FF]$

The π features indicate all the phonological material under the DP node, f represent the purely semantic features of the lexical noun, and FF are the closed class features.

In contrast, in the clitic doubling case (3c), the DP has the full feature matrix in (7):

(7) [π, f, FF]

We thus have the following possibilities for languages to choose from.

(8)a. Alternative Realization

Pronominal clitic [$\pi, \emptyset, \emptyset$] and phonologically null DP [\emptyset, λ, FF]:

Az go viždam \emptyset

I 3sg.Acc. see-1sg.

b. Clitic Doubling

Pronominal clitic [$\pi, \emptyset, \emptyset$] and overt DP [π, λ, FF]:

Tozi čovek go viždam

this guy 3sg.Acc. see-1sg.

Full Interpretation requires in (a) that if $\pi = \emptyset$ in the DP, then presence of the pronominal clitic is obligatory.

Beyond this minimal requirement, languages differ as to the conditions that give rise to doubling (8b). Crucially, this constitutes cross-linguistic variation at the PF interface, not in the syntax.

Let us now turn to consider the implications that adopting Alternative Realization has for the grammar as a whole. In the system of Chomsky (1995: chapter 4), languages divide over whether they check abstract morphological features overtly or covertly. In a language such as French, the strong [V] feature in T attracts a verb for checking and deletion of the feature. If this does not happen, the derivation crashes at the PF interface. If the feature is weak, such as

in English, the feature causes no problem at the PF interface and is checked following Spell-out. The verb consequently remains in, say, VP at Spell-out.

If, however, the inflectional morphology on the English verb results from Alternative Realization, then it appears that languages differ not in terms of whether a feature is checked overtly or covertly, but whether a feature is checked (overtly) or is alternatively realized.

Indeed, it appears that a language may exhibit both, if our account of SCB auxiliaries is correct. SCB I^0 features have two options by which to be realized:

(i) They attract a full form auxiliary *jesam* 'am', *nisam* 'not am' or *hoču* 'will' (section 5.2) or a lexical verb to carry the features (= minimalist 'overt checking'): the inflectional morpheme is phonologically lexicalized and must appear on this auxiliary or finite verb, having the contextual feature +V___, or

(ii) The features in I^0 may be alternatively realized in the same way as the I^0 features in English. The difference between English and SCB in this case derives from the context in which the alternatively realized morpheme appears at PF. In English, this morpheme is specified to appear on a verb, hence +V___; the SCB morpheme is specified to appear on any head, +X___. As proposed in 5.4.2, it is the bottom-up nature of the phonological lexicalization mechanism together with economy that results in the highest head being chosen.

Note that the optionality here is *not* methodologically equivalent to stating a language has an optionally weak or strong feature in the syntax. Weak/strong features are a reflection of word orders. In our system, the way in which any feature is realized at PF is optional, and decided *by the contents of the numeration*.

By introducing the Alternative Realization mechanism into a minimalist framework, we have essentially introduced an alternative to covert movement that is not independently motivated by semantic evidence (e.g. quantifier raising). Features may be 'checked' or alternatively realized.

In the next section, we move on to considering what the structural relation is between a pronominal clitic and the XP whose π features it replaces or doubles.

9.3.2. *Extended projection rather than sisterhood*

We saw in section 7.4 that for Emonds, the structural relation under which Alternative Realization occurs is defined in terms of sisterhood:

- (9) *Alternative Realization* (AR): A syntactic feature F matched in UG with category B can be realised in a grammatical morpheme under X^0 , provided X^k is a sister of [B, F].

The problem here is that ‘sisterhood’ in (9) does not predict that clitics associated with XP in argument positions in VP can appear adjoined to C^0 , as in SCB:

- (10) *Stefan tvrdi da mu ga je Petar poklonio* (SCB)
S. claims that 3sg.Dat. 3sg.Acc. be-1sg. P. give-ppl.
‘Stefan claims that Peter has given it to him as a present’

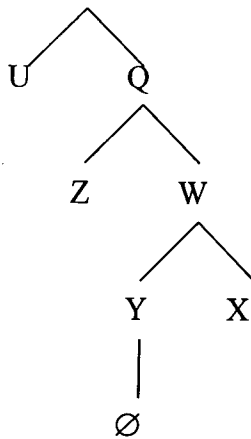
(Progovac 1996:412)

This remains true even if we take into account Emonds’ extended definition of ‘sisterhood’ in (11):

(11)a. *Sisterhood*: if W and Z are sisters, W dominates X, and X dominates the only lexical material under W, then X and Z are sisters

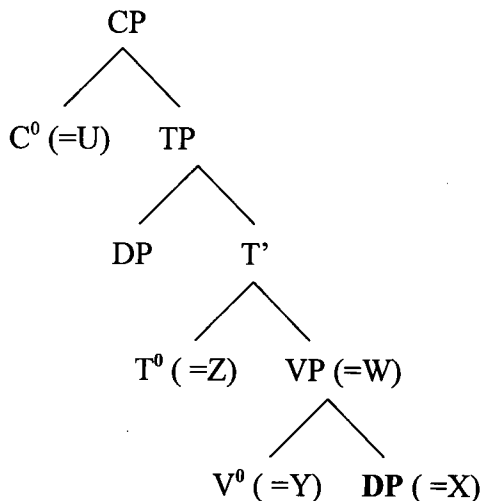
(Emonds 1995:26)

b.



The formulation of (11a) allows Z and X to be sisters because Y dominates no phonological material. In fact, it also allows U and X to be sisters, provided that X dominates the only phonological material under Q. However, this is still not adequate to account for pronominal clitics appearing under C^0 . Consider (12) where the abstract nodes in (11b) are translated into a CP:

(12)



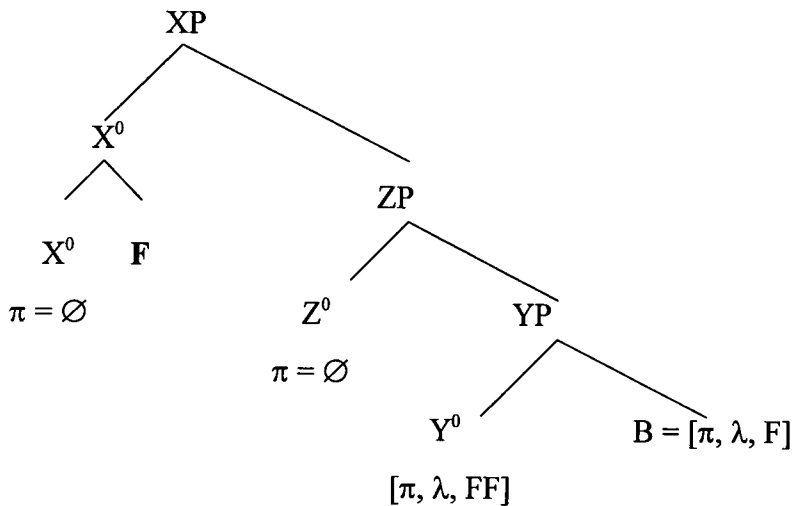
The problem lies in the fact that both V^0 and the highlighted DP dominate π features in the syntax, both being lexical items, hence the DP and C^0 cannot be

(extended) sisters. In fact, presence of a subject DP in specTP would also block sisterhood between any node inside TP and C^0 , by (11a).

Evidently the way in which Alternative Realization is formulated in (9) is unable to account for SCB clitics. Instead, let us formulate the necessary structural relation in terms of extended projections:

(13)a. *Revised Alternative Realization*: A syntactic feature F matched in UG with category B in the extended projection of Y may be realised in a grammatical morpheme under X^0 , provided X^0 is in the extended projection of Y^0 .

b.



Thus, in (13b), the syntactic feature F (highlighted) can appear under X^0 provided that X^0 is within the extended projection of Y^0 . Recall that ‘extended projection’ is defined in terms of which heads dominate π features (section 4.3.1): neither Z^0 nor X^0 in (b) can dominate π features if the structural relation between F and $[B, F]$ is legitimate. Alternatively, F could appear under Z^0 , modulo language-specific restrictions discussed below. Note that presence of phonological features (‘lexical material’ in (11a)) in, say, specZP does not affect this structural relation.

The structural relation required for Alternative Realization is then not ‘sisterhood’ but ‘on a head within the same extended projection’.

Note that we assume all items related to an extended projection must be used up before the phonological lexicalization progresses to the next extended projection. Alternatively, if we adopt a cyclic approach to numeration (4.3.3), then each extended projection has its own numeration: 'If NUM [numeration] is insufficient, the derivation will not converge; if NUM is too large, with unusable elements after convergence, then the derivation is disallowed.' (Chomsky 1998:10). In this case, we need not even assert that Alternative Realization must occur within an extended projection, merely that it must occur: the Alternative Realization morphemes in a given numeration must be 'used up', or else the derivation will be disallowed or crash. If they are the wrong morphemes, the derivation crashes for lack of Full Interpretation. If they do not relate to any other nodes in the derivation, we assume the derivation is ruled out on grounds of economy.

To conclude, we have adapted Emonds' Alternative Realization in two ways. First, we have made it a purely PF phenomenon for the purposes of Full Interpretation. A feature may either attract another element before Spell-out to check and delete the feature (= strong feature) or it may be alternatively realised.

Secondly, we have extended the structural requirement by which an Alternative Realization morpheme may license an XP to be null. In our system, Alternative Realization must occur within the same extended projection. Language-specific and item-specific contextual features then make further restrictions.

In the next section, we return to considering South Slavic clitic clusters in which these language-specific contextual features play a crucial role in capturing a number of minor cross-linguistic variations.

9.4. Back to the descriptive generalizations

We now return to the descriptive generalizations for the clitic clusters that were formulated in the previous chapter and discuss them within the terms of the preceding sections.

9.4.1. Clausal clitic clusters

If the SCB clitic cluster is lexicalized under the highest head in the extended projection, we can regard SCB as the default case. Because of the lack of categorial features on the so-called auxiliaries, the clitic cluster as a unit, regardless of its members in any particular derivation, remains unspecified for a categorial feature matrix. Informally, the phonological lexicalization mechanism does not know what to do with such morphemes left in the numeration. Hence in all cases, the clitic cluster simply appears on 'a head', unspecified.

However, the fact that economy is global in our system (section 4.2.2) requires that the phonological lexicalization mechanism inserts material as late as possible. Consequently, the unspecified head in the extended projection on which the clitic cluster is lexicalized is *the highest head*.

The only specification the SCB clitic cluster *does* contain is a purely phonological one, that some phonological host must be available within the extended projection. As we have seen, this leads to a last resort lexicalization following the first phonological word if necessary.

Let us summarise this information about the SCB clitic cluster in (14).

(14) SCB Clitic Cluster Placement:

	Default syntactic position:	Phonological Lexicalization Requirement:
SCB	...	+X__

The default syntactic position is unspecified: the phonological lexicalization mechanism adjoins the π features to the highest head, as the mechanism arrives at the top of the extended projection. If this causes the clitic cluster to be

(16) Macedonian & Bulgarian (clausal) Clitic Cluster Placement:

	Default syntactic position:	Phonological Lexicalization Requirement:
Macedonian:	[+V]	...
Bulgarian:	[+V]	+X__

The table shows that the clitic cluster in both languages is specified [+V] and hence must appear on a head also specified [+V]. The phonological lexicalization mechanism adjoins the π features to the highest [+V] head available; again, this is a combination of the bottom-up mechanism and economy, with the additional item-specific contextual requirement [+V].

Only Bulgarian is specified for a phonological lexicalization restriction, indicating that if this position provides no phonological host to the left within the extended projection, then last resort lexicalization takes place, dependent on the [+/-V] specification of the next adjacent constituent.

9.4.2. *Clitic clusters in DP*

For the Macedonian and Bulgarian DP clitic clusters, we concluded that the realization of the D^0 feature is what determines the position of the clitic cluster as a whole. If the D^0 feature is realized by a lexical item such as a demonstrative, the clitic cluster appears on the highest [+N] head, D^0 . Hence the example repeated as (17). If there is no realization of D^0 , the possessive clitic still appears on the highest [+N] head.

(17)a. *Tezi ti knigi*

these 2sg.Dat. books

'These books of yours'

b. *Majka mu*

mother 3sg.Dat.masc.

'His mother'

In (a), the possessive clitic *ti* alternatively realizes a null phrase $_{pp}[na\ tebe]$ ‘of yours’, a complement to *knigi* ‘books’. In (b), no determiner is possible (see section 8.3). In both cases, the dative possessive clitic appears adjoined to the highest [+N] head in the extended projection.

Note that this specification [+N] prevents the possessive clitic appearing on arguably the highest head in the extended projection of the noun, a preposition:

- (18) ...*za tezi ti knigi* (Bulgarian)
 for these 2sg.Dat.. books
 ‘...for these books of yours’

If the entire PP in (18) is the extended projection of the lexical noun *knigi* ‘books’, we note that the clitics do not follow the preposition but the adjective. This clitic placement follows on account of the categorial specification of P, which is [-V,-N] (see section 3.4.3). This is, of course, equivalent to the way that the Bulgarian/Macedonian clausal clitics appear lower than C^0 in the clause on account of the [+V] specification.

If the D^0 feature is alternatively realized, then the Alternative Realization morpheme appears as part of the clitic cluster along with the possessive clitic if present. We observed that the feature is alternatively realized on the head of the complement to D^0 via sisterhood. This is the same structural relation that exists between I^0 and the inflection on the English verb. In our account, the possessive clitic appears in the same place as the determiner because they are inserted together as a unit. The clitic determiner’s contextual feature is inherited by the cluster as a whole.

The difference between the distribution of clausal clitic clusters in South Slavic and this DP clitic cluster stems only from the structural relation between the Alternative Realization morpheme and the locus of the features it alternatively realizes. In the Bulgarian and Macedonian DP, if the D^0 feature is alternatively realized, this occurs via strict sisterhood, as predicted by Emonds’ original formulation of Alternative Realization in section 7.4. For SCB, the

features of I⁰ are realised ‘anywhere’ in the extended projection, which lead to our reformulation of Emonds’ Alternative Realization mechanism in terms of extended projections.

9.5. clitic climbing

In previous chapters, we observed in passing that SCB pronominal clitics in a subordinate clause can sometimes appear in the matrix clause. The data is repeated here as (19).

- (19)a. *Marija* *mi* *ga* *je* *zaboravila* *dati*
 M. 1sg.Dat. 3sg.Acc. be-3sg. forget-ppl. give-inf.
 ‘It was Maria who has forgotten to give it to me’
- b. *Milan* *želi* *da* *ga* *vidi*
 M. wish-3sg. that 3sg.Acc. see-3sg.
 ‘Milan wishes to see him’
- c. ?*Milan* *ga* *želi* *da* *vidi*

In (a), this so-called ‘clitic climbing’ takes place from a non-finite subordinate clause, as in Italian and Spanish ‘restructuring’ contexts discussed in 7.4.2. In (b)/(c), we see clitic climbing is optional, and somewhat marginal for some speakers, from finite clauses in SCB.

(21)a. **Milan ga želi da vidiš*

M. 3sg.Acc. wish-3sg. that see-2sg.

‘Milan wishes you to see him’

b. **Ne bih ga želeo da vidim*

neg. cond.1sg. 3sg.Acc. wish-ppl. that see-1sg.

‘I didn’t wish to see him’

(Terzi 1996:289/90)

Clitic climbing is not possible in (a) because the subject of the matrix clause is 1st person singular and the embedded clause is 2nd person singular, whilst in (b) the tenses of the clauses differ: the matrix tense is a past conditional periphrastic tense whilst the subordinate tense is present.

Focusing on Salentino first, the optionality in (20) leads Terzi to assume that clitic climbing is dependent on T^0 raising but not *obligatory*: in both examples in (20), the subordinate T^0 has supposedly raised, but in only (b) does the clitic raise. Terzi assumes the optionality follows from the fact that pronominal clitics in finite clauses are attached to a (featureless) functional head higher than T^0 . Hence “ T^0 raising...although necessary for clitic climbing, can be independent of it” (Terzi 1996:288). It is not made clear what the dependency is however.

The intuition underlying a T^0 -raising account of clitic climbing is that clitic climbing is related to the non-distinctness of tenses and subjects in root and embedded clauses. However, such an intuition is immediately lost if (a) the clitics are not adjoined to T^0 but to another head, and if (b) the pronominal clitic only *optionally* raises.

The intuition is lost still further in Terzi’s account of clitic climbing in SCB (19). As the reader will have noticed, in (19c) the pronominal clitic appears to have raised over the complementizer *da* ‘that’. This should not be possible, given the Head Movement Constraint; indeed, the inability to cross a complementizer was cited as an argument in favour of T^0 raising. Instead, Terzi asserts that the SCB pronominal clitics are XP adjoined to a Wackernagel Phrase between CP and IP. Clitic climbing is therefore XP movement, which

enables the pronominal clitic(s) to cross over the complementizer *da* 'that'. The optionality in (19b,c) again suggests that clitic climbing is not obligatory when T raising occurs, but Terzi assumes clitic climbing continues to be dependent on T⁰ raising (p.290), though again for reasons that remain unclear.

A number of further problems for Terzi's account exist:

(a) *SCB clitics are XP*: It is assumed that SCB pronominal clitics are XP adjoined to a WP between CP and IP, given that the clitic can cross the complementizer in (19c). We argued in section 8.4.1.1 against the merits of positing a separate clitic phrase between CP and IP. However, consider here the fact that the clitic cannot cross all complementizers:

(22)a. *Ja žalim što ga vidim*

I want-1sg. that 3sg.Acc. see-1sg.

'I want to see him'

b. **Ja ga žalim što vidim*

(N. Leko, pers.comm.)

Unlike *da*, the complementizer *što* 'that' does not allow clitic climbing, despite identity of tenses and subjects in (b). As far as complementizers are concerned then, there is equal evidence for clitic movement as head movement and as phrasal movement.

Also in support of SCB clitics as XP, Terzi suggests that the subject of the subordinate clause in (23) blocks clitic climbing because this would constitute XP-movement across a maximal projection:

(23) **Milan ga želi da Petar vidi*

M. 3sg.Acc. wish-3sg. that P. see-3sg.

'Milan wishes Peter to see him'

(Terzi 1996:292)

The lower subject *Petar* supposedly blocks movement of *go* 'him' because both are phrasal, hence the subject constitutes an intervening potential governor. However, as is conceded in a footnote, (23) should be ruled out in Terzi's account because the subjects are not the same (Terzi 1996: fn.22). The reader is referred to Rivero & Terzi (1995) for further justification of SCB clitics being XP, but there too this is largely an assumption without any strong evidence.

(b) T^0 raising across C^0 : Even if we concede that SCB clitics are XP and are able to cross a complementizer, it remains unclear how T^0 is able to cross a complementizer in (19c). In fact, (19c) can be cited *against* the idea that clitic climbing is dependent on T^0 -raising: the clitics are XP in the spec of a higher head, not T^0 , and are able to cross a head that T^0 cannot cross, given the Head Movement Constraint. The relation between tense raising and clitic climbing is already unclear but complementizers present an argument against the relation².

(c) *No [+past] in subordinate clause*: T^0 raising is said to occur only if tenses are non-distinct in the root and embedded clauses. This means that, the subordinate clause may be non-finite, or finite with the same Tense specifications as the matrix clause. However, the restriction is actually stronger than this: clitic climbing never occurs in SCB if the embedded tense is [+past]:

(24)a. *Ja sam ga želio da posjetim*

I be-1sg. 3sg.Acc. wish-ppl. that visit-1sg.

'I wished to visit him'

b. **Ja sam ga želio da sam posjetio*

I be-1sg. 3sg.Acc. wish-ppl. that be-1sg. visit-ppl.

(N. Leko, pers. comm.)

² Tense raising would be possible if *da* is analysed as not being in C^0 but in the spec of an empty C^0 , as Kayne (1989) analyses the Italian 'complementizer' *di*. But again, this should block XP movement across the spec position. The problem is more fundamental: the notion of a movement analysis of pronominal clitics.

The pronominal clitic has climbed in (a) despite the fact that the matrix tense is a periphrastic past tense, but is blocked from doing so in (b) despite identity of tenses in the root and embedded clauses. The descriptive generalization is not therefore ‘identity of tense’ but ‘no [+past] in the subordinate clause’. Terzi’s analysis has no account for this (Terzi 1996: fn.15).

(d) *Identity of subjects*: T⁰-raising requires identity of subjects. Again, the restriction on clitic climbing with respect to subjects is more stringent than this. Progovac (1993) shows that clitic climbing is not possible even when overt subjects *are* co-referent:

(25) **Milan ga želi [da on vidi]*

M. 3sg.Acc. wish-3sg. that he see-3sg.

‘Milan wants to see him’

(Progovac 1993)

In (25), the pronominal subject *on* ‘he’ of the lower clause is co-referent with *Milan*, the subject of the matrix clause. The more accurate generalization is therefore that clitic climbing is restricted from occurring when any overt subject appears in the subordinate clause, or when the subordinate clause is inflected for a different subject to the matrix subject.

(e) *The matrix verbs*: The T⁰ raising analysis would suggest that clitic climbing is possible *whenever* there is identity between the TPs in root and embedded clauses. As Progovac (1993) shows, clitic climbing is only possible with a closed class of verbs. In her dialect, it is not possible with, say, verbs of ‘saying’, ‘believing’ or ‘ordering’:

(26)a. *Milan kaže da ga vidi*

M. say-3sg. that 3sg.Acc. see-3sg.

‘Milan says that he can see him’

b. **Milan ga kaže da vidi*

(Progovac 1993:119)

The verb *kaže* 'say' takes a *da*-clause (a) but does not allow the clitic to climb in (b), again, despite identity of tense and subject.

The notion of Tense raising does not therefore appear to throw any light on the constructions in question. We have seen data that suggests some form of 'clause union' between the matrix and embedded clauses is taking place in (18a,c). Progovac terms this 'domain extension'.

9.5.1.2. 'Domain extension' and deletion at LF (Progovac 1993)

Progovac (1993) distinguishes the set of verbs that allow clitic climbing from a subordinate clause as follows: verbs of wishing and requesting such as *želiti* 'wish', seen in the examples above, *moći* 'able to', *hteti* 'want' and *tražiti* 'ask for' take either an infinitival clause or a finite clause and display a cluster of mono-clausal characteristics, one of which is 'clitic climbing'. The finite complement clauses are 'subjunctive-like' in Progovac's terminology; they are always morphologically marked for the present tense, and unable to take 'independent' tense.

Working within the framework of Chomsky (1981), Progovac argues that the lack of independent tense allows IP and CP deletion at LF. Deletion at LF creates a mono-clausal construction which allows pronominal clitics to appear on the higher C^0 . This is termed 'domain extension', a characteristic said to be common of subjunctive clauses: the clause has no independent truth value or tense, hence can be invisible at LF. The Infl complex contains only Agr and Case-assigning properties both of which are satisfied at S-structure. Either Agr hops onto the V prior to deletion, or V-to-I takes place, but the LF transparency forces a restructuring process where the V moves back to its original position.

CP/IP cannot delete if they contain 'meaningful' complementizers (e.g. *although*) or negation (Progovac 1993:123).

Progovac shows that other clause-bound phenomena are possible with those matrix verbs that allow clitic climbing, namely the licensing of negative polarity items (27) and topicalization (28).

(27) Negative polarity items (NPI):

a. *Ne vidim nikoga*

neg. see-1sg. no-one

'I don't see anyone'

b. **Ne tvrdim da vidim nikoga*

neg. claim-1sg. that see-1sg. no-one

'I don't wish to see anyone'

c. *Ne želim da vidim nikoga*

neg. wish-1sg. that see-1sg. no-one

'I don't wish to see anyone'

(Progovac 1993:117)

In (a), *nikoga* 'no-one' is licensed within the same clause by the negative particle *ne*. In (b), *nikoga* is not licensed by the negation in the matrix clause, hence the ungrammaticality. In (c), however, *nikoga* is licensed by the higher negation. Recall that *želim* is a verb that also allows clitic climbing.

Next, consider examples of topicalization with *to* 'this':

(28) Topicalization:

a. *To_i sam već potpisao t_i*

this be-1sg. already sign-ppl.

'This I have already signed'

b. **To_i ne tvrdim da sam potpisao t_i*

this neg. claim that be-1sg. sign-ppl.

'This, I don't say that I have signed'

c. *To_i ne želim da potpišem t_i*

this neg. wish-1sg. that sign-1sg.

'This I don't want to sign'

In (a), *to* ‘this’ has been topicalized into sentence-initial position. In (b), topicalization across a clause boundary is not possible. However, when the matrix verb is a verb that allows a mono-clausal structure such as *želim* ‘wish’, then *to* may be topicalized into first position in the derivation.

Progovac maintains that deletion of CP/IP is superior to an account that involves raising under identity of tenses because negative polarity items do not raise out of indicative clauses.

Each of the clause-bound phenomena is possible with infinitival complements:

(29)a. Clitic climbing:

Milan ga ne želi videti

M. 3sg.Acc. neg. wish-3sg. see-inf.

‘Milan doesn’t want to see him’

b. Negative Polarity:

Milan ne želi videti nikoga

M. neg. wish-3sg. see-inf. no-one

‘Milan doesn’t wish to see anyone’

c. Topicalization:

To_i Milan ne želi videti t_i

this M. neg. wish-3sg. see-inf.

‘This, Milan doesn’t want to see’

(Progovac 1993:124, fn.4)

In each case, the construction appears to be mono-clausal. In (a), the clitic associated with the lower verb *videti* ‘see’ appears higher than the negative particle in the matrix clause. In (b), the negative particle *ne* ‘not’ appears in the higher clause and the negative polarity item *nikoga* ‘no-one’ appears in the lower clause. In (c), *to* ‘this’ has topicalized out of the lower clause into first position in the matrix clause. Progovac assumes the same analysis for mono-

clausal constructions with non-finite subordinate clauses: LF deletion of CP/IP on account of the lack of tense distinctiveness.

However, the cross-linguistic generalization does not seem to be that subjunctives always involve CP/IP deletion, as Progovac comments. When a language has a subjunctive morpheme, such as Russian, Polish and Rumanian, the subjunctive does not display the same mono-clausal properties. Take, for example, Russian. Domain extension is possible with an infinitival subordinate clause:

(30) *Professor_i poprosil assistenta_j [PRO_j čitat' svoj_{i/j} doklad]*

professor requested assistant to read self's report

'The professor asked his assistant to read his own report'

(Progovac 1993:140)

The long distance reflexive *svoj* 'self' is bound by either *Professor* or *assistenta* 'assistant': the report may have been written by the professor or the assistant. However, this is not possible from a subjunctive clause:

(31) *Vanja_i hočet, čoby vse_j ljubili sebja_{*i/j}*

V. want-3sg. that-should everybody loves self

'Vanja wants everybody to love him/herself'

Sebja 'self' can only be bound by *vse* 'everybody' in (31). Interestingly, even infinitivals become opaque to domain extension if the subjunctive particle *by* is introduced:

(32) **Predsedatel'_i ne tak umen, čoby PRO_{arb} sebja_i uva''at*

chairman neg. so clever that-should self respect

'The chairman_i is not clever enough for one to admire him_i'

As Progovac points out (p.141), this suggests a tight correlation between unfilled (hence LF-deletable) Infl and domain extension. This in turn suggests that the subjunctive itself is not the key to domain extension.

Some problems arise in translating Progovac's account into a minimalist framework. First, economy should presumably not allow CP/IP deletion to be optional, yet clitic climbing *is* optional in (19b,c). For a movement account of pronominal clitics, it is not clear what features can only optionally be checked.

9.5.2. *The semi-postlexicalist account*

Domain extension in SCB takes place with both declarative subjunctives and bare infinitives, but is blocked by a negative subjunctive. In other languages such as Russian, Polish and Romanian, domain extension is blocked by the presence of a subjunctive morpheme. Domain extension in SCB does not allow an overt subject to appear in the subjunctive clause, though subjects standardly appear in subjunctive clauses in Romance. Together, these facts suggests that the significant factor is *not* the presence of a subjunctive clause. Rather, there appear to be three factors of significance:

- (33) a. A small class of matrix verbs allow domain extension,
- b. No independent tense specifications can appear in the subordinate clause,
- c. Absence of 'contentful' elements intervening between the restructuring verb and the lexical verb.

The first of these is crucial to any account of the clitic climbing data; a closed class of verbs allow 'domain extension'. There is however much native speaker variation over which verbs allow clitic climbing: the reader will have noticed that Mišeska Tomic's (1996) example in (19a) uses a matrix verb *zaboravila* 'forgotten' that is not included in Progovac's typology in the previous section. Recall that there exists similar native speaker variation over which verbs are 'restructuring verbs' in Italian and Spanish (7.4.2). We shall follow Terzi (1996) in treating these SCB verbs on a par with Romance restructuring verbs.

Before discussing our treatment of these verbs, let us consider the second significant generalization (33b). We have seen that identity of tenses is not the requirement for clitic climbing to take place. Rather, it appears that the subordinate clause verb should be either non-finite (19a) or inflected for 'present' tense. In other word, what is ruled out is the specification [+PAST] for Tense, an interesting correlation with our discussion in 6.5.2. We argued there that [+PAST] was a feature required at LF, and hence is 'contentful' in contrast to the [-PAST] specification. In this sense, (33b) is related to generalization (33c).

In (33c), it is the absence of contentful lexical items intervening between the restructuring verb and the lower open class verb which is necessary for domain extension to occur. (34) reviews and introduces further data to this effect:

(34)a. **Milan ga želi [da Petar vidi]*

M. 3sg.Acc. wish-3sg. that P. see-3sg.

'Milan wishes Peter to see him'

(Terzi 1996:292)

b. **Milan ga želi [da on vidi]*

M. 3sg.Acc. wish-3sg. that he see-3sg.

'Milan wants to see him'

(Progovac 1993)

c. **Ja ga želim što vidim*

I 3sg.Acc. want-1sg. that see-1sg.

'I want to see him'

d. **Milan ga želi [da ne vidi]*

M. 3sg.Acc. wish-3sg. that neg. see-3sg.

'Milan wants to not see him'

e. **Milan ga želi [to_i da pita t_i]*

M. 3sg.Acc. wish-3sg. this that ask-3sg.

'Milan wants to ask him this'

f.??*Milan ga želi [da to_i pita t_i]*

M. 3sg.Acc. wish-3sg. that this ask-3sg.

'Milan wants to ask him this'

Examples (a) - (c) we have already seen. In (a) and (b), an overt subject in the subordinate clause blocks clitic climbing. In (c), the 'contentful' complementizer *što* 'that' blocks clitic climbing. In (d), negation in the subordinate clause blocks clitic climbing. In (d) and (e), topicalization of *to* 'this' within the subordinate clause, whether to a spec position preceding or following *da* 'that', blocks clitic climbing.

We can therefore collapse the three generalizations in (33) into the following statement:

(35) *A closed class of verbs optionally allow domain extension in the absence of any contentful material intervening between the restructuring verb and the open class verb.*

In section 7.4.2, we saw that Emonds (1997) argues restructuring verbs are optionally inserted into the syntax or at PF. If the former, they take a full VP complement. If the latter, they form a complex VP with the lower verb.

A question arises concerning the optional syntactic and phonological lexicalization of restructuring verbs, and causative and perception verbs. Although these lexical items are a closed class of verbs that display different syntactic behaviour from open class verbs, it is still unclear whether these lexical items are required at LF. How, for example, do we distinguish between, say, Italian *venne* 'came' and *andò* 'went' in (36)?

(36)a. *Piero li venne a chiamare alla stazione* (Italian)

P. 3pl.Acc.came back to call at the station

'Piero came back to call them at the station'

b. *Piero li andò a chiamare alla stazione*

P. 3pl.Acc.went back to call at the station

'Piero came back to call them at the station'

In both (a) and (b), the clitic *li* 'them', associated with the argument structure of the subordinate verb *chiamare* 'call', appears on the higher verb. As a result, both of the higher verbs *venne* 'came' and *andò* 'went' have been lexicalized at PF to form the PF head of the syntactic VP *a chiamare alla stazione*. However, if this were so, then why do (a) and (b) carry different meaning?

Partly in response to this problem, a more recent unpublished development of this theory (Emonds 1995b and forthcoming) argues that restructuring verbs are never subject to phonological lexicalization: instead, the optionality exhibited by restructuring verbs derives from their optional D-structure insertion or insertion into the syntax at a later stage (ie. S-structure insertion).

In minimalist terms, this theory requires further revision. We noted in 7.4.4 that such optionality results in two differing LF representations for constructions that have no semantic difference. Furthermore, it is not clear where some intervening 'noncontentful' items appear, such as the complementizer *da* in SCB (37a) or the Italian *a* in (37b).

(37)a. *Ja sam ga želio da posjetim* (SCB)

I be-1sg. 3sg.Acc. wish-ppl. that visit-1sg.

'I wished to visit him'

b. *Piero ti verrà a parlare di parapsicologia* (Italian)

P. 2sg.Dat. come-fut. to speak-inf. about parapsychology

'Piero will come to speak to you about parapsychology'

In both examples there is clitic climbing, and in neither case is there strict adjacency between the restructuring verb and the embedded verb.

A revised theory in which restructuring verbs may be inserted at S-structure into the syntax is not an option within a minimalist model using Bare Phrase Structure. Even if the motivation were found, syntactic insertion within a tree is ruled out on the grounds that lexical insertion always extends the projection.

Next we turn to our own revised account of the restructuring verbs.

9.5.2.1. *Extending the extended projection*

As we have seen in 3.3.3 and 7.4, the third class of lexical items in Emonds' theory are closed class items that have features required at LF. We call such a feature F_2 to distinguish it from purely cognitive features that are not required at LF.

We retain the theory that such items are optionally inserted into the syntax or at PF. In terms of the SP model of chapter 4, the presence of the feature F_2 suspends the economy restriction on Select such that it may optionally take only FF/F_2 or it may pied pipe the full feature matrix instead. Note that such lexical items do not contain purely semantic features f . Restructuring verbs such as Italian *andò* 'went back' or *venne* 'came back' in (36) therefore have feature matrices as in (38).

(38) $[[\pi, \emptyset] FF/F_2]$

Absence of a purely semantic feature f allows Select F to take only formal features. However, presence of the formal feature F_2 that distinguishes between, say, *andò* and *venne* essentially allows (38) to be like a purely closed class item or like an open class item in this theory.

Let us consider the case where a restructuring verb has its full feature complex in (38) pied-piped into the syntax by Select first. In our terms, the verb projects its own extended projection and effectively 'closes off' the extended projection of the lower lexical verb (section 4.3.1). This is illustrated in (39).

(39) Pied-piping of the full feature matrix of *želi* 'wishes':

Milan želi da ga vidi
 M. wish-3sg. that him see-3sg.
 'Milan wishes to see him'

The clitic *ga* 'him' occurs on the highest head of the extended projection of *vidi* 'sees'.

Now consider an example where only the formal features of *želi* 'wishes' have been selected from the numeration. In this case, the restructuring verb does not project its own extended projection, but becomes a part of the projection with which it merges.

(40) Formal features of *želi* 'wishes' selected:

?*Milan ga želi da vidi*
 M. him wish-3sg. that see-3sg.

The clitic is again lexicalized on the highest head in the extended projection, only this time, the projection constitutes the entire derivation.

Next, let us consider Rizzi's (1978) original diagnostics for showing when restructuring has taken place. First recall from section 7.4.2 that he argued the examples in (41a) and (41b) had the structures in (42):

(41)a. *Piero deciderà di parlati di parapsicologia* (Italian)

P. decide-fut. to speak-inf. about parapsychology

b. **Piero ti deciderà di parlare di parapsicologia*

'Piero will decide to speak to you about parapsychology'

(42)a. ... $V_x \dots_{VP} [V_c \text{ WP ZP}]$ (= (40a))

b. ... $_{VP} [V_x \ V_c \dots \text{ WP } \dots \text{ ZP}]$ (= (40b))

Besides issues of clitic placement, the diagnostics for arguing this were principally related to movement of the articulated VP in (41/42a). Such movement of the equivalent string of items is not possible in (41/42b):

(43) The constituent $_{VP}[V_c \text{ WP ZP}]$ in (42a), but not the string $V_c \dots \text{ WP } \dots \text{ ZP}$ in (42b), can:

- (i) prepose in non-restrictive relatives,
- (ii) be the focus in a cleft sentence,
- (iii) postpose over adjuncts linked to the higher verb V_x ,
- (iv) undergo 'right-node raising' in conjoined sentences.

In our account, it follows that if the phonological features of the restructuring verb in (41b) are not in the syntax, then the verb is unable to constitute a head governor at the appropriate level at PF, prior to phonological lexicalization. Consequently, the restrictions on movement in (43) result from the fact that the trace in each case is not licensed.

The facts in (43) are therefore related to the inability of a clitic auxiliary in English to license a movement trace in section 4.4, and the inability of clitic auxiliaries in South Slavic to license the trace of topicalized VP in 5.2 and 6.2.

It is still not clear, however, why domain extension only occurs if there is no contentful material intervening between the restructuring verb and the open class verb. Phonological lexicalization co-occurs with a lack of any LF - interpretable material in the lower clause beyond the lexical verb and its internal arguments.

Another way forward for future research may be to see domain extension in terms of cyclic numeration. In (37), the entire derivation results from a single successful array of items in the numeration. For domain extension to occur then, we require the phonological lexicalization of V_x to co-occur with an appropriate numeration. Such a numeration consists of a single subject and a single specification for [PAST] (shared by V_x and V_c) - facts that we already expect of a successful numeration, and which are ensured via checking procedures. Notice

also that we are released from the requirement that, say, (41a) and (41b) should have identical LF representations. This is no longer so, if (41a) consists of two numerations and derivations and (41b) consists of a single derivation.

In this section we have demonstrated that the optionality in clitic climbing constructions derives from the optionality over whether or not Select takes the full feature matrix of the restructuring verb from the numeration. If the phonological features are not pied-piped into the syntax, then the restructuring verb becomes part of the extended projection of the lower verb. In either context, the clitic cluster is inserted on the highest head in its extended projection. Phonological lexicalization of the restructuring verb means that the verb is not visible at PF for head-government, and consequently cannot license a trace of movement.

In this account, we have avoided utilizing flat structures and hence retained binary branching, and identical LF representations for (39) and (40). We have also ensured that the feature F_2 in the feature matrix of the restructuring verb is available at LF in both derivations.

9.6 General summary: moving wrinkles out of the syntax

In this chapter, we have made two adaptations to the mechanism of Alternative Realization in order to both account for South Slavic clitic cluster placement, and to allow for a mechanism that is compatible with the Semi-postlexicalist model presented in chapter 4.

Given that the SCB clitic cluster appears on the highest head in the extended projection (section 8.4.1), this means that in a CP, pronominal clitics appear on C^0 . Evidently in this case, the pronominal clitics are not in a sisterhood relation with null argument phrases in VP (section 7.4). On account of this, we have adapted the structural requirement whereby a closed class feature may be alternatively realized from that of sisterhood to one defined in terms of extended projections. A closed class morpheme may alternatively realize a syntactic feature F provided that it appears within the same extended projection.

In fact, in terms of cyclic numeration whereby each extended projection has its own numeration, we need simply assert the minimal requirement that a feature may be alternatively realized on any head within the derivation. Languages then differ in terms of what morphemes are available in the lexicon, and what contextual restrictions a given morpheme has.

In SCB, we have argued that the clitic cluster has no categorial specification because the 'head' of the clitic cluster is itself an Alternative Realization morpheme. That is, the 'clitic auxiliaries' in SCB are the Alternative Realization of features in I^0 . Consequently, the clitic cluster has only the contextual restriction $+X_.$ Being subject to economy, phonological lexicalization inserts material as late as possible as it proceeds bottom-up through an extended projection. As a result, the SCB clitic cluster is inserted on the highest head available. If this position does not satisfy the contextual restriction, a 'last resort' insertion occurs whereby the clitic cluster appears following the first phonological word.

In Bulgarian and Macedonian, we argued that the clitic auxiliaries are true auxiliaries, specified $[+V,-N]$. They are therefore restricted to being lexicalized on a head of the same category. Again, the nature of the auxiliary defines the distribution of the clitic cluster as a whole; the clitic cluster is inserted into the highest head position with a $[+V]$ specification, whether or not the auxiliary is itself present.

The second revision we have made to Alternative Realization is to make it a purely phonological property. This is appropriate for both conceptual and empirical reasons. Alternative Realization morphemes are always phonologically lexicalized and are available in a language for purposes of Full Interpretation at the PF interface. Neither of these facts need necessarily involve syntactic operations; Alternative Realization requires only the output of the syntax. Empirically, it is clear that the idiosyncrasies of clitic cluster placement in South Slavic are largely phonological ones (second position placement, inability to carry stress), hence again the superiority of a system that does not burden the syntax with such phonological idiosyncrasies.

In the latter part of this chapter, we presented an account of Restructuring constructions. Following Emonds (1997), we assumed that a restructuring verb is a member of the third class in our typology in 4.1. For us, this means that the verb may optionally be subject to full syntactic insertion (i.e. Select pied-pipes the phonological features along with the formal features FF) or phonological lexicalization (Select takes only FF, leaving the phonological features in the numeration). When the first option is taken in SCB, the Restructuring verb takes a fully articulated CP complement that may include a distinct tense specification from that of the matrix T and a subject distinct from the matrix subject. With respect to clitic cluster placement, the cluster is lexicalized at PF on the highest head available in the extended projection. Here, that means the highest head in the embedded CP.

If the second option is taken, the Restructuring verb forms part of the extended projection of the lower lexical verb, according to our definition of extended projection in section 4.3.1. For the derivation to converge, this option must co-occur with the appropriate numeration such that the abstract lower clause contains no LF interpretable material beyond the lexical V itself and its objects. That is, there can be no 'contentful' complementizer, no subject distinct from the higher clause subject, and most importantly for SCB in which the lower verb is finite, Tense cannot be specified for [+PAST]. This supports our claim in section 6.5.2 that a '-' value for the feature [PAST] is not required at LF.

In terms of clitic cluster placement, the entire derivation is now the extended projection of the lower verb, hence the SCB clitic cluster appears on the highest head available, termed 'clitic climbing'.

Finally, in our account of clitic climbing, we noted that phonological lexicalization of the Restructuring verb should prevent the verb from being able to head license a movement trace. In this sense, the verb is identical to the clitic auxiliaries in English and South Slavic. Recalling Rizzi's original diagnostics for demonstrating when restructuring has occurred in Italian (Rizzi 1978), we note that four of the cases involved a bar on VP movement. For Rizzi (1978) and Emonds (1997), this indicates a complex VP with flat structure, consisting

of both the restructuring verb and the lexical verb. In our account, the restriction on movement results from the absence of a 'visible' head to license the trace.

Let us turn more generally now to the Semi-postlexicalist model as a whole and the analysis presented in this thesis. Fundamental to our model has been the adoption of a global economy constraint (Collins 1997) rather than stipulating economy as part of the definition of Attract (Chomsky 1995). Consequently, both Select and the mechanism of phonological lexicalization are subject to aspects of economy. Select takes only the syntactic features of a lexical item from the numeration if it can (section 4.2.2), but pied-pipes other features if required by the interfaces. Phonological lexicalization in any given extended projection inserts phonological features left in the numeration as late as possible, given the contextual restrictions of a lexical item (section 9.4).

An important question that arose from our discussions of Anderson's 'A-morphous Morphology' (section 2.4), and one that is problematic for his account, is the following: why is it that cross-linguistically, there are many instances of second position, but so remarkably few cases of items appearing uniformly in 'penultimate position'?

Our response here is that this is a reflection both of phonological lexicalization and economy. We predict that in the cases where the numeration contains closed class phonological features that have no contextual restrictions, such items will be inserted at the end of the phonological lexicalization cycle. It is highly *uneconomic* for an item unspecified for categorial features to be inserted at the very beginning of this cycle, though it is not ruled out *per se*. We assume that such an operation, if it truly exists, must be forced by other aspects of the grammar and lexicon of the language in question. But our model predicts such 'early' phonological lexicalization to be a highly marked option, hence rare.

Any analysis of the clitic clusters in South Slavic must capture the fact that there are many similarities between these languages, but also a number of minor but pervasive differences. Any analysis should also address the nature of the primitives in their system, not least, what the clitic cluster and its members are and why they behave as they do. The competing accounts that we have

argued against often remain suspiciously silent about the issue of what the clitic cluster or its members are. In their attempts to deal with the various language specific idiosyncrasies, these authors resort either to language-specific (and sometimes problem-specific) accounts and/or gloss over issues concerning a bi-directional syntax-phonology relation, syntactic lowering, motivation for syntactic movement, or the implications for the system of allowing phonological movement.

In this account, we have taken a different tack. We have deliberately focused on what these languages have in common, and established a model that explains these facts, as well as copes with the cross-linguistic differences in as parsimonious a way as possible. Adopting an independently motivated theory of lexical categories, we have moved much of the cross-linguistic 'noise' masking underlying similarities out of the syntax altogether. Given that the lexicon is a list of 'exceptions', and that the phonology is the established arena of much cross-linguistic idiosyncrasy, it is appropriate that in our model, the lexicon and PF should be the loci of these small variations between SCB, Bulgarian and Macedonian.

The intuition underlying the traditional descriptive generalization that SCB is a 'Wackernagel' language, and Bulgarian is partially a 'Wackernagel' language, is that syntactic categories are not central to defining the clitic cluster position in these languages. Rather, it is a question of a position in the string of a particular syntactic domain. Generative research has not, to date, made great inroads in accounting for the empirical data that has led to this intuition, though it has certainly been moving in the right direction. The analysis here employing an independently motivated theory of syntactic categories and extended projections is an attempt to capture this traditional descriptive generalization within a formal generative framework via empirical data that has arisen from generative research.

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