Chapter 4

Features and Binding

4.1. Introduction

In chapter 3, I presented the binding phenomena of Bulgarian. The following problems were established on the basis of examining these data:

(1) (i) The c-command requirement is observed by some forms, e.g., sebe si, svoj, si, se but disregarded by others, e.g. nego si, negov si.

(ii) Local effects are established only for sebe si, svoj, si, se. The forms nego si and negov si do not obey the locality requirement for binding.

The dividing line between anaphors and pronouns is not clear. The form nego si patterns with reflexives and pronouns whereas in some contexts the form nego appears where reflexives are expected. This results in a striking overlap of forms.
A reminder of the glosses of the forms is:

\[(2)\]

- `sebe si` (REFL REFL-CL)
- `svoj` (REFL-POSS-MASC)
- `si` (REFL-CL-DAT)
- `se` (REFL-CL-ACC)
- `si` (REFL-CL-POSS)
- `nego si` (PRON-3SG-MASC REFL-CL)
- `negov si` (PRON-POSS-3SG-MASC REFL-CL-POSS)
- `nugo` (PRON-3SG-MASC-ACC)
- `na nego` (PRON-3SG-MASC-DAT)
- `negov` (PRON-POSS-3SG-MASC)
- `go` (CL-3SG-MASC-ACC)
- `mu` (CL-3SG-MASC-DAT)

The state of the affairs as presented in (1) poses real problems for the classical Binding Theory: in Bulgarian, we dispose of forms like `nego si` and `negov si` which pattern with both reflexives like `sebe si` and `svoj` as well as with pronouns like `nego` and `negov`. These forms can be bound either by a subject in the local domain (the DP or the minimal clause) or a subject outside it. As expected, `nego si` and `negov si` can be bound by a non-commanding phrase within D, the minimal clause or the DP. Using the NP classification proposed in the classical Binding Theory, that is \([\pm\text{anaphoric]}\) and \([\pm\text{pronominal}]\), we are led to classify the forms `nego si` and `negov si` as \([\pm\text{anaphoric},+\text{pronominal}]\). But this type of feature combination exists only for some empty categories (e.g. PRO), it is disallowed for overt NPs in the framework of the classical Binding Theory. It is very difficult to come up with a convincing account of the above facts and it is worth reviewing the concepts and strategies of the classical Binding Theory.

This chapter contains my proposal for dealing with the puzzles in (1). The theoretical assumptions for this account are: (a) the Distributed Morphology (DM) model developed by Halle and Marantz (1993) and some of its extensions discussed in Noyer (1997) and Zwart (1997, 1999), and (b) the Minimalist Program of Chomsky (1993, 1995). I follow Chomsky's proposal (1993, 1995) that binding is an interface phenomenon. I disagree with the classification of NPs \([\pm\text{pronominal}]\) and \([\pm\text{anaphoric}]\) as a criterion
for accounting for binding in Bulgarian.\(^{30}\) The classical Binding Theory as formulated in Chomsky (1981) and (1986) is based on this classification. My suggestion is that the distinctions \([\pm\text{pronominlal}]\) and \([\pm\text{anaphoric}]\) are active in the Morphology of English and perhaps in some other languages where Binding Theory was well studied, namely, Dutch (Everaert 1986, 1991, Koster 1984, 1987, 1994, Reuland 1993, 1994, 1997) or Norwegian (Hellan 1983, 1988, 1991). In Bulgarian, the distinctions in question are not recognized well in Morphology. I will point out that for Bulgarian the oppositions \([\pm\text{reflexive}]\) ( \([\pm\text{refl}]\) ), and \([\pm\phi\text{-features}]\) ( \([\pm\phi]\) ) are crucial instead.\(^{31}\) In my theory, \([\pm\text{refl}]\) are categorial feature characteristics. I take as a point of departure the typology of NPs proposed by Zwart (1999:12). This typology starts out with the notion \([\pm\text{referential}]\), i.e., \([\pm\text{R}]\) and differentiates further the following oppositions: variable reference and PRO, R-expressions and local forms, and pronouns and anaphors.\(^{32}\) For my analysis of the Bulgarian forms, I regard all distinctions made in (3), except for the last one, i.e. between pronouns and anaphors due to its dubious character for Bulgarian. My suggestion is for a further distinction with the features \([\pm\text{refl}]\) and \([\pm\phi]\) with a view to the peculiarities of the Bulgarian forms. These further specifications are shown in (3).\(^{33}\)

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\(^{30}\) The classification of NPs in terms of two binary features \([\pm\text{anaphoric}]\) and \([\pm\text{pronominlal}]\) has been questioned and revised also by Koster (1994), Lasnik (1986) Thráinsson (1991) and Zwart (1999).

\(^{31}\) I choose to designate the opposition \([\pm\phi]\) for expository reasons. In fact, by \([-\phi]\) I mean a lack of \(\phi\) feature oppositions. A more appropriate feature specification would be \([+\phi, 0]\).

\(^{32}\) For a detailed argumentation why PRO is [-referential] see Zwart (1998).

\(^{33}\) I will not elaborate on the complex term \textit{referential} here since this falls beyond the aims of this research. For a recent discussion of this intuitive notion I refer the reader to Jackendooff (1997).
In my account, \([\pm \text{referential}]\), or \([\pm \text{R}]\) are categorial features. A form comes from the lexicon and enters the derivation specified either with \([+\text{R}]\) or \([-\text{R}]\). For the purposes of explaining the peculiarities of the Bulgarian forms, in (4) I shorten the representation in (3) and concentrate on the bottom of the table, namely:
In the classification above, within the [-R] set in Bulgarian, two other oppositions are relevant for binding, [±refl] and [±φ]. These two types of features are picked up, or rather acquired in the course of the stepwise derivation. The forms containing [+refl] feature are marked, whereas [-refl] forms are unmarked. Hence the opposition between marked and unmarked takes the form of bringing forward the features [+refl] and [-refl] for Bulgarian:

\[(5)\] [+refl] \iff \text{marked}  
[-refl] \iff \text{unmarked} 

Thus we obtain four possible feature combinations, i.e.

\[(6)\] 
\begin{enumerate}
  \item a. [+refl,-φ]  
  \item b. [+refl,+φ]  
  \item c. [-refl,+φ]  
  \item d. [-refl,-φ]  
\end{enumerate}

The first three configurations (6a), (6b), and (6c), that is, [+refl,-φ], [+refl,+φ], and [-refl,+φ], respectively, are added up in the process of derivation. The last combination, (6d) [-refl,-φ], is not spelled out as an overt form but as \textit{pro} or \textit{NP trace}. 

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My basic claim is that Binding Theory for Bulgarian can be formulated in the following way:\(^{34}\)

(7) Binding Theory

A. \([+R]\):
(i) If $\alpha$ has the feature characteristics \([+R]\), interpret it as disjoint from every c-commanding phrase.

B. \([-R]\):
(ii) If $\alpha$ has the feature characteristics \([+\text{refl},-\varphi]\), interpret it as coreferential with some subjects in D*.

(iii) If $\alpha$ has the feature characteristics \([+\text{refl},+\varphi]\), interpret it as coreferential with some phrases with $\varphi$ features matching those of $\alpha$.

(iv) If $\alpha$ has all the feature characteristics \([-\text{refl},+\varphi]\), interpret it as disjoint from all c-commanding phrases in D*.

* D is construed as the domain of application, that is, the minimum clause or the DP.

(7) shows the LF representation of the Binding Theory for Bulgarian. (7A) illustrates the LF representation of the \([+R]\) forms, while (7B) discusses the LF presentation of \([-R]\) forms.\(^{35}\) Examples of the forms containing the various feature specifications and their PF Spell-Out are given below in (8):

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\(^{34}\) It has been argued in Chapter 3 that only some forms in Bulgarian (e.g. sebe si, se, si) obey the locality requirement. The local domains for these forms are the minimal clause and the DP (see Section 3.4.).

\(^{35}\) In the latest developments of the minimalist assumptions, the existence of LF has been put into question. In his work Koster (1994, 1995) provides serious arguments against LF. Kayne (2002) and Zwart (2002) propose that the binding principles can be replaced by just one single binding condition, namely that coreference is established by merging the antecedent and the anaphor. This should automatically eliminate the question where the binding principles apply.
The local domains, i.e., the minimal clause or DP, have been shown and discussed separately in Section 3.4. of Chapter 3. Their existence is irrelevant for (7Biii). Forms like nego si and negov si do not require locality.

Principle (7Bii) captures the cases when, e.g., the form sebe si is bound by any subject in the local domain D (the minimal clause or DP). Principle (7Biii) concerns the cases when, e.g., nego si does not satisfy the locality requirement - it is bound by any preceding phrase with matching φ-features. Since nego si and negov si exhibit a dual and inconsistent behavior, it is impossible to classify them as either anaphors or pronouns. The diverse appearance of these forms cannot be squeezed into characterizing them

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simply as [±anaphoric] and [±pronominal]. Principle (7Biv) highlights pronouns like *nego* which in fact behave as pronominals from the point of view of the classical Binding Theory. Principle (7Ai) is in fact a reformulation of the old Principle C of the classical Binding Theory.\(^{36}\)

The rest of this chapter is organized as follows. Section 2 presents a survey of the theories relevant for the treatment of the Bulgarian data. In Section 3, I propose a classification of overt NPs in Bulgarian and derive the Binding Theory. In Section 4, I look at the mechanism of lexical insertion. Section 5 deals with the relationship between the degree of markedness (specification) and Spell-Out.

### 4.2. Theoretical Perspectives

#### 4.2.1. Principles of the Binding Theory and the Minimalist Program

We have discussed in detail the evolution of the Principles of Binding Theory in Chapter 2. The definitions of binding relations and the Principles of Binding Theory are repeated below as (9) and (10), respectively:

\[
(9) \quad \alpha \text{ binds } \beta \text{ if } \alpha \text{ and } \beta \text{ are coindexed and } \alpha \text{ c-commands } \beta \text{ (Chomsky 1981:333).}
\]

\[
(10) \quad \text{Binding Theory (Chomsky 1981:188)}
\]

A. An anaphor is bound in its governing category.

B. A pronominal is free in its governing category.

C. An R-expression is free.

\(^{36}\) Note that Principle C of the classical Binding Theory has not been put into question. On the contrary, in the proposed theory for Bulgarian, the feature matrices contain an important feature opposition derived from the classical Binding Theory, namely [±R].
A governing category has been defined as follows:

(11) \( \alpha \) is the governing category for \( \beta \) if and only if \( \alpha \) is the minimal category containing \( \beta \) and a governor of \( \beta \), where \( \alpha = \text{NP} \) or \( \text{S} \). (Chomsky 1981:188)

In a later work Chomsky (1986:166) replaces the notion of “governing category” with “local domain” in the original definition of Binding Principles (10) and reformulates it like this:

(12) Binding Theory
   A. An anaphor is bound in a local domain.
   B. A pronominal is free in a local domain
   C. An R-expression is free (in the domain of the head of its chain).

The scope of conditions A and B in (12) extends to binding within the domain of the first accessible subject, that is, the local domain:

(13) The local domain for an anaphor or pronominal \( \alpha \) is the least Complete Functional Complex (CFC) containing a lexical governor of \( \alpha \) - the minimal governing category of \( \alpha \) (MGC(\( \alpha \))) (Chomsky 1986:169).

A governing category is a CFC in the sense that all grammatical functions compatible with its head are realized in it.

In the minimalist account, the binding principles apply only to LF representations.\(^{37}\) They cannot apply at PF since PF does not contain structural information:

Consider a representation \( \pi \) at PF. PF is a representation in universal phonetics, with no indication of syntactic elements or relations among them (X-bar structure, binding, government, etc). (Chomsky 1993:26)

Under the minimalist assumptions, indices or other notational devices do not exist. For Chomsky the following is a natural condition:

\(^{37}\) But see Fn. 35.
. . . outputs consist of nothing beyond properties of items of the lexicon (lexical features) - in other words, that the interface levels consist of nothing more than arrangement of lexical features. To the extent that this is true, the language meets a condition of inclusiveness (Chomsky 1995:225).

If we adopt the elimination of indices, then the standard assumption about binding in (12), as well as the Binding Principles in (13) and (15), must be remolded in some other way since the standard theory constitutes to a great extent a theory dealing with the assignment of indices. In this respect, Chomsky further claims:

A theoretical apparatus that takes indices seriously as entities, allowing them to figure in operations (percolation, matching, etc), is questionable on more general grounds. Indices are basically the expression of a relationship, not entities in their own right. They should be replaceable without loss by a structural account of the relation they annotate (Chomsky 1993b:fn.52).

The alternative theory proposed in Chomsky and Lasnik (1993) and adopted in Chomsky (1993) replaces indexing procedures with interpretive procedures. The Binding Principles viewed as interpretive procedures allows the elimination of indexing. Thus the Binding Principles in (10) and (12) are recast as the interpretive procedures in (14):

(14) **Binding Theory** (Chomsky 1993:43)
    A. If $\alpha$ is an anaphor, interpret it as coreferential with a c-commanding phrase in D.
    B. If $\alpha$ is a pronoun, interpret it as disjoint from every c-commanding phrase in D.
    C. If $\alpha$ is an R-expression, interpret it as disjoint from every c-commanding phrase.

I assume without further discussion that the Binding Principles hold at the interfaces. At the same time, I will show that the NP classification on which the distinction between anaphors and pronominals are made, is not tenable for the binding phenomena in Bulgarian.
4.2.2. Distributed Morphology and the Minimalist Model

I assume a minimalist model for the levels of representation but enriched with the level of Morphological Structure (MS) from the theory of Distributed Morphology (DM) developed by Halle and Marantz (1993). The four-level Government and Binding model (Chomsky 1981) is dispensed with, being replaced by the minimalist model in (15):

\[
\text{(15) Merge & Move} \\
\text{Lexicon} \rightarrow \text{Numeration} \rightarrow \text{Logical Form} \\
\text{Spell-Out} \rightarrow \text{Phonological Form}
\]

Next, (16) represents the extension of the minimalist model (15), where the Morphological Structure (MS) is added. MS serves to mediate between the output of syntax at Spell-Out and the input to phonology at PF.

\[
\text{(16) Syntax (Merge & Move)} \\
\text{Spell-Out} \\
\text{Logical Form} \rightarrow \text{Morphological Structure} \rightarrow \text{Phonological Form}
\]

Representations at each of the levels in (16) (except for the PF level) constitute hierarchical groupings of terminal elements represented by tree diagrams. The terminal elements consist of bundles of grammatical features. The phonological features appear after the lexical insertion operation at MS. In the spirit of Distributed Morphology, MS is distinguished as an autonomous level with its own principles and properties. Syntactic operations combine terminal nodes and create words before lexical insertion.
Each particular syntactic derivation starts by extracting a set of features which are made available by Universal Grammar. This set is called the *numeration* $N$. The computational system $C_{HL}$ selects an item from $N$ and after reducing its index to 1, performs permissible computations. In (15) and (16), while a D-structure level is missing, there remains a Lexicon and two concatenative and simple binary transformational (structure-building) operations, *Merge* and *Move*. The operation *Merge* is responsible for linking the various elements from the numeration by building up a phrase structure. The relevant relations among the elements in the numeration include thematic (theta-role assignment, predication) and syntactic dependencies. The thematic relations are assumed to be basic. The syntactic relations are established by a second structure-building operation *Move*. The point in the derivation where the computation splits (see (15) and (16)) is called *Spell-Out*. Both *Merge* and *Move* have the property of concatenating two and only two categories, forming a third category. The subsystem of $C_{HL}$ which maps $\Sigma$ to $\pi$ is called the *phonological component*, and the subsystem which continues the computation from $\Sigma_L$ to LF the *covert component*. The pre-Spell-Out computation is called *overt*. It is assumed next that Spell-Out delivers $\Sigma$ to the MS module. This latter module constructs word-like units which are subjected to further phonological processes getting rid of features no longer relevant to the computation. These special properties of the phonological component are relevant for producing instructions for the sensorimotor systems, for production and perception.

The featural configurations and the movement and checking of features constitute the most important part of my account of binding in Bulgarian. In the light of the theory of Distributed Morphology (DM), I assume that morphosyntactic features are drawn from a set made available by Universal Grammar. There exist hierarchical relations among certain morphosyntactic features. More precisely, we are dealing with prepackaged morpheme bundles drawn from the grammar. The terminal nodes at pre-Spell-Out, Spell Out, Morphological Structure (MS) and LF consist of morphosyntactic and semantic features and lack phonological features. The semantic features also belong to Universal Grammar, or rather to language-particular semantic categories or concepts.

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38 Note that I assume numeration $N$ to start as a list of features available from Universal Grammar. Chomsky (1995) claims that numeration starts with a set of items selected from the Lexicon.
Another major tenet of DM is that MS is an autonomous level with its own principles and properties. The operations at MS are constrained by substantive universals (a theory of features) and locality conditions. As we have emphasized earlier, MS serves to mediate between the output of syntax at Spell-Out and the input to phonology at PF. Syntactic operations combine terminal nodes and create words before lexical insertion. The lexical entries which compete for insertion automatically order themselves by the principle that the most specified entry takes precedence over the less specified one. Therefore, word formation is a syntactic and a postsyntactic process. In syntax, there are bundles of morphosyntactic features. For the phonological realization of these bundles of features, the lexicon must be “searched for the underspecified entry that best matches the morphosyntactic features supplied by the syntax” (Halle and Marantz 1993:120). Kiparsky (1973) claims that this ordering is by decreasing complexity, expressed also by Panini’s Principle.39 The marked forms are realized through this principle. My proposal is, as we shall see later in Section 4, that the DM strategy in general and this latter rule in particular, bear directly on accounting for the binding phenomena in Bulgarian. We have seen that the Bulgarian forms relevant for binding are represented through the feature combinations, [+refl], and [±φ]. The structural description of any separate rule is contained in the other's, in line with Panini’s Principle formulated further in (50). Then the rule which has marked (and consequently more specific) structural description will apply first. In this way, the rules are ordered in a decreasing order of markedness, the most specific (the marked) one applying first and the least specific (the unmarked) applying last. What I intend to say is that the Spell-Out ordering of forms in fact reflects their precedence relations. Thus I develop this idea formulated in the Degree of Markedness Spell-Out Principle:

(17)  

Degree of Markedness Spell-Out Principle
The more marked a structural representation is, the earlier it is spelled out. The unmarked structural representation is the last to be spelled out.

In Bulgarian, the rule with feature characteristics [+refl,−φ] will apply first, while the one with feature matrix [−refl,+φ] will apply last.

39 The definition of this principle is given later in this chapter in (50).
4.3. Classification of NPs in Bulgarian and the Binding Theory

4.3.1. Why do we need a new classification of NPs?

The classical Binding Theory involves a classification of NPs based on the features [+anaphoric] and [+pronominal]. If we concentrate on the overt NPs, the cross-classification in terms of these features and its candidates from English is presented in (18):

(18)  
[+anaphoric,-pronominal]  himself, each other  
[+anaphoric,+pronominal]  ---  
[-anaphoric,+pronominal]  he, him  
[-anaphoric,-pronominal]  Peter, the girl

It is clear from (18) that the combination [+anaphoric,+pronominal] does not have any overt presentations. Chomsky (1982:78-89) claims that this holds true for most languages. Only the empty element PRO has this type of feature specification. The feature specifications of the lexical elements presented above relates to the classical Binding Theory in the following way:

(19)  
Principle A: A [+anaphoric] NP must be bound in its governing category (or in a local domain D).

Principle B: A [+pronominal] NP must be free in its governing category (or in a local domain D).

Principle C: A [-anaphoric,-pronominal] NP must be free.
It is not obvious that (18) is valid for all languages. In Chapter 3, I argued that the overt NPs in Bulgarian do not obey it. Let us recall some of the empirical evidence speaking against classifying the Bulgarian overt NPs in terms of the oppositions [+anaphoric] and [+pronominal]. Consider the examples in (20) and (21):

(20) Ivan₁ kazva, če Petǔr₂ mrazı sebe si₁₂ / nego si₁₂/  
Ivan says that Petǔr hates REFL REFL-CL/PRON-3SG-MASC REFL-CL/  
nego₁₂  
PRON-3SG-MASC  
(i) sebe si = Petǔr (not Ivan)  
(ii) nego si = Ivan or Petǔr  
(iii) nego = Ivan or someone else

(21) Ivanovijat₁ bašta₂ kritikuva sebe si₁₂ / nego si₁₂/  
Ivan's father criticizes REFL REFL-CL/PRON-3SG-MASC REFL-CL/  
nego₁₂  
PRON-3SG-MASC  
(i) sebe si = bašta (father)  
(ii) nego si = Ivan or bašta (father)  
(iii) nego = Ivan or someone else

In (20), we see that nego si can pattern with the reflexive sebe si (it is bound by Petǔr), thus behaving like a local anaphor, and patterns equally with the pronoun nego, being a possible bindee for Ivan. In the same way in (21), nego si can be bound by the c-commanding phrase bašta, as well as by the non-c-commanding phrase Ivanovijat. Hence we face the problem how to classify nego si. In terms of the oppositions in (18) and the Binding Theory in (19), this element is [+anaphoric,+pronominal]. But this type of combination, i.e., [+anaphoric,+pronominal] is ruled out for overt elements (see Chomsky 1982, 1986). The explanation is that an overt category with
this lexical content would be ungoverned in terms of Principles A and B of the classical Binding Theory and consequently violate the Case Filter.

I will abandon the NP classification [±anaphoric] and [±pronominal] presented in (18), since it turns out to be ineffective for the appropriate analysis of the Bulgarian forms. In more general terms, binding relations reflect the relationship between an antecedent (contained in the c-commanding phrase) and a dependent element. In other words, we talk about a relationship established between two NPs. Taking into consideration the theory of Distributed Morphology (DM), I assume that these two NP forms start from N (numeration) as a list of features, i.e. they appear as bundles of a certain set of features. My claim is that the Bulgarian forms start out from N(umeration) marked with the further specification of the categorial feature N, i.e. [±R] in (22):

(22)  [±referential] or [±R]

The further evolution of the feature content and their PF realization into the forms sebe si, nego si, and nego are shown in (23):

(23)
I take reflexivity $\pm\text{refl}$ also to be a further specification of the categorial feature N. Then N can be specified as either $\pm\text{-refl}$ or $\pm\text{refl}$. Along with the two types of categorial features, the phi-features $\pm\varphi$ are also active for analyzing binding in Bulgarian. As already noted above, the derivation for all forms comes from the Numeration with the feature content $\pm R$ whereas the features $\pm\text{refl}$ and $\pm\varphi$ are added in the process of derivation. If we include the feature oppositions $\pm\text{refl}$, and, $\pm\varphi$, the feature specifications of the binding forms in Bulgarian will be this:

(24) a. $\pm\text{refl}, +\varphi$
    b. $\pm\text{refl}, -\varphi$
    c. $\pm\text{-refl}, +\varphi$

(24a) shows the rule representation of reflexives like nego si; (24b) demonstrates that for reflexives like sebe si; (24c) is the rule representation for pronouns like nego. (24c) illustrates the feature content of the pronouns which are the "elsewhere" forms and the reflexives in (24a) and (24b) are the "marked case" with (24b) the more marked form than (24a).

4.3.2. The new classification and binding

My next theoretical step is that each NP involved in binding enters N as a bundle of features consisting of the two types of categorial distinctions $\pm R$. These claims are summarized in (25) below:

(25) $\pm R$ and $\pm\text{refl}$ are further specifications of the categorial feature N. In binding configurations, the forms start as bundles of features characterized as $\pm R$ and the feature oppositions $\pm\text{refl}$ and $\pm\varphi$ are added up throughout the derivation ($\varphi$-features being added first, followed by $\pm\text{refl}$ features in the process of Merge and Move in syntax).

At PF, after the process of adding up features has finished, the following objects must be recognized:
Given the behavior of the Bulgarian forms, we could present the NP types schematically as in (4), repeated below as (27):41

Consequently, in Bulgarian we dispose of three types of feature characteristics for the overt NPs, that is, [+R], [+refl] and [±φ]. Presenting the Bulgarian NPs with these feature oppositions serves to account

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41 The same NP typology with the PF realization of the forms is given in (23).
successfully for the binding phenomena in Bulgarian. Since binding has been assumed earlier in this chapter to be an interface phenomenon (see Section 4.2.1), I postulate the Binding Principles at LF in the following way:

(28) Binding Theory

A. [+R]:

(i) If $\alpha$ has the feature characteristics [+R], interpret it as disjoint from every c-commanding phrase.

B. [-R]:

(ii) If $\alpha$ has the feature characteristics [+refl,-$\varphi$], interpret it as coreferential with some subjects in D*.

(iii) If $\alpha$ has the feature characteristics [+refl,$\varphi$], interpret it as coreferential with some phrases with $\varphi$ features matching those of $\alpha$.

(iv) If $\alpha$ has all the feature characteristics [-refl,$\varphi$], interpret it as disjoint from all c-commanding phrases in D*.

* D is construed as the domain of application, that is, the minimum clause or the DP.

The local domain D (the minimal clause and the DP) is identified only for the [+refl,-$\varphi$] and [-refl,$\varphi$] forms.

The set of examples in (29) - (32) below illustrates how the Binding Principles (28) work for Bulgarian. The sentences in (29) reflect the phenomena generalized in Principle (28Bii), the sentences in (30), (31a) and (31c) cover Principle (28Biii); the sentences in (31b) and (31d) illustrate Principle (28Biv) and finally, (32) shows the effect of Principle (28Ai):
(29) a. Ivan mrazi sebe si
"Ivan hates himself."
b. Ivan se mrazi
"Ivan hates himself."
c. Ivan xaresva svojata kniga
"Ivan likes his book." (Ivan's book)

(30) a. Ivan mrazi nego si
"Ivan hates himself."
b. Ivan xaresva negovata si kniga
"Ivan likes his book." (Ivan's book)

(31) a. Ivanovijat brat kritikuva nego si
"Ivan's brother criticizes himself/him."
   (i) nego si = himself = brat (brother)
   (ii) nego si = him = Ivan
b. Ivanovijat brat kritikuva nego
"Ivan's brother criticizes him." (Ivan or someone else)
c. Ivanovijat brat kritikuva negovata si kniga
"Ivan's brother criticizes his book."
   (i) negovata si = brat (the brother's)
   (ii) negovata si = Ivan (Ivan's)
d. Ivanovijat brat kritikuva negovata kniga
"Ivan's brother criticizes his book."
   (i) negovata = brat (the brother's)
   (ii) negovata = Ivan (Ivan's) or someone else's

(32) a. Ivan mrazi Petur
"Ivan hates Petur."
b. Ivan kritikuva prijatelja si
"Ivan criticizes his friend."

In (29), the forms sebe si, se and svojata are the marked case, i.e. they have the feature characteristics [+refl,-φ] and they are coreferential with the subject Ivan in the local domain D, the minimal clause. In (30), the forms nego si and negovata si possess the feature characteristics [+refl,+φ] (φ = 3p,sg) and they corefer with the phrase Ivan (φ=3p,sg). Thus the φ features of the correspondent form must be identical with the φ features of the phrase. In (31a) and (31c), the forms nego si and negovata si have the
feature characteristics [+refl, +\( \varphi \)] (\( \varphi = 3p, sg \)) and they corefer with the non-c-commanding phrase *Ivanovijat*, with the same range of \( \varphi \) features (\( \varphi = 3p, sg \)). In (31b) and (31d), the forms *nego* and *negovata* have the feature characteristics [-refl, +\( \varphi \)] (\( \varphi = 3p, sg \)) and they must not have an antecedent (contained in the c-commanding phrase) in D, i.e. the minimal clause. Finally, the forms *Petir* and *prijatelja* in (32) have the feature characteristics [+R] and are disjoint from every c-commanding phrase (*Ivan*) in D, the minimal clause.

### 4.4. Lexical Insertion: Binding as Merge

Let us consider the way a certain form \( \alpha \) enters in a binding configuration in Bulgarian. For more clarity, regard the examples in (33) below where the feature characteristics of the NPs in question are also shown:

(33) Ivan mrazi  sebe si/  nego si/  nego
    Ivan hates  REFL REFL-CL/PRON-3SG-MASC REFL-CL/PRON-3SG-MASC
    
    sebe si [+refl,-\( \varphi \)]
    nego si [+refl,+\( \varphi \)]
    nego [-refl,+\( \varphi \)]

In the syntactic component, the c-commanding phrase, (containing the Subject (S)), the Verb (V) (V is optional, i.e. it is present only if D is the minimal clause as in our case in (29)) and the respective form P(\( \alpha \)) appear as bundles of features. The set of features consists of formal features FF(S), FF(V) and FF(\( \alpha \)) (where the categorial features are also included) and the semantic features.

The c-commanding phrase containing the Subject, *Ivan*, enters the numeration as a collection of its formal features FF(S) and semantic features. The subject raises overtly to the subject licensing position. The verb raises covertly and after the necessary checking relation is established, the Case and the phi-features of S are checked as free riders. The Case feature of S is [-interpretable], and it is therefore erased when checked. The phi-features of S are not accessible in overt movement - the process is postponed until later. The important thing is that the phi-features and the
categorial feature D are [+interpretable], hence they survive for further operations.

My hypothesis for binding in Bulgarian is (see Section 4.3.) that the forms involved in binding α (see e.g. (34) sebe si, nego si, nego) start out from the Numeration as bundles of features where initially only the [±R] (or more specifically [-R] ) feature oppositions are involved. It is only later, in the process of derivation, when the other feature oppositions are added, that is, [±refl] and [±φ]. This particular set of features is added in the process of derivation since the binding configuration involves looking for an antecedent in a certain domain. First, the [±φ] features are added in syntax in the process of Merge and Move operations. It is only later, when the [±refl] features are added and the already formed morphosyntactic objects are ready to be read off at PF. In syntax, the operation Merge takes place when the following morphosyntactic objects are formed:

\[(34)\]
\[
\begin{array}{c}
V (\text{label}) \\
\text{MERGE} \\
V \quad N \quad [-R]
\end{array}
\]

\[(35)\]
\[
\begin{array}{c}
N \\
\text{Spec} \\
\text{MERGE} \\
V (\text{label}) \quad V
\end{array}
\]

In (34) and (35), we see that two categories are paired or concatenated by Merge. At this point, we observe the derivational character of the c-command relation (Epstein et al 1998, Epstein 1999). The label V also
contains a bundle of features which represents a unification of the features of these two terms. The Spec N (in our case the Subject S) appears only later in the derivation and merges with V (label). Thus the only option is that Spec c-commands the terms of the label (either V or N). I formulate binding relations in the following way:

(36) The binding relations are established at the point of Merge of V (label) and SpecN.

A given form α (sebe si, nego si, nego in (33)) moves overtly to SpecAgrO for Case checking. The Case feature, being [-interpretable] is checked and erased. At first, the only formal features FF(α) which are available, that is, the categorial features [+R] are checked but they remain accessible for future operations. Assuming that there is a multiple checking operation, the other feature oppositions [+refl] and [+∅] are added and also checked. The [+∅] features are acquired in the process of merging and moving of the form [-R] and the verb. Hence in syntax, the morphosyntactic objects (trees) like those in (34) and (35) are formed, with terminal nodes containing bundles of features. Since only the oppositions [+refl] and [+∅] turn out to be active for considering the binding phenomena of Bulgarian (because they are added later in the process of derivation), we will continue regarding only these two pairs in the future. At the output of the syntactic component, Spell-Out, the morphosyntactic objects must be ready to enter the level of Morphological Structure (MS).

Morphology must derive well-formed morphological words of a language. As pointed out earlier, the operations at the Morphological Structure (MS), are constrained by a theory of features and locality conditions. Feature compositions can be changed and features are ordered according to strict hierarchical rules. There is also a deletion of certain features. In MS, the phonological features are added to the morphosyntactic objects, i.e., FFs are converted into strings of phonemes. The Lexicon is searched for the underspecified entry that best matches the morphosyntactic features supplied by the syntax.

In our case (33), we deal with the two morphosyntactic objects delivered from the syntactic component, presented in (37) and (38):

---

42 A similar view is taken also by Kayne (2002), Reuland (1998), and Zwart (2002). I have partially explored this idea in Schürcks (1998).
Let us examine the four theoretical possibilities for the morphosyntactic objects given in (39) - (42) below:
Consequently, we obtain theoretically four different options of the feature characteristics of $\alpha$, namely:
Universal Grammar provides the four possible "lists of features" in (43). Out of these four possibilities, only the first three N1, N2, N3 (i.e., (39), (40), and (41), respectively) are morphosyntactic objects spelled out as overt forms. The fourth option N4 is spelled out either as pro or NP trace.

φ-features, when present, are checked and deleted but not erased in the course of the derivation. Both φ features and categorial features survive until LF. Referring back to our example in (33), at PF, α will be spelled out as the form sebe si in (44), as nego si in (45) and as nego in (46), respectively:

\[(44) \quad \text{sebe si} \leftarrow [+\text{refl}] \\
\quad \quad \quad \quad [-\varphi] \]

\[(45) \quad \text{nego si} \leftarrow [+\text{refl}] \\
\quad \quad \quad \quad [+\varphi] \]

\[(46) \quad \text{nego} \leftarrow [-\text{refl}] \\
\quad \quad \quad \quad [+\varphi] \]

It is the three morphosynactic objects in (44) - (46) which will be interpreted at LF. In other words, the binding interpretive procedure will recognize only the following sentences (see (33)): 
(47)  a. Ivan mrazi sebe si  
    Ivan/He hates himself  
  b. Ivan mrazi nego si  
    Ivan/He hates himself  
  c. Ivan mrazi nego  
    Ivan/He hates him

4.5. Spell-Out ordering

An important issue to be addressed here is the order in which the different forms in Bulgarian, presented with the combination of feature characteristics \([\pm \text{refl}]\), and \([\pm \phi]\), are spelled out. We have seen that the variety of forms relevant for binding in Bulgarian are the following:

(48)  a. \([+\text{refl},-\phi]\) \rightarrow sebe si (REFL REFL-CL) 
    svoj (REFL-POSS-MASC) 
    si (REFL-CL-DAT) 
    se (REFL-CL-ACC) 
    si (REFL-CL-POSS)  
  b. \([+\text{refl},+\phi]\) \rightarrow nego si (PRON-3SG-MASC REFL-CL) 
    negov si (PRON-POSS-3SG-MASC REFL-CL-POSS)  
  c. \([-\text{refl},+\phi]\) \rightarrow nego (PRON-3SG-MASC-ACC);  
    na nego (PRON-3SG-MASC-DAT) 
    go (CL-3SG-MASC-ACC)  
    mu (CL-3SG-MASC-DAT)

At the point of Spell-Out, the derivation must provide the morphosyntactic objects in (48) to the level of MS. The question arises now about the order in which these objects are spelled out. I propose that this order bears directly on the level of markedness and specificity. Consequently, the following Degree of Markedness Spell-Out Principle (49) emerges expressing the relationship between the degree of markedness and Spell-Out:
Degree of Markedness Spell-Out Principle
The more marked a structural representation is, the earlier it is spelled out. The unmarked structural representation is the last to be spelled out.

In other words, the more unmarked a representation is, the more delayed is its process of Spell-Out. More precisely, it is not a matter of timing but rather the precedence of the spelled out forms.

This ranking of Spell-Out ordering of the morphosyntactic objects was suggested to me by Panini's Principle (as formulated in Noyer 1997:44):

Panini’s Principle: If one rule’s structural description is contained in the other’s, the rule with the more specific structural description applies first.

In terms of Panini's Principle (50), the forms (44) – (46) are three morphosyntactic objects consisting of the same set of features - any of the three rule's structural description is contained in the other's. Out of this morphosyntactic objects (44) - (46), the rule with the marked structural description, that is, (44) applies first. Consequently, this form is also the first to be spelled out. The next one in the row will be (45), followed by (46). The unmarked representation in (46) will be the last to be spelled out. The Spell-Out ordering in terms of precedence is illustrated below in (51) (the sign '>' means "more marked" and "precedes the Spell-Out of"):

\[
\begin{align*}
\quad [+\text{refl},-\varphi] & > [+\text{refl},+\varphi] > [-\text{refl},+\varphi] \\
\end{align*}
\]

In (51), the marked representation is [+refl,-φ], while the unmarked one is [-refl,+φ]. If we translate the representations into the respective range of forms in (48), the scale of Spell-Out ordering will be the following:

sebe si > ngo si > ngo

Thus the Spell-Out (or precedence) of the different forms relevant for binding in Bulgarian is ranked according to the markedness of their structural characteristics.

The idea of anaphoricity and specificity is explored also in Burzio (1989, 1991).
4.6. Conclusion

In this chapter, I have formulated the Binding Theory for Bulgarian, based on the NP classification with feature oppositions [±referential] ( [±R] ), [±reflexive] ( [±refl] ) and [±phi-features] ( [±φ] ). I have abandoned the NP classification [±anaphoric] and [±pronominal] which the classical Binding Theory rests on.

The new NP classification was necessary since the Bulgarian forms show peculiarities which cannot be accommodated in the classical Binding Theory, e.g., in its framework, the feature characteristic of the form nego si would be [+anaphoric,+pronominal] - a combination ruled out completely. I have claimed that the two feature oppositions [±refl] and [±φ] above are active in the morphological structure of Bulgarian. My two pivot assumptions are: (a) Morphology after Syntax approach, and (b) binding as an interface phenomenon.

The Binding Theory for Bulgarian proposed here deals successfully with these phenomena on morphological grounds. This approach may turn out to be the clue for investigating the binding puzzles in other languages.