

Chapter 3 The Structure of the Serbian Noun Phrase

In this chapter I propose a structure for the Serbian noun phrase. Since my analysis of noun phrase structure, and my analysis of the syntactico-semantic processes (binding and extraction) are formulated in the framework of Head Driven Phrase Structure Grammar (HPSG), I briefly outline the essentials of that theory in Section 3.1. In Section 3.2, I propose an internal structure of the Serbian noun phrase, one that treats determiners as NP-adjuncts and possessives as specifiers. In Section 3.3, I examine the categorial status of prenominal elements (determiners, universal quantifiers, possessives), showing that they are all adjectives. In Section 3.4, I account for the fact that all prenominal elements must be in concord with the head noun by adopting Kathol's (1995) and Wechsler & Zlatić's (1997) theory of agreement. In this theory, NP-internal agreement involves structure sharing of CONCORD features specified on all agreeing elements. Finally, in Section 3.5, I discuss the categorial status and the internal structure of quantified noun phrases. Section 3.6 summarizes the findings of the chapter.

3.1 AN OUTLINE OF THE HPSG FRAMEWORK

HPSG is a theory of grammar in which the unification operation plays a central role in describing linguistic objects. The unification operation (U) takes two linguistic objects with highly structured information and combines them to create an object containing information present in the information structures of both objects, and nothing else. As an illustration, the structure in (3) is the result of the unification operation of the structures in (1) and (2).

(1) [NUM *sing*]

(2) [GEND *fem*]

(3) (1) U (2) = $\begin{bmatrix} \text{NUM } \textit{sing} \\ \text{GEND } \textit{fem} \end{bmatrix}$

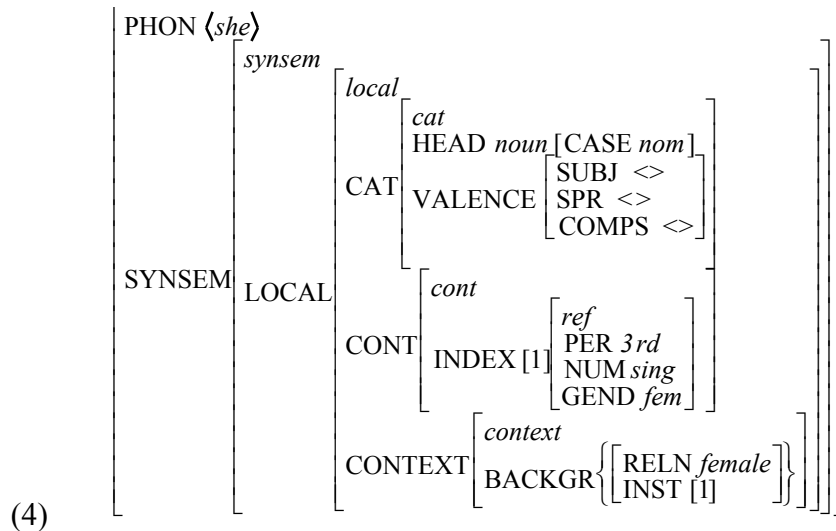
Structures (1) and (2) are less specific than the unified structure in (3), because (1) and (2) describe more linguistic objects than the unified structure in (3), which, in this case, describes only feminine singular objects. Formally, the structures in (1) or (2) subsume the structure in (3). Unification of two objects is not possible if there is conflicting information present in the objects. For instance, unification would fail if two objects have a conflicting value for the feature NUM(ber), i.e. if one object has a specification [NUM *sing*] and the other [NUM *plural*]. We will see in Section 3.4 that the failure to unify agreement

features of the NP-internal constituents in Serbian, leads to a morphosyntactic discord and therefore, ungrammaticality. This is because Serbian requires all NP-internal adjectival-like elements to be in agreement with the noun's case and $\bar{\kappa}$ -features.

HPSG describes linguistic objects not by means of derivations, but rather by means of an unordered set of constraints imposed on these objects. These constraints are monotonic; they simply add information to the linguistic object without changing its values.

3.1.1 The Lexicon

HPSG is also a lexicalist theory, for the lexicon, along with a small number of universal principles and immediate dominance (ID) schemata, are responsible for the well-formedness of various constructions. The lexicon contains all relevant information pertaining to lexical items, called *lexical signs*. Linguistic information about a lexical sign includes phonological, syntactic and semantic information, and for certain lexical items (e.g. pronouns), it also includes pragmatic or contextual information. This information, which is highly structured, is formally represented as a 2 x n attribute-value matrix (AVM). As a rule, it is assumed that an attribute, also called a feature, will be written in capital letters, and an atomic value in small letters. As an illustration, the lexical entry of the English third person singular pronoun *she*, would look as follows.



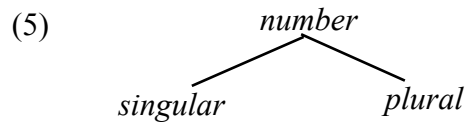
The lexical entry for the pronoun *she* contains phonological (PHON) information, containing a string of phonemes, among other things, and syntactico-semantic (SYNSEM) information. The SYNSEM information is contained in either a LOCAL or NONLOCAL attribute. The NONLOCAL attribute is used in dealing with unbounded dependencies (e.g. *wh*-questions, topicalization), which are discussed in Chapter 5. The LOCAL attribute is divided into three attributes: CAT(egory), CONT(ent) and CONTEXT.

Syntactic information is contained in the CAT(egory) attribute, which contains other attributes, such as HEAD and VALENCE. In this theory, all phrases are headed (exception being coordinate structures), and in addition, only one head per phrase is allowed (exception being coordination which can have multiple heads). The HEAD attribute contains information such as concord features, tense, while VALENCE attribute, contains lists of the head's

dependents, such as SUBJ(ect), SPR (specifier), and COMP(lements). From the above lexical entry, we observe that the pronoun is fully saturated, i.e., it takes no dependents, indicated by empty valence lists.

Semantic information is contained in the attribute called CONT(ent). Being a nominal object, the pronoun has an INDEX feature, which contains information about the pronoun's phi-features, namely person, gender and number. It is through the INDEX feature that nominal objects get linked to their discourse referents. The reason the INDEX attribute contains only phi-features, and not for example, tense feature, is due to the fact that the INDEX attribute is of sort referential (*ref*), indicated in the upper right corner. So verbs, being non-referential objects, would not have the INDEX feature in their CONTENT. Rather, being predicates, a verb's CONT(ent) will designate an appropriate relation and the participants of this relation.

The purpose of sorts is to classify feature structures, i.e., to designate the appropriate values for each attribute (this is the so-called 'appropriateness condition'). Sorts can be hierarchically ordered with respect to each other. For example, in (5) below, the sort *number* is called a supersort since it 'contains', or subsumes two subsorts, singular and plural. Or to put it in terms of information structure, the supersort *number* is less specific (since it refers to both singular and plural objects) than the subsorts *singular* or *plural*, which are maximally informative or maximally specific. (For details see Pollard & Sag 1987, 1994; Riehemann 1995).



The attribute NUM(ber) will take as its value the objects of the sort *number*, [NUM *number*], and not for example, objects of the sort *gender* (cf. the ill-formed matrix *[NUM *gender*]). A sort label for each attribute is usually designated in the lower or upper left corner of the appropriate attribute (e.g. the *ref* (erential) sort for the INDEX, or *cat*(egory) sort for the CAT(egory) attribute, as indicated in (4)). I will designate sorts in the attribute-value matrices only when relevant to the analysis.

From the lexical entry in (4), we also observe the presence of the CONTEXT attribute, which contains pragmatic information, expressed as a set of discourse parameters (e.g. conversation participants, spatio-temporal information of the utterance). The CONTEXT attribute for the pronoun *she* contains a requirement that the pronoun with the appropriate referential INDEX be anchored or linked to female entities (cf. [RELN *female*]). This pragmatic constraint is formally represented using tag notation, indicated by the appropriate number enclosed in square brackets (cf. [1]), and put before the appropriate attribute or value. Formally, tags represent structure-sharing of the values of appropriate feature between two nodes.

It is worth noting that personal pronouns (or nouns, in general) would lack the above pragmatic constraint in grammatical gender languages. This is because in these languages, the gender of common nouns and therefore, anaphoric

pronouns, is arbitrarily assigned, and does not need to correspond to natural gender. For example, in Serbian, the third person feminine pronoun *ona* 'she' can refer not only to female entities, but also to non-animate objects with morphosyntactic feminine gender marking (e.g. *knjiga* 'book-F.SG').

3.1.2 Grammatical Relations

Grammatical relations, such as SUBJ(ect), COMP(lement) and SPR (specifier) are encoded on the head's VALENCE feature, which is part of the CAT(egory) feature.²² Thus, every lexical item will have a specification for its valence features. Grammatical relations encoded on the VALENCE attribute are thus primitive notions, lexically assigned by the predicate.²³

Pollard & Sag (1994 : 359-360) provide both semantic and syntactic arguments for distinguishing specifiers (SPR) from subjects (SUBJ). Semantically, specifiers are never semantic arguments (excluding possessives) whereas subjects typically are. Furthermore, unlike subjects, specifiers cannot be controllers. Rather, typical specifiers have quantificational or degree denoting

²²In the first eight chapters of their 1994 book, Pollard & Sag do not use features like SUBJ, but rather a single Dowty-type 'SUBCAT'(egorization) list of all dependents (subjects, complements, etc.). These were cancelled from the list as phrases were added, roughly as in Categorical or Montague Grammar. 'Subject' was defined as 'first' in the SUBCAT list. However, many types of evidence made it clear that this single list approach is inadequate. For example, many languages allow clauses with complements but no subjects (the so called impersonal sentences). Also, the sole argument of a preposition patterns with objects, not subjects. Hence, the split of a SUBCAT list into two lists: the SUBJ list (usually of length one) and COMPS.

²³As Stephen Wechsler points out, 'subject' is essentially a grammaticalization of 'topic', a very basic notion with vast cross-modal relevance for cognition.

function, as in the following examples (reproduced from Pollard & Sag 1994 : 358).

- (6) a. [*Every/a/no* student] signed the petition.
- b. John is [*very/too/six feet* tall].
- c. Mary's office is [*just/right* around the corner].
- d. Kim rans [*so/too* fast].

The above examples illustrate that specifiers, indicated in italics, can specify all types of elements, nouns as in (6a), adjectives as in (6b), prepositions as in (6c), or adverbs as in (6d). The fact that specifiers can occur with various heads, supports positing a distinct grammatical relation, namely SPR.

A syntactic argument for distinguishing specifiers from subjects, comes from the fact that subjects and specifiers can co-occur, as for example, in the following constructions.

- (7) a. We consider [John] *an* idiot.
- b. We consider [Sandy] *too radical*.
- c. [John] is *an* idiot.
- d. [John] is *six feet* tall.

In all the examples in (7), either the predicative noun or the adjective has both a subject, indicated in brackets, and a specifier, indicated in italics. For example, in

the 'small clause' phrase in (7a), the predicative nominal *an idiot* selects both the specifier *an*, and the subject, which is identical to the verb's NP object. The lexical entry for the verb *consider* would look as follows.

(8) *consider*: $\left[\begin{array}{l} \text{SUBJ } \langle \text{NP} \rangle \\ \text{COMPS } \langle [1]\text{NP}, \text{XP}[+\text{PRD}, \text{SUBJ } \langle [1]\rangle] \rangle \end{array} \right]$

The verb *consider* selects two grammatical functions, SUBJ and two COMPS, an NP and XP. The second complement, XP is predicative (indicated by the Boolean feature PRD), whose subject is identical to the NP object of the verb *consider*. This identity is indicated by the tag [1], representing structure sharing. In other words, in this theory, a verb "can subcategorize for a complement that is itself unsaturated" (Pollard & Sag 1994 : 123). In this respect, Pollard & Sag's analysis of verbs like *consider* differs from the GB analysis (e.g. Stowell 1981) which assumes that these verbs take only one complement, namely a fully saturated predicative phrase XP.

As to the status of possessives, Pollard & Sag (1994) propose that they are specifiers in English and German, because they "inflect just as nonpossessive determiners do, and observe the same general patterns of distribution, agreement, and government" (p. 374). However, Pollard & Sag remark that in languages such as Welsh and Hungarian, possessives could be treated as subjects. This is because in these languages, possessives have more subject-like characteristics. For example, in Hungarian the possessor is marked for nominative case, and the

possessed noun agrees in phi-features with the possessor, paralleling the subject-verb agreement.

In addition to the valence feature, there is another feature called ARG-S (argument structure), which normally takes as its value a concatenated list of all dependents taken from the valence list.²⁴ The elements on the ARG-S list are ordered according to the relative obliqueness of grammatical relations, starting from the least oblique element. Pollard & Sag (1994 : 375) propose the following obliqueness hierarchy.

(9) SUBJ < SPR < COMPS

The above obliqueness hierarchy is important for binding theory, which applies at ARG-S. This is discussed in Chapter 5.

I illustrate the above concepts using concrete lexical items, such as the noun *picture* (cf. (10a)) and the verb *give* (cf. (10b)).

(10) a. *picture*:

$$\left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ} < > \\ \text{SPR} [1] < \text{DetP} > \\ \text{COMPS} [2] < (\text{PP}[\textit{of}]) > \end{array} \right] \\ \text{ARG - S} < [1]_i, [2]_j > \end{array} \right] \\ \text{CONT} \left[\begin{array}{l} \text{REL } \textit{picture} \\ \text{POSS } i \\ \text{THEME } j \end{array} \right] \end{array} \right]$$

²⁴It is important to note that in pro-drop languages, the null pronominal subject will not be present on the VALENCE attribute but it will occur on the ARG-S. This is necessary because null pronominal subjects participate in anaphor binding relations which is defined on the ARG-S.

$$\text{b. } \textit{give}: \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ} <[1]\text{NP}> \\ \text{COMPS} <[2]\text{NP}, [3]\text{PP}[\textit{to}]> \end{array} \right] \\ \text{ARG-S} <[1]_i, [2]_j, [3]_k> \end{array} \right] \\ \text{CONT} \left[\begin{array}{l} \textit{give-rel} \\ \text{GIVER } i \\ \text{GIVEE } j \\ \text{GIVEN } k \end{array} \right] \end{array} \right]$$

First, we observe that both VALENCE and ARG-S are part of the syntactic CAT(egory) attribute. The valence feature takes another matrix as its value, a matrix consisting of SUBJ, COMPS and SPR, all representing grammatical functions (GF). These features, in turn, take a list of items as their value, designated by angle brackets. The SUBJ and SPR are restricted to be at most of length one, whereas this restriction does not hold for the COMPS list. The noun *picture* has the following dependents: the SPR, which for illustrative purposes, has a categorial status of DetP, and the optional PP-complement, introduced by the preposition *of* (as in *the picture of John* or *Mary's picture of John*). This noun does not select SUBJ(ect), as indicated by an empty list. These grammatical functions are linked to the corresponding items on the ARG-S list, indicated by appropriate tags. In addition, the elements on the ARG-S list are linked to the appropriate participants of the *picture* relation, encoded in the semantic CONT(ent) attribute. This linking is formally represented by subscripted referential indices.

The verb *give* in (10b) selects an NP as its subject and two NP complements. It does not select SPR. As mentioned above, the ordering of the complements, or any GFs, is based on the obliqueness hierarchy defined on

ARG-S, which does not need to correspond to a linear ordering; the latter being regulated by independent Linear Precedence (LP) rules. The elements on the ARG-S are linked to appropriate participants of the *give* relation, encoded in the semantic CONT(ent) of the verb. In other words, the CONT(ent) value of the verb together with the ARG-S value, comprises the predicate-argument structure. I discuss this issue further in Chapter 4.

3.1.3 Universal Principles and Immediate Dominance Schemata

When the lexical signs are put together to form phrases, the phrasal signs get an additional attribute called daughters (DTRS), representing the constituent structure of the phrase. This attribute contains information about daughters (i.e. grammatical relations) of a given phrase, i.e., whether it is a head daughter (HEAD-DTR), subject-daughter (SUBJ-DTR), a specifier daughter (SPR-DTR), a complement daughter (COMP-DTRS), or an adjunct daughter (ADJUNCT-DTR). Each dependent on the head's valence list is cancelled or discharged whenever it is added to the phrase. This cancellation of the head's dependent from the head's valence list is guaranteed by the universal Valence Principle, defined below.²⁵

(11) Valence Principle (Pollard & Sag 1994 : 384)

In a headed phrase, for each valence feature F, the F value of the head daughter is the concatenation of the phrase's F value with the list of the

²⁵The Valence Principle does not apply to ARG-S list.

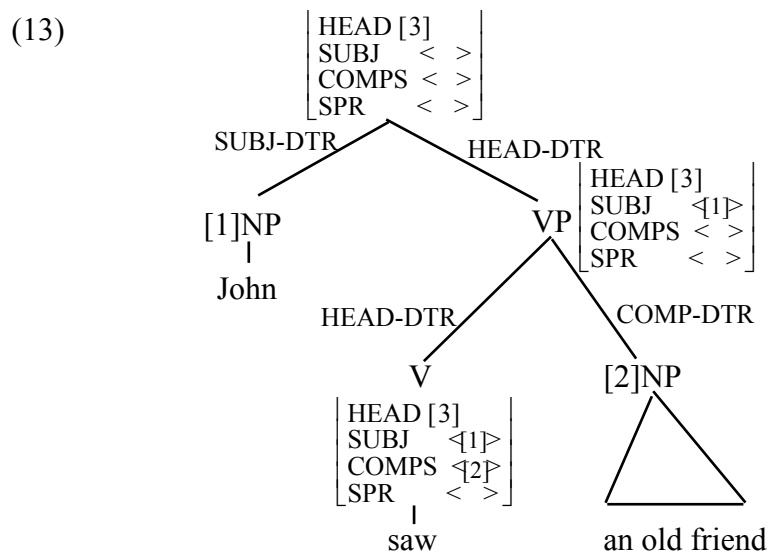
SYNSEM values of the F-DTRS value. [where F ranges over SPR, SUBJ, COMPS].

Besides the Valence Principle there is another universal principle called the Head Feature Principle which insures that the HEAD value of the phrase is identical to the HEAD value of its head daughter. Its definition is given below.

(12) The Head Feature Principle (Pollard & Sag 1994 : 399)

In a headed phrase, the values of SYNSEM|LOCAL|CATEGORY|HEAD and DAUGHTERS|HEAD-DAUGHTER|SYNSEM|LOCAL|CATEGORY|HEAD are token identical.

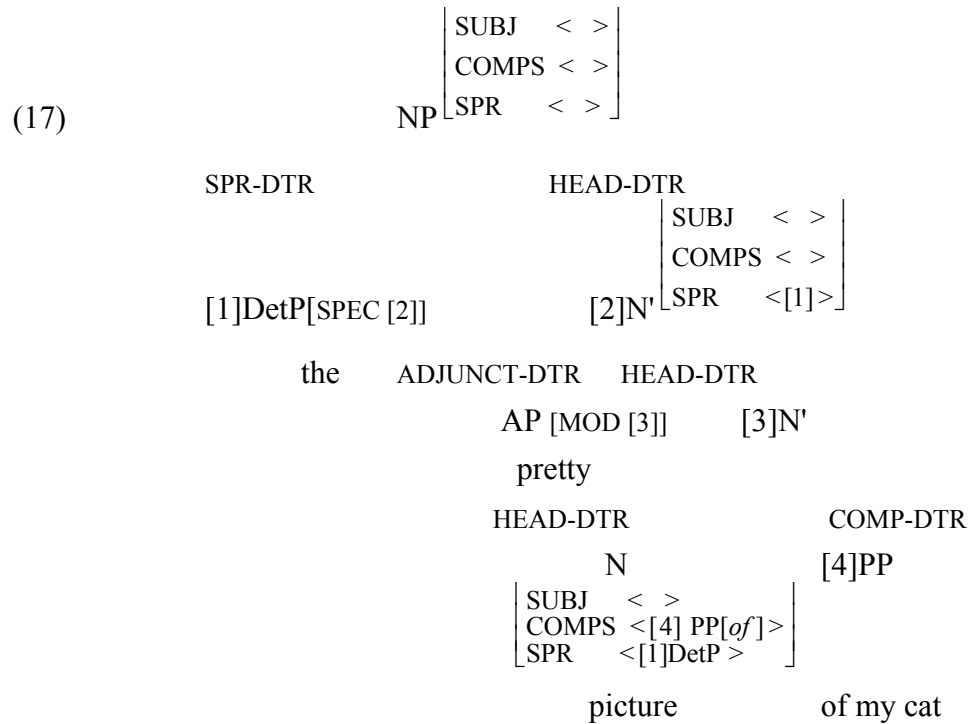
The annotated phrase marker below illustrates how the Valence and the Head Feature principles, along with the appropriate phrase structure schemata account for the well-formedness of the following construction.



Following the HPSG convention, each branch in a tree is labeled with the appropriate lexically determined grammatical relation, such as SPR (specifier), SUBJ(ect), COMP(lement), ADJUNCT, including the HEAD of a phrase. Each node in the above tree is constrained by the appropriate immediate dominance (ID) schema which serves as a template "for permissible local phrase structure trees" (Pollard & Sag 1994 : 37). In other words, the lexically determined grammatical relations are configurationally interpreted via the appropriate ID schemata. For example, to appear as the value of the feature SUBJ means that an argument must have a particular address in phrase structure (the SUBJ-DTR in (13)). This is similar to GB, where a particular argument of a verb is given a primitive classification of 'external argument'. This guarantees that its address is the subject position (which is configurationally defined).

The ID schemata (or phrasal sorts) along with the two principles mentioned above, insure the well-formedness of the above construction. More precisely, the Head Feature Principle insures that the information on the HEAD percolates up to all projections of that head, as indicated by the tag [3]. The Valence Principle insures that the items on the valence list (e.g. SUBJ, COMPS) are cancelled off, whenever they are added to the phrase. The root node of the above tree, being a fully saturated phrase (indicated by an empty valence list) is licensed by the Head-Subject Schema, defined below.

(14) Head-Subject Schema: $X[\text{SUBJ} \langle \rangle] \rightarrow [1]Y$, $X[\text{SUBJ} \langle [1] \rangle]$
SUBJ HEAD



In this tree diagram, the head noun *picture* selects both the specifier (SPR) and the complement (COMP), but not the SUBJ. As mentioned earlier, the SPR is a distinct valence feature, independent of SUBJ. The Valence Principle works as usual: both of the noun's dependents (SPR and COMP) are removed from the valence list as they become used up on the appropriate phrasal projections. In the above tree, the SPR is the definite determiner *the*, which for illustrative purposes is of syntactic category DetP. In order to license the node with the specifier-head (SPR-HEAD) relation, Pollard & Sag (1994 : 362) introduce another ID schema called the Head-Specifier Schema, defined below.

via its own head feature, called MOD(ified), selects a modified phrase (XP). In the above tree diagram, this is indicated by the tag [3] appearing on the MOD feature of the attributive adjective *pretty* and on the modified phrase N'.²⁷ Furthermore, the content value of the adjunct is inherited to the entire phrase, as guaranteed by the Semantics Principle, defined below.

(20) Semantics Principle (Pollard & Sag 1994 :56)

In a headed phrase, the CONTENT value is token-identical to that of the adjunct daughter if the DTRS value is of sort *head-adj-struct*, and with that of the head daughter otherwise.

In addition to Immediate Dominance (ID) rules, HPSG distinguishes Linear Precedence (LP) rules. These two types of rules are independent of each other. A (local) syntactic tree must simultaneously obey both ID and LP rules, as well as all the universal principles. Formally, LP rules are represented as: $A < B$, which says that A must precede B (or B must follow A), where A and B represent the values of the PHONOLOGY attribute (concatenation of phonemes of two daughters) rather than the entire signs. This is because some languages may allow "the pieces of the PHONOLOGY strings of daughter signs to be interleaved with those of other daughters in the construction of larger signs" (Pollard & Sag 1987 :1989), resulting in discontinuous constituents. To illustrate, in order to account for the fact that English is a head-initial language, the following LP rule or constraint must be enforced.

²⁷ The feature MOD is analogous to the SPEC feature used by determiners, as discussed above.

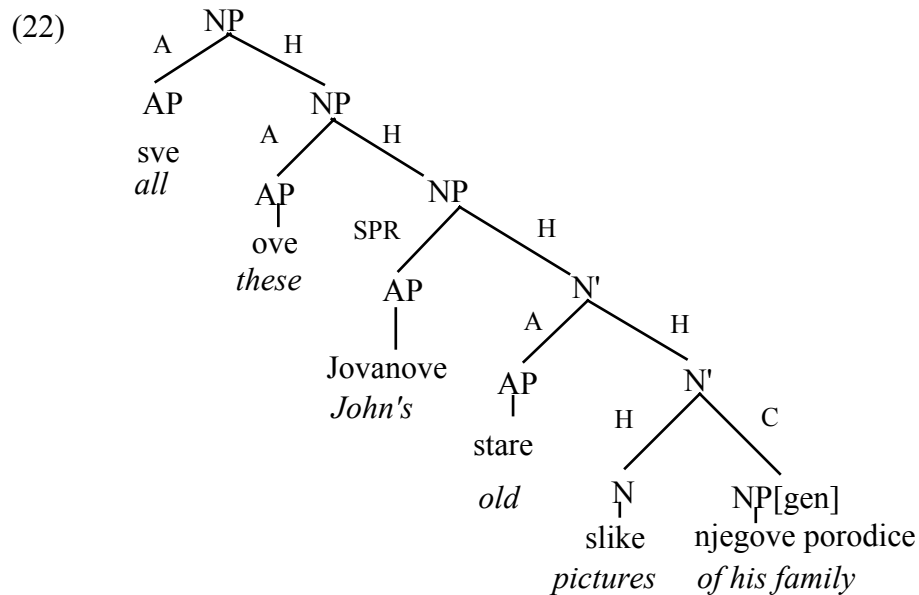
(21) HEAD < []

This rule says that a lexical head precedes any of its sisters. The head-final languages would have the rule reversed, [] < HEAD.

These are the fundamentals of HPSG. Other portions of the theory relevant to this dissertation, such as agreement, case, binding theory, unbounded dependencies, etc., are discussed in appropriate chapters.

3.2 Proposed Noun Phrase Structure

Based on word order patterns, we concluded in Chapter 2 that demonstratives and the indefinite determiners *jedan* and *neki* occupy the same syntactic position in the noun phrase. This conclusion was based on the fact that these determiners cannot switch their usual position with other prenominal elements except with universal quantifiers, which generally appear first in the nominal complex (cf. (6-7) of Chapter 2). We have also illustrated that determiners can co-occur with possessives (cf. (9-10) of Chapter 2). The order between determiners and possessives is fixed, for determiners must always precede possessives, as well as regular adjectives. With the exception of determiners and universal quantifiers, all prenominal elements allow all kinds of permutations. Based solely on these facts, using a concrete example, an internal structure of the Serbian noun phrase is proposed below.



Following the HPSG convention, each branch in the above tree is labeled with the appropriate, lexically determined grammatical relation, such as SPR (specifier), C(omplement), A(djunct), including the H(ead) of a phrase. As discussed in the previous sections, each node in the above tree is constrained by the appropriate immediate dominance (ID) schema, which serves as a template for permissible local phrase structure trees (Pollard & Sag 1994 : 37).

In the above phrase marker, the head of the noun phrase is the noun *slike* 'pictures', as established using headedness tests. The head noun *slike* selects two grammatical relations, SPR and C(omplement). The SPR is the possessive *Jovanove*, which has the categorial status of an adjective. Evidence that *possessives* are in fact, adjectives rather than nouns is provided in Section 3.3.4.

The complement of the noun *slika* is the genitive NP *njegove porodice*. Thus, the lexical entry of this noun would look as follows.

$$(23) \textit{slika}: \left[\text{VALENCE} \left[\begin{array}{l} \text{SPR} < (\text{AP}) > \\ \text{COMP} < (\text{NP}[\textit{gen}]) > \end{array} \right] \right]$$

From this lexical entry we see that the noun *slika* does not 'subcategorize' for a determiner, as is the case in English. This is because determiners are always optional elements in the Serbian noun phrase, as illustrated in the previous chapter. Determiners are treated as adjuncts, more precisely, as NP-adjuncts, on a par with universal quantifiers.²⁸ The lexical entries of these elements looks as in (24).

$$(24) \textit{sve/ove} \textit{'all/these'} \left[\text{SYNSEM|} | \text{HEAD} \left[\begin{array}{l} \textit{adj} \\ \text{MOD NP} \end{array} \right] \right]$$

where NP abbreviates as in (25).

$$(25) \text{HEAD} \left[\begin{array}{l} \textit{noun} \\ \text{SPR} < > \\ \text{COMPS} < > \end{array} \right]$$

To be an NP-adjunct simply means that the element subcategorizes through its MOD feature for a fully saturated phrase, i.e. an NP that has an empty SPR list, as shown in (25).

From the tree in (22) we also observe that regular adjectives are treated as N'-adjuncts, which means that they select an N' level category, as shown in (26).

²⁸It is interesting to note that Kolliaku (1993) treats the Greek definite article also as an adjunct.

(26) *stare* 'old' $\left[\text{SYNSEM} \parallel \text{HEAD} \left[\begin{array}{l} \textit{adj} \\ \text{MOD N}' \end{array} \right] \right]$

where N' abbreviates as in (27).

(27) $\left[\text{HEAD} \left[\begin{array}{l} \textit{noun} \\ \text{SPR} < [] > \\ \text{COMPS} < > \end{array} \right] \right]$

Where N' indicates not fully saturated phrase, i.e., a phrase that has one item on the SPR list, as shown in (27). As mentioned earlier, in HPSG bar levels are not primitives but are defined in terms of degree of saturation.

By assuming that determiners are NP-adjuncts and not N'-adjuncts we can account for the fact they can be freely ordered with universal quantifiers (cf. (28)), which are also NP-adjuncts.

(28) a. *sve ove knjige*
 all these books
 b. *ove sve knjige*

However, they cannot permute with other elements in the noun phrase. In particular, determiners cannot permute with regular adjectives (cf. (29b)), which are N'-adjuncts, or possessives (cf. (30b)), which are specifiers.

(29) a. *ova velika kuća*
 this big house
 b. **velika ova kuća*

- (30) a. ova Jovanova prijateljica
 this John's friend
 b. *Jovanova ova prijateljica

A question might arise as to why possessives are treated as specifiers rather than subjects. Recall from the discussion in Section 3.1.2 that Pollard and Sag (1994) treat English possessives as specifiers on a par with determiners, despite the fact that possessives can be semantic arguments on a par with subjects of clauses (as in *John's description of Mary*), or controllers (as in *John's attempt to leave*). The main reason why Pollard & Sag do not treat possessives as SUBJ(ects) is due to syntactic factors. In particular, in the following syntactic constructions, both SUBJ and SPR can co-occur.

- (31) a. [John] is *my* brother.
 b. [This] is *Mary's* solution.

In both examples, the predicative nominals *brother* and *solution* take both the SUBJ (bracketed NPs) and the SPR (indicated in italics). The SUBJ of these nouns is identical to the subject of the copula *be*. This identity of subjects is indicated in the lexical entry of the copula *be*.

- (32) *be*: $\left[\text{VALENCE} \left[\begin{array}{l} \text{SUBJ} <[1]\text{NP}> \\ \text{COMPS} < \text{XP}[\text{SUBJ} <[1]>]> \end{array} \right] \right]$

We observe that the copula *be* takes both a SUBJ NP and an unsaturated COMP(lement) which can be of any category, hence the label XP. This complement in turn, selects the SUBJ which is identical to the copular SUBJ, indicated by the tag [1]. Recall from Section 3.1.2 that in this theory, a predicate can subcategorize for a complement which is unsaturated, i.e., whose unsaturated argument is outside its maximal projection, as is the case with these constructions. The fact that Serbian also allows SUBJ and SPR to co-occur with predicative nominals (cf. (33)) speaks in favor of assigning a grammatical function SPR to the possessive, rather than SUBJ, because we would then end up with two SUBJ(ects), an unwelcome result.

- (33) a. Jovan je moj brat.
 John is my brother
- b. Ovo je Marijino rešenje.
 this is Mary's solution

However, in Section 4.3.2, we will see that not all nouns can occur in a predicative position. Specifically, process denoting nouns cannot appear in this position (cf. (34)) indicating that their 'possessors' can be treated as SUBJ(ects) rather than as SPR (specifiers).

- (34) *Ovo je Marijino rešavanje problema.
this is Mary's solving problem
*'This is Mary's solving of a problem.'

We see that the corresponding English sentence is also unacceptable. One solution to this problem is to treat possessors of process nominals as SUBJ(ects) and possessors of non-process nominals as SPRs. However, for now, I will assume that possessives are assigned a grammatical function SPR, as in the above tree. (I will return to this issue in Chapter 4.) From that tree, we observe that the specifier occurs prenominally while the genitive NP complement occurs postnominally. This ordering is the result of the following linear precedence constraint.

- (35) a. SPR < HEAD
b. HEAD < COMPS

This constraint, applying to all heads, says that specifiers precede the head and complements follow it. The ordering of complements of nouns is discussed in Section 4.6.2. In the next section, various kinds of evidence are provided for the adjectival status of the prenominal elements shown in the phrase marker above.

3.3 SYNTACTIC CATEGORY OF PRENOMINAL ELEMENTS

Although we established that the head of the noun phrase is a noun, at this point it is necessary to determine the categorial status of the prenominal elements appearing in the phrase marker (22), namely, universal quantifiers, determiners and possessives. I start with determiners, analyzing separately the indefinite determiners *jedan* and *neki* from demonstratives, since demonstratives can be classified as either adjectives or nouns.

3.3.1 Determiners & Adjectives are Non-Distinct Categories

The main question regarding the Serbian noun phrase, is whether the determiners *jedan* and *neki* are a functional category Det(eterminer), or whether they are indistinguishable from the syntactic category Adjective, as labeled in (22) above. Based on morphological and syntactic evidence, I show that they should be classified as adjectives rather than determiners.

There are two pieces of morphological evidence that *jedan/neki* pattern like adjectives. The first pertains to agreement phenomenon, whereby, *jedan* and *neki*, just like adjectives, agree in gender, number, and case with the head noun. This is shown below.

- (36) *jedna* *stara* *knjiga*
 an-N.F.SG old-N.F.SG book-N.F.SG
 'an old book'

In this example, since the common noun *knjiga* 'book' is feminine singular, the indefinite determiner *jedna*, as well as the adjective *stara* 'old', agree in these features with the noun.

The second piece of morphological evidence for the adjectival status of indefinite determiners comes from the fact that they decline like adjectives rather than nouns. This declensional paradigm is exemplified below.

(37)	N:	jedan stari čovek
		an old man
	G/A:	jed nog star og čoveka
	D/L:	jed nom star om čoveku
	I:	jed nim star im čovekom

where N=nominative, G=genitive, D=dative, A=accusative, L=locative, I=instrumental.

We observe that in oblique cases, the endings (indicated in boldface) of both determiners and adjectives are different from those on the nouns (in italics).

The syntactic evidence pertains to distribution and extraction. With respect to their distribution, *jedan* and *neki* behave just like adjectives. They can stand alone only as a result of ellipsis (as in 38b)).

(38)	a.	Zašto niste	pojeli	sve	smokve?	(question)
		Why not-AUX	ate	all	figs-F.PL	

'Why didn't you eat all the figs?'

- b. Neke/zelene su još uvek tvrde. (answer)
some/green-F.PL are still always hard
'Some/green are still hard.'

The first sentence provides a context necessary for the omission of the head noun *smokve*. As indicated in (38b), both the determiner *neke* 'some' and the adjective *zelene* 'green' bear the same phi-features as the ellipted noun, *smokve* 'figs'.

With respect to their distribution within the noun phrase, we illustrated in Chapter 2 that all prenominal elements, including determiners, can also occur after the head noun. We noted that this indicates that these elements do not have the status of a functional category, since in general, functional categories (e.g. D, AGR, TENSE, C) occur in a fixed position, not allowing postposing. For example, English and Italian, which are claimed to have a functional category D, do not allow postposing of a determiner (cf. **book the*, **libro il*).

Another syntactic piece of evidence for the adjectival status of indefinite determiners comes from the process of extraction, which is discussed in the following section with reference to demonstratives.

3.3.2 Demonstratives are Nouns or Adjectives

The question of the categorial status of demonstratives is more complex since demonstratives can occur in typical noun phrase positions (e.g. subjects of clauses, objects of prepositions) or typical modifier positions. Therefore, they can be classified as either nouns or adjectives. I start with NP-internal demonstratives which behave like adjectives.

3.3.2.1 Demonstratives as Adjectives

With respect to agreement, NP-internal demonstratives behave like adjectives, inflecting for the agreement features of the head noun. This is shown in (39).

- (39) Ovo pametno dete je došlo.
this-N.NT.SG smart-N.NT.SG child-N.NT.SG AUX came
'This smart child came.'

Furthermore, with respect to the other morphological and syntactic tests described above, demonstratives behave like the indefinite determiners *jedan/neki*, and therefore, like adjectives. For example, with respect to extraction, both adjectives and demonstratives, as well as the indefinite determiners *jedan/neki*

behave alike. Specifically, these elements can be extracted from within the noun phrase (cf. (40), hence violating Ross' (1967) Left Branch Condition (LBC), devised to rule out sentences in which NP-internal left branch constituents are extracted from within the noun phrase.

- (40) a. Ovu_i/lepu_j sam pronašla [t_i/t_j knjigu.]
 this/nice-A.F.SG AUX found book-A.F.SG
 *'This/nice I found book.'
- b. Koji_i/kakvu_j si pronašla [t_i/t_j knjigu.]
 which/what kind-ACC.F.SG AUX found book-ACC.F.SG
 *'Which/what kind did you find book?'

Example (40a) illustrates extraction of a demonstrative and/or an attributive adjective out of the Serbian noun phrase, and example (40b) illustrates that the corresponding interrogative elements can be extracted as well. As indicated, LBC operates in English, but not in Serbian. In his analysis of this phenomenon in Czech and Polish, Corver (1992) proposed that a contrast such as in (40), is due to the fact that Czech and Polish lack a DP-projection while English does not. He further showed that the extractable elements are categorially adjectives, which, according to him, are base adjoined to an NP. Although Corver's and my analysis of left branch extraction differ (see Section 5.3), we both reach the same

conclusion regarding the headedness of noun phrases and the categorial status of prenominal constituents in the above mentioned Slavic languages.

Recall from Chapter 1, that one of the main strengths of the DP analysis is that it allows a compositional semantics for noun phrases, where D is the functor, and the set denoted by the NP is the argument. However, by classifying Serbian determiners as adjectives, I am implying that they have the same type of denotation as regular adjectives, i.e., they denote functions that map properties onto properties, rather than functions from properties to sets of properties, as the Generalized Quantifier theory of Barwise & Cooper (1981) suggests. A similar analysis is offered by Ladusaw (1985), who treats English definite determiners (*this/that, the*) on a par with (restrictive) adjectives, denoting a functor that maps properties onto properties. Syntactically speaking, in this approach, a determiner combines with a common noun to form another common noun.²⁹ As Ladusaw (1985 : 173) notes, given this view it is not surprising to find a determiner occurring with proper names. We will see in the following subsection that Serbian is such a language, allowing proper names to be modified by a determiner.

3.3.2.2 Demonstratives as Nouns

²⁹Ladusaw assumes a rule (of type shifting) that maps properties into individuals, to obtain the NP denotation.

As mentioned earlier, demonstratives can occur in typical noun phrase positions, subjects of clauses, as in (41a) and objects of prepositions, as in (41b), and therefore, they can be classified as nouns.

- (41) a. Ova je pametna. (pointing at a girl)
 this-N.F.SG AUX smart-N.F.SG
 'This (one) is smart.'
- b. Od ovoga mi se spava. (holding a pill)
 from this me-A REFL sleep
 'I get sleepy from this.'

The first two sentences do not necessarily need to be instances of nominal ellipsis, since both sentences can be uttered with no previous mention of a referent expressed by the demonstratives. Rather, demonstratives can simply point to appropriate objects, as for example, those indicated in parentheses.

That demonstratives can be classified either as nouns or adjectives is supported by the following morphological facts. Although, in general, the two types of demonstratives are homophonous, there are some circumstances in which they are morphologically different. This distinction arises when demonstratives inflected for masculine and neuter gender occur in certain oblique cases (e.g., genitive, dative, locative). In this situation, a demonstrative - (pro)noun has a vowel ending (cf. *ovoga* in (41b) and *ovima* in (42a)), while a demonstrative - adjective has no vowel ending (cf. *ovim* in (42b)).³⁰ (Both examples below are taken from Mrazović & Vukadinović 1990 : 309).

³⁰Ileana Comorovski informs me that in Rumanian the two types of demonstratives can also be distinguished morphologically, as the following examples illustrate.

(42) a. **Ovima** nikada nisam verovala.
 these-D never not+AUX trusted
 'I never trusted these (people).'

b. **Ovim** ljudima nikada nisam verovala.
 these-D people-D never not+AUX trusted
 'I never trusted these people.'

The NP-internal demonstrative *ovim* in (42b) is syntactically an adjective rather than a noun, since adding a vowel would result in an unacceptable sequence **ovima ljudima*. In example (42a), the demonstrative has a vowel ending showing that it is a noun. However, it is also possible to omit the vowel ending in (42a), i.e. to have *ovim* instead of *ovima*, but then, we get an elliptical construction, in which the head noun is omitted.

In the remainder of this section, I justify the claim that demonstratives are pro(nouns) by showing similarities between demonstrative and personal

-
- i. Niciodato nu am avut incredere in acestea.
 never not have had trust in these
- ii. - ' - - ' - ' in aceste carti
 in these books
 'I never had trust in these vs. these books.'

In i. the *-a* ending of the demonstrative *acestea* indicates that this demonstrative is a noun, and hence the noun phrase, whereas in ii., the lack of this vowel on the demonstrative *aceste*, indicates that it is an adjective.

pronouns. I also show that pronouns (as well as proper names) behave like common nouns.

Both demonstrative and third person pronouns can be used anaphorically, referring to an entity already introduced in the discourse. Syntactically, both types of pronouns also behave alike. They have the same distribution in a sentence: e.g., occurring in subject position, as in (43a), or as object of a preposition, as in (43b).

(43) a. Ovaj/on je došao.
this/he-N.M.SG AUX came-M.SG
'This one/he came.'

b. Strah me je od ovoga/njega.
fear I-A AUX from this/him-G.M.SG
'I am afraid of this one/him.'

In addition, just like common nouns, both types of pronouns allow modification. Specifically, they allow phrasal modification, as in the following examples.

(44) a. Mi se brinemo za sve one/njih tamo.
we REFL worry for all those/them over there
'We worry about all of those/them (who are) over there.'

- b. Onaj/on sa polomljenom nogom ne može da ide nikuda.
 that/he with broken leg not can COMP goes nowhere
 'That one/he, with his broken leg, cannot go anywhere.'

In (44a), the locative phrase *tamo* 'over there' modifies either the plural demonstrative pronoun *one* 'those' or the personal pronoun *njih* 'them'. From this example we see that modifiers can precede or follow a pronoun, just as is the case with common nouns. In example (44b), the masculine singular demonstrative *onaj*, and the personal pronoun *on* are modified by a prepositional phrase.

However, not all kinds of non-sentential modifiers go with pronouns, as illustrated in the following:

- (45) a. *Det + pronoun (e.g. **ta ona* *'that she')
 b. *Poss + pronoun (e.g. **moja ona* *'my she')

In addition, there are severe restrictions as to what kinds of adjectives or prepositional phrases can modify pronouns. Because of the restrictions listed in (45), many researchers have claimed that pronominal noun phrases do not expand into a common noun phrase. Rather, they are analyzed as unexpandable NPs, or in more recent terms, they are intransitive Ds (cf. Abney 1987). However, I believe that the above restrictions are not syntactic in nature, but are due to restrictions on semantic redundancy, whereby pronouns identify a discourse

referent by their own force, and hence do not need determiners or possessives. For example, as Lee Baker (personal communication) suggested, the first type of restrictions (*Det + pronoun) might be due to the fact that personal pronouns are, in a sense, coalesced determiners, as evidenced, for example, in the English or French third person plural pronouns, which already contain a definite article in them (cf. English: *the+y*, *the+m*, *the+ir*; French: *eux+les* = *leur*).

Besides phrasal modification, both demonstrative and personal pronouns allow clausal modification, as exemplified below.

- (46) a. Srela sam danas one/njih koji su došli iz Sarajeva.
 met-1.F AUX today those/them-A who AUX came from Sarajevo
 'Today, I met those/them who came from Sarajevo.'
- b. Ti to govoriš onoj/njoj, koja nikad ne sluša.
 you this speak that/her-L who never not listen
 'You are talking to that one/her, who never listens.'

In (46), we have an instance of two kinds of clausal modification: restrictive in the first sentence and non-restrictive in the second. Semantically speaking, a restrictive relative clause delimits the set of objects denoted by a nominal expression, either a common noun or a pronoun. For example, the relative clause in (46a) restricts the set of contextually relevant persons to those

who came from Sarajevo. Non-restrictive relative clauses, on the other hand, do not have this delimiting function, but rather their function is to make an additional predication about an entity or entities that is/are already identified by the preceding noun phrase. Thus, in (46b), the referent expressed by the feminine singular demonstrative *onoj* and the personal pronoun *njoj* has already been identified. The non-restrictive relative clause just adds extra information about that female person: namely, that she never listens when spoken to. As indicated, these two types of relative clauses can be distinguished by a comma punctuation placed before the non-restrictive relative clause but not before the restrictive one. In spoken language, the difference is represented by different intonation patterns. Specifically, in non-restrictive relatives, there is a rising intonation on the modified noun following by a slight pause, whereas in restrictive relatives this intonation/pause pattern is absent. The same rule of punctuation/intonation also applies in English (cf. Baker 1995), but unlike English, Serbian allows restrictive modification to apply not only to common nouns, but also to pronouns (as in 46a).³¹ It is not an unusual feature of Serbian to allow restrictive modification of demonstrative and personal pronouns. Other languages allow this kind of modification as well, such as Korean (Yoon 1990), Japanese (Fukui & Speas 1986), Norwegian (Hestvik 1992), and Latin (Cohan 1996).

Serbian does not distinguish the two types of relatives via lexical means, as is the case in English, where non-restrictive relatives can only be introduced by

³¹ Among the pronouns, it is much harder to get a restrictive interpretation with first and second person personal pronouns and with proximal demonstrative pronouns.

wh-phrases, but not by *that* or the null-relativizer.³² However, as Grickat (1967) pointed out in her paper on the usage of the Serbian relativizers *koji* 'who/which' and *što* + clitic pronoun, there is a tendency for using *što* + clitic pronoun to introduce non-restrictive relative clauses, while *koji* can be used for both. She claims that *što* + clitic pronoun modifies nouns with 'concrete' (as opposed to abstract) meaning, as well as nouns that are part of a specific noun phrase. Grickat (1967 : 41) illustrates this difference by the following examples (the relativizers are italicized).

(47)a. U našoj sredini još se nije pojavio taj čovek (,) *što* zna da proriče budućnost.

in our circles yet SE not appeared that man that knows that foretell
future

'That man, who knows how to foretell the future, did not appear yet in our
circles'

b. U našoj sredini još se nije pojavio (taj) čovek *koji* zna da proriče budućnost.

³²Browne (1986 : 86) claims that the two types of relatives can, in fact, be distinguished syntactically in Serbian as well. Namely, he claims that only non-restrictive relatives allow a repetition of an antecedent within the relative clause (cf. i.) while restrictive relatives do not (cf. ii.). However, I personally find the examples with the repeated antecedent unacceptable, including example i. below, so I will disregard this test.

i. Roman o ratu, koji roman čitam...
novel about war, which novel I read
'A novel about war, which novel I am reading...'

ii. Roman o ratu, koji čitam...
novel about war, which I read
'A novel about war, which I am reading...'

in our circles yet SE not appeared that man who knows that foretell
future

That man who knows how to foretell the future did not appear yet in our
circles'

In (47a), we have an instance of a non-restrictive relative clause, which adds an assertion about a specific man who is already known to the discourse participants (note the obligatory usage of the demonstrative *taj* 'that' before *čovjek* 'man').³³ On the other hand, in (47b), we are dealing with a restrictive clause, which helps us identify the referent of the noun phrase (*taj*) *čovjek* '(that) man'. However, as mentioned above, this is just a tendency, since a *što* + clitic pronoun can equally well introduce a restrictive relative clause:

- (48) a. Pitanje koje su postavili nije naročito važno.
question which AUX posed not+AUX especially important
- b. Pitanje što su ga postavili nije naročito važno.
question that AUX it posed not especially important
'The question they have posed is not especially important.'

Both sentences (reproduced from Browne 1986 : 22) have the same meaning as indicated in the English translation. The two types of relativizers, *koji* in (48a)

³³Note that the nominative clitic pronoun is missing (i.e. it is null) in the *što* + clitic pronoun sequence.

and *što + ga* in(85b) introduce a restrictive relative clause that modifies the noun *pitanje* 'question'.³⁴

Rather surprisingly, personal pronouns and demonstratives tend to be modified with *koji* rather than with a *što + pronoun* (see (46) above), despite the fact that they tend to have a definite, i.e. identifiable referent. However, due to the fact that pronouns "sometimes anaphorize nouns even without identity of referent" (Browne 1986 : 129), they can be restrictively modified. The examples below, reproduced from Browne 1986 : 89-90) illustrate this fact.

(49) a. Ivan ima dva stola, a ja *ih* imam pet.

Ivan has two tables, but I them-G have five

'Ivan has two tables, but I have five (of them).'

b. Ivan ima dva mala stola, a ja *ih* imam pet.

'Ivan has two small tables, but I have five (of them).'

In these examples, the genitive personal pronoun *ih* 'them', does not replace the whole noun phrase but only parts of it. In (49a), it replaces the head noun *stola* 'table' and in (49b) it replaces Adj + N: *mala stola* 'small tables'. The fact that pronouns (including demonstrative pronouns) do not necessarily refer to the entire noun phrase, but only to parts of it, supports my claim that they behave like common nouns, and as a consequence, allow restrictive modification.

³⁴The usage of these two relativizers seems to be the subject to dialectal and idiolectal variation (cf. Browne 1986 : 83-84).

Proper names pattern like common nouns and pronouns, since they also allow restrictive modification. But proper names also allow both determiners and possessives, which pronouns do not.

- (50) a. Poznajem ja tog Jovana.
 know-1.SG Ithis John
 'I know John.'
- b. Moja Marija mi još nije pisala.
 my Mary me-D yet not+AUX wrote
 'Mary didn't write me yet.'

To summarize, based on morphological and syntactic evidence, we established that Serbian demonstratives have the categorial status of either nouns or adjectives. With respect to their behavior inside the NP, they are adjectives; with respect to their behavior in relation to other constituents in the sentence, they are (pro)nouns.

3.3.3 Universal Quantifiers

At this point we are ready to examine the categorial status of universal quantifiers. Recall from Chapter 2, that universal quantifiers (*sve* 'all', *svaki* 'each/every', *svakakvi* 'all kinds of') tend to have a fixed position in the noun phrase, appearing first in the prenominal sequence (cf. (6-7) of Chapter2) and (22) above, indicating that they are NP-adjuncts. As far as their categorial status is concerned, when NP-internal, they pattern with determiners, and hence,

adjectives. With respect to other constituents in the sentence, they pattern with pronouns, and hence nouns.

NP-internally, they show 'concord' in agreement features with the head noun:

(51) a. *svaka stara knjiga*
every-N.F.SG old-N.F.SG book-N.F.SG
'each old book'

b. *svih starih knjiga*
all-G.F.PL old-G.F.PL books-G.F.PL
'of all old books'

From (51a), it can be observed that *svaki* 'each/every' modifies a singular count noun (cf. ungrammatical **svake knjige* '*every books'). *Sve*, on the other hand, can modify both plural nouns, as in (51b), and singular count nouns (e.g. *sav grad* 'all-M.SG city-M.SG, i.e. 'the whole city'). With respect to other morpho-syntactic tests (declension and extraction) universal quantifiers pattern with adjectives.

With respect to other constituents in the sentence, universal quantifiers show a distribution of nouns (i.e. pronouns) occurring in prototypical noun phrase positions: subject and object of a preposition.

(52) a. *Svi su došli.*
all-M.PL AUX-PL came-M.PL

'Everyone came.'

b. Razgovarala sam sa svima.

talked-1.F.SG AUX-1.SG with all-I

'I talked to everyone.'

Just as was the case with demonstratives, the two types of quantifiers (quantifiers - adjectives and quantifiers - nouns) can be distinguished in certain oblique cases. For example, in (52b), the quantifier is in instrumental case and has a vowel ending, *svima*, indicating that it is a noun and not an adjective, since the form without the vowel ending would be ungrammatical (cf. **svim*) (excluding here elliptical interpretation). Note that in English, these two types of quantifiers are morphologically different (cf. *every* vs. *everyone/everybody*).

3.3.4 Possessives

Finally, possessive elements, comprised of possessive pronouns (e.g. *moja/tvoja/njena* 'my/your/her') and possessive adjectives derived from nouns (e.g. *studentov/Marijin* 'student's/Mary's'), also show adjectival behavior with respect to all morpho-syntactic tests. In the first subsection I offer evidence for the adjectival status of possessives. In the second subsection I formulate a morphological rule that derives possessive adjectives from nouns. This rule is able to capture the fact that possessive adjectives are referential, unlike regular adjectives.

3.3.4.1 Possessives are Adjectives

With respect to agreement, both types of possessives behave like adjectives, inflecting for the case and phi-features of the noun they modify.

- (53) a. *moji/Jovanovi* *veliki* *računi*
my/John's-ADJ.N.M.PL big-N.M.PL bill-N.M.PL
'my/John's high bills'
- b. *moju/Jovanovu* *knjigu*
my/John's-ADJ.A.F.SG book-A.F.SG
'my/John's book'

In (53a), the head noun *računi* 'bills' is in the nominative plural form, with the grammatically determined masculine gender, whereby nouns that end in a consonant in nominative singular have a masculine gender (cp. *račun* 'bill'). All the prenominal elements, the possessive pronoun *moji*, the possessive adjective *Jovanovi*, and the descriptive adjective *veliki* agree in these features with the noun *računi*. In (53b), we have a similar situation. Since the head noun *knjigu* is in its accusative singular form and is a feminine noun, the possessives inflect for these features. Thus, despite the fact that the possessive adjective *Jovanovu* 'John's' refers to a male individual, it inflects for feminine gender since it modifies the

feminine gender noun *knjigu*. What is particularly interesting in this regard, is that a pronoun (relative or personal) referring to a possessive referential adjective is marked for the gender (and number) features of the 'underlying' noun, i.e. the noun from which the possessive adjective is derived. This is illustrated below.

- (54) Oni sada žive u Jovanovoj_i kući jer je oni_i umro.
they now live in John's-ADJ.F house-F because AUX he-M died
'They now live in John's house because he died.'

Although the possessive adjective *Jovanovoj* 'John's' has feminine gender marking in agreement with the head noun *kući* 'house', the personal pronoun *oni* 'he', referring to *Jovanovoj* is masculine, for the proper name *Jovan*, from which the possessive adjective is derived, is masculine. In other words, the 'underlying' noun rather than the possessive adjective, controls the phi-features of the anaphoric pronoun. This agreement pattern shows that possessive adjectives behave in two ways, like ordinary adjectives, being in a morphosyntactic 'concord' with the noun they modify, and like nouns, having their own referential (or INDEX) features, through which they can be linked to the discourse entities. In the next subsection I formulate the morphological rule that accounts for this fact.

The above behavior of possessive adjectives is unlike that of other adjectives, even relational ones, which lack referential property. This is illustrated below.

- (55) To je ženski; kaput. Ona*_i je lepa.
 thisis woman's-ADJ.M coat-M she-F is pretty.
 'This is a coat for women. *She is pretty.'

In this example, the personal pronoun *ona* 'she' cannot refer to the classificational adjective *ženski*, showing that ordinary adjectives have no referential force.

With respect to their distribution in a clause, possessives cannot occur in the subject position nor as the object of a preposition, indicating that they are not noun phrases, and therefore not nouns. The examples below illustrate this.

- (56) a. (*)Moj/Jovanov je došao.
 my/John-ADJ.N.M.SG AUX-SG came-M.SG
 *'My/John's came.'
- b. (*)Dobila sam to od mog/Jovanovog.
 got-1.F AUX-SG it from my/John-ADJ.G.M.SG
 *'I got it from my/John's.'

These examples are acceptable only as instances of nominal ellipsis, in which the omitted noun is of a masculine singular gender, since the possessives have these agreement features.

Finally, just like ordinary adjectives, possessives can occur in a predicative position, as illustrated below.

- (57) Knjiga je stara/moja.
book is old/my
'The book is old/mine.'

In sum, I have shown that possessives, like all other prenominal elements shown in the phrase marker in (22), pattern like adjectives. Below, I offer an explanation as to why possessive adjectives behave differently than regular adjectives.

3.3.4.2 Possessive Adjective Formation

According to traditional grammar books (e.g. Stevanović 1962, 1991), possessive adjectives are formed from genitive NPs carrying features animate, definite and singular. In addition, they must be unmodified (as in (58a)).³⁵

- (58) a. studentova sveska
student's-ADJ notebook
'the student's notebook'
- b. ?*sveska studenta

³⁵The formation of possessive adjectives out of (genitive) nouns is a wide-spread phenomena across Slavic, as described by Corbett (1987).

notebookstudent-G

'the notebook of the student'

Since the postnominal genitive NP *studenta* in (58b) meets all the criteria for the adjective formation (singular, human, definite, unmodified), it must be turned into a possessive adjective (cf. *studentova* in (58a)).³⁶ If the postnominal genitive NP does not meet the above criteria (e.g. if it is plural, as in (59a), or it has modifiers as in (60a)),³⁷ it cannot be turned into a possessive adjective (cf. the ungrammatical examples (59b) & (60b)).

- (59) a. sveska studenata
 notebook students-G
 'students' notebook'

³⁶The construction in (58a) becomes acceptable if there is a contrastive stress on *studenta*.

³⁷Some kinship terms can make a compound word, like *baba-Mara* 'grandma Mara', in which only the second element inflects (cf. i.)

- i. Video sam baba-Maru.
 saw-1.SG AUX grandma Mara-A
 'I saw grandma Mara'.

Such compounds also act as one word for the purpose of taking possessive adjective ending (cf. *baba-Marino* 'grandma-Mara' in ii.).

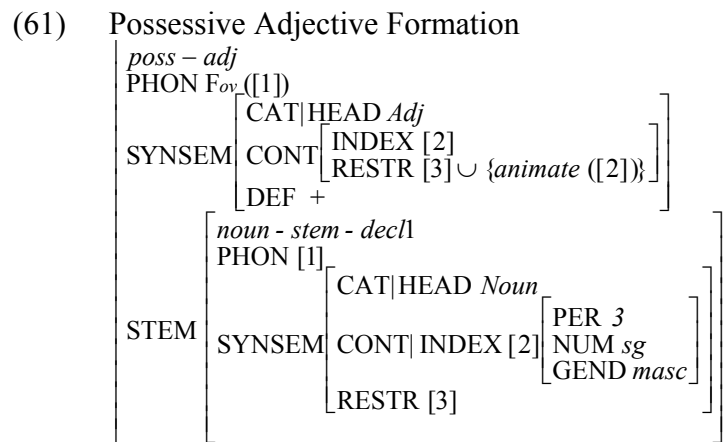
- ii. baba Marino unuče
 grandma Mara's-A.DJ grandchild
 'the grandchild of grandma Mara'

b. * studenat-ov-i sveska

(60) a. sveska ovog studenta
 notebook this-G student-G
 'the/a notebook of this student'

b. * ovog student-ov-a sveska

Based on the above facts, I formulate the following morphological rule.



This derivational matrix says that possessive adjectives ending in *-ov* are formed by appending this affix (or its allomorph *-ev*) via some function *F*, to the phonological string of the appropriate noun stem (cf. tag [1]). The

morphophonemic alternation between the *-ov* and *-ev* affix is derived via the following morphophonemic rule.

$$(62) \quad F_{ov}(\square) = / \square + ev /, \text{ if } \square \text{ ends in } \left. \begin{array}{l} +palatal \\ (r) \\ c \end{array} \right\}$$

$$F_{ov}(\square) = / \square + ov / \text{ elsewhere}$$

Specifically, these adjectives are formed from the noun stems of the first declension class whose referential index has the values [*3rd, singular, masculine*], as in *Jovan+ov = Jovanov* 'John's', *učitelj+ev = učiteljev* 'the (male) teacher's', *matematičarev* 'the mathematician's'. The index feature of the noun stem is identical to the index of the corresponding adjective ending in *-ov*, as indicated by the same tag [2]. That the adjectives inherit the referential index of their related nouns was illustrated in example (54) above. In addition, this referential index is restricted to animate objects, as indicated by the RESTR(iction) attribute.

The fact that the possessive adjective always has definite interpretation is accounted for by giving it a positive specification for the Boolean feature DEF(inite). In other words, the possessive adjective morpheme *-ov* when combined with the noun stem makes the whole phrase definite. In this sense, the adjective morpheme *-ov* performs the function of a demonstrative or a definite article in languages such as English. Therefore, the possessive adjective *studentov* always means 'the student's' and not 'a student's' (see Section 2.3.3 of Chapter 2). The observation that possessive adjectives cannot be formed from

modified NPs (cf. (60b)) follows from the fact that the adjective formation is a morphological rule, applying to a stem.

That adjective formation is a morphological rather than a syntactic process is further confirmed by the fact that in coordination, each conjunct NP can be adjectivized (cf. (63)).

(63) Jovanova i Marijina knjiga
John's-ADJ and Mary's-ADJ book

Possessive adjectives ending in *-in* would have a similar derivational matrix, the only difference being that *-in* adjectives are derived from nouns of the second declension class (i.e. nouns ending in *-a* which are mostly feminine nouns), and thus, would inherit the referential index of these nouns (e.g. *Marij+in* = *Marijin* 'Mary's', *učiteljic+in* = *učiteljicin* 'the (female) teacher's', *sudijin* 'the judge's').

3.4 AGREEMENT

In this section, I provide an analysis of morphosyntactic agreement in phi-features and definiteness between pronominal elements and the head noun.

3.4.1 Concord

I adopt a lexical approach to agreement, which involves structure sharing of relevant features among various elements in a given structure. Specifically, in order to account for the agreement between nonhead elements within the noun phrase (all involving elements which are categorially adjectives) and the head noun, I adopt Pollard and Sag's (1994) theory of agreement. In this theory, linguistic objects that undergo agreement are specified for relevant agreement features. Various constraints require that these features be structure shared with some other agreeing elements in the syntactic structure. Following Kathol (1995) and Wechsler & Zlatic (1997), I further assume that nominal objects are specified for two kinds of agreement features, the morphosyntactic CONCORD feature, which is a part of the syntactic head feature, and the referential INDEX feature, which is a part of the semantic content of a nominal. As an illustration, the noun *grad* 'town' would contain the following specification for agreement features.

$$(64) \quad \textit{grad}: \left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} \textit{noun} \\ \text{CONCD} \left[\begin{array}{l} \text{CASE } \textit{nom} \\ \text{PHI } [1] \end{array} \right] \end{array} \right] \\ \text{CONT|INDEX} \left[\begin{array}{l} \text{PER } \textit{3rd} \\ \text{PHI } [1] \left[\begin{array}{l} \text{NUM } \textit{sg} \\ \text{GEND } \textit{masc} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

From the above lexical entry we observe that the morphosyntactic concord (CONCD) feature includes case and phi-features (number and gender), whereas the referential INDEX feature includes person and phi-features.³⁸ The values of

³⁸ The explanation as to why index and concord attributes contain different feature sets, can be found in Wechsler & Zlatic (1997).

the PHI feature (masculine singular) encoded on the CONCD and on the INDEX of a nominal are identical, as indicated by the tag [1].³⁹

Non-head elements in the noun phrase, such as determiners, certain types of quantifiers and ordinary adjectives have only the morphosyntactic CONCD feature and not the INDEX feature, for they are not referring expressions. This is depicted in the lexical entries of the demonstrative *ovaj* 'this' and the descriptive adjective *lepi* 'beautiful'.

(65) a. *ovaj* 'this'

$$\left[\text{HEAD} \begin{array}{l} \textit{adj} \\ \text{CONCD [1]} \left[\begin{array}{l} \text{CASE } \textit{nom} \\ \text{PHI } \textit{masc, sg} \end{array} \right] \\ \text{MOD} | \text{NP} [\text{CONCD [1]}] \end{array} \right]$$

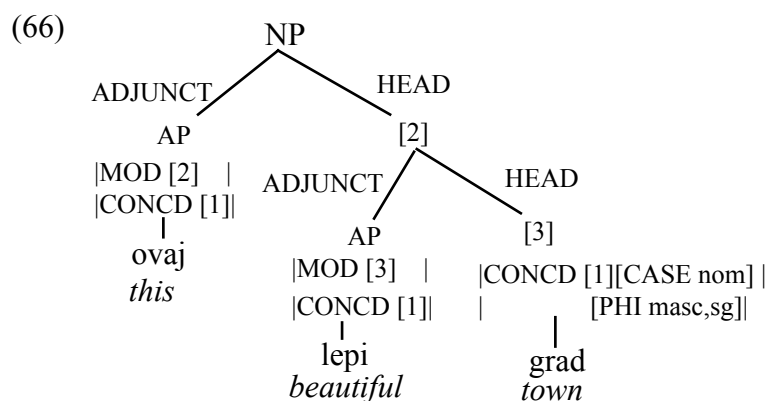
b. *lepi* 'beautiful'

$$\left[\text{HEAD} \begin{array}{l} \textit{adj} \\ \text{CONCD [1]} \left[\begin{array}{l} \text{CASE } \textit{nom} \\ \text{PHI } \textit{masc, sg} \end{array} \right] \\ \text{DEFINITE } + \\ \text{MOD} | \text{N}' [\text{CONCD [1]}] \end{array} \right]$$

In HPSG, agreement processes are a by-product of valence saturation, guaranteed by the Valence Principle (see Section 3.1.3 for the definition). This is reflected in the lexical entries of both the determiner *ovaj* and the adjective *lepi*. Being adjuncts, these elements select their modified phrases via their own head feature, called MOD. In particular, these elements require their modified phrases to have the same CONCD features as their own, which is formally indicated by identical tags appearing in two places. We also observe that the adjective *lepi* has a positive specification for the Boolean feature definite. I discuss the role of this feature in the next section with reference to definiteness agreement.

³⁹In Zlatić & Wechsler (1996), it is shown that the values of these two types of features are not always identical, as for example, with singularia tantum nouns or possessive adjectives.

Using a concrete example below, I illustrate how the NP-internal agreement works in this theory.



I follow Kathol (1995) and Wechsler & Zlatić's (1997) proposal that NP-internal agreement involves structure sharing of the morphosyntactic agreement, i.e. CONCD features, specified on all the agreeing elements. In the annotated phrase marker above, the head of the noun phrase is the noun *grad* 'town' with lexically specified CONCD features [*nom, masc, sg*]. This noun has no dependents specified on its VALENCE list, but only modifiers, namely, the demonstrative *ovaj* and the adjective *lepi*. The agreement between these modifiers and the head noun *grad* 'town' is obtained via the MOD(ified) head feature. It is through this feature that the adjuncts inherit CONCD features from the modified noun (cf. the tag [1] appearing on both adjuncts and the head noun). This is guaranteed by the Head-Adjunct Schema, given in Section 3.1.3, which requires that the MOD value of an adjunct daughter (e.g. the demonstrative *ovaj* and the adjective *lepi* in (66)) be shared with a SYNSEM (syntactico-semantic) value of the head daughter (i.e. the head noun *grad* in (66)). This is indicated by the tags [2] and [3],

encoded on both the adjuncts and the head noun. Thus, in this theory, agreement is not a directional process, so the issue of determining a source of the agreement features is irrelevant for agreement processes.

3.4.2 Definiteness Agreement

The noun phrase in (66) *ovaj lepi grad* 'this beautiful town' is definite, as determined by the demonstrative *ovaj*, which is inherently definite. The adjective *lepi* is also marked as definite, as shown in (65b). However, an indefinite form of the adjective is also possible without changing the definite interpretation of the noun phrase in (66) (cf. *ovaj lep grad* 'this beautiful-INDEF town'). This shows that it is the determiner that determines the definiteness of the noun phrase and not the adjective. Technically, this means that a determiner is specified only for the semantic feature definite, restricting the reference of the nominal with which it combines, without imposing any restriction on the morphosyntactic form of either an adjective or a noun.

The interpretation of a noun phrase as definite or indefinite, in the absence of a determiner, depends on the marking on the descriptive adjective. This was illustrated in (61) of Chapter 2, and is repeated here.

- | | | | | | | |
|------|----|--------------------|-------------|----|----------------------|-------------|
| (67) | a. | lep | grad | b. | lep- i— | grad |
| | | beautiful-INDEF | grad-N.M.SG | | beautiful-DEF | grad-N.M.SG |
| | | 'a beautiful town' | | | 'the beautiful town' | |

In this case, adjectives have the function of ordinary determiners and must therefore be specified for the Boolean feature, definite, in its CONTENT attribute.

Furthermore, as pointed out in Section 2.3.2 of Chapter 2, in a sequence of two or more adjectives, all adjectives must have the same (in)definiteness markers. This is shown below.

- (68) a. dobar, veseo čovek
 good-INDEF cheerful-INDEF man
 'a good, cheerful man'
- b. dobr-i—, vesel-i— čovek
 good-DEF cheerful-DEF man
 'the good cheerful man'

I interpret the facts in (68) as instances of morphosyntactic concord in definiteness (cf. the ungrammatical sequence **dobri— veseo čovek* 'good-DEF cheerful-INDEF man'). The phenomenon of definiteness agreement is found in other languages as well, as for example, Modern Greek, German, Scandinavian and Semitic languages. The following example from Modern Greek (reproduced from Kolliakou 1995 : 129) illustrates concord in definiteness.

- (69) to kenurio to podilato to kokino
 DEF new DEF bike DEF red
 'the new red bike'

In order to account for concord in definiteness exhibited in (68), I propose that Serbian descriptive adjectives be specified for the definiteness feature encoded on both CONCD and CONTENT attribute.

$$(70) \quad \left[\begin{array}{l} \textit{desc - adj} \\ \text{HEAD|CONCD|DEFINITE [1]} \\ \text{CONTENT | DEFINITE [1]} \end{array} \right]$$

When two or more descriptive adjectives appear together, the values of their definiteness feature must match, simply because the adjective would require (through its MOD feature) that N' be definite.

To summarize, I have shown that all elements in the Serbian noun phrase must show a concord in case and \square -features, and that in addition, adjectives exhibit concord in definiteness. I accounted for these facts using a constraint-based theory of agreement (e.g. Pollard & Sag 1994, Kathol 1995, Wechsler & Zlatić 1997). In this theory, agreement processes do not involve movement of the agreement target onto the agreement controller, as assumed in derivational-based theories. Rather, they involve structure-sharing, imposed by various principles and phrase structure schemata. In case of NP-internal agreement, all agreeing elements are specified for the relevant agreement features whose values must match, resulting in morphosyntactic concord.

3.5 The Role of the Quantifier in the Noun Phrase

In this section, I discuss noun phrases introduced by various kinds of quantificational expressions in Serbian. Based on morphological and syntactic evidence, I show that the semantic notion of a quantifier corresponds to two

syntactic categories in Serbian: adjective and noun.⁴⁰ The first, adjectival type of quantifiers behaves syntactically like noun modifiers, agreeing in all relevant features with the quantified noun, while the second type of quantifiers behaves like a nominal head, 'governing' a particular morphological form on the quantified noun. I discuss these two types of quantifiers separately, pointing to the similarities and differences between them.

3.5.1 Adjectival Quantifiers

We have already established that the universal quantifiers *svi* 'all' and *svaki* 'every/each' have the categorial status of adjectives. Within the noun phrase, they occur as the first element of the prenominal complex (cf. (6-7) of Chapter 2). Other quantifiers, such as *brojni* 'numerous', *malobrojni* 'few', *mnogi* 'many', as well as the numeral *jedan* 'one', also belong to this category. Like the universal quantifiers, these quantifiers also agree in gender, number and case with the noun they quantify. This is shown below.

- (71) a. brojni/mnogi glumci
 numerous/many-N.M.PL actor-N.M.PL

⁴⁰It is interesting to note that Bowers (1975) shows that some of the English words which are semantically quantifiers fall syntactically into two categories, an Adjective and a Quantifier. Quantifiers belonging to the first category, such as *few*, *many*, numerals *one*, *two* and higher, have typical adjectival behavior. For example, just like adjectives, these quantifiers can occur in a predicative position after the copula, can be followed by the article and can be modified by degree expressions (exception being numerals). Quantifiers that have no such characteristics, like *some*, *all*, *each*, *several*, *any*, are grouped as forming a syntactic category Quantifier.

'numerous/many actors'

- b. brojne/mnoge glumice
numerous/many-N.F.PL actress-N.F.PL

'numerous/many actresses'

- c. sa mnogobrojnim/mnogim glumcima
with numerous/many-I.PL actors-I.PL

The first two examples illustrate agreement between a quantifier and the noun following it, in case, number and gender. In the third example, the agreement in gender is not shown, since plural nouns in oblique cases do not show gender distinction.

In all the examples above, the quantifiers precede plural nouns. However, they can also quantify singularia tantum nouns, i.e. nouns that have a morphosyntactic singular marking but refer to plural entities, such as *braća* 'brothers', *deca* 'children', *vlastela* 'landlords', *publika* 'audience':

- (72) a. mnogobrojnoj braći
numerous-D.F.SG brothers-D.F.SG

- b. sa mnogobrojnóm braćóm
with numerous-I.SG brothers-I.SG

In both the examples, the quantifier *mnogobrojan* agrees with the singularia tantum noun *braća* in its morphosyntactic singular number, rather than in its semantic plural number.

Unlike universal quantifiers, which can either precede or follow determiners (cf. (28) above), other 'agreeing' quantifiers must follow it.

(73) a. ove mnogobrojne Jovanove knjige
these numerous John's books

b. *mnogobrojne ove Jovanove knjige

As can be seen from (73a), the quantifier *mnogobrojne* precedes the possessive adjective *Jovanove*. In the marked word order, this quantifier can also follow the possessive adjective, or any adjective, indicating that it is an N'-adjunct rather than an NP-adjunct.

(74) ove Jovanove mnogobrojne knjige
these John's numerous books

Like other adjectival-like elements (e.g. demonstratives, possessive and regular adjectives), the 'agreeing' quantifiers (including universal quantifiers) can be extracted out of the noun phrase:

(75) Mnoge_i sam videla [_{NP} t_i zemlje]
 many-A.F.PL AUX saw-1.SG country-A.F.PL
 'I saw many countries.'

That these quantifiers behave like modifiers rather than heads of the quantified noun phrase (QNP) is supported by the subject-verb agreement facts. Specifically, the quantified noun rather than the quantifier determines the agreement features of the verb. This is shown below.

(76) a. Mnoge glumice su protestovale.
 many-N.F.PL actress-N.F.PL AUX-3.PL protested-3.F.PL
 'Many actresses protested.'

b. Mnogi mladići su protestovali.
 many-N.M.PL young-men-N.M.PL AUX-3.PL protested-3.M.PL
 'Many young men protested.'

In these examples, the participial verb forms agree in gender and number with the subject NP. The gender feature comes from the noun (e.g. *glumice* is a feminine noun, *mladići* is a masculine noun) and not from the quantifiers, as argued earlier. The quantifier simply changes its morphological form depending on the agreement features of the noun it quantifies.

3.5.2 Noun Quantifiers

In this section, I show that quantifiers that are categorially nouns act as heads of the QNP. Among them, a distinction can be made between inflected and uninflected quantifiers. They both impose a specific morphological form (genitive plural) on the noun they precede. Since noun phrases introduced by these two types of quantifiers show different behavior with respect to agreement and distribution, I discuss inflected and uninflected quantifiers separately.

3.5.2.1 Quantifiers as Inflected Nouns

Quantifiers that behave syntactically like 'inflected' nouns, such as *većina* 'majority/most', *gomila* 'pile/crowd', *deo* 'part', *niz* 'series', all denote a quantity that is contextually determined.⁴¹ Just like regular nouns, they have a grammatically predetermined gender. For example, quantifiers with the *-a* nominative ending (e.g. *većina*, *gomila*) decline like feminine nouns, while others (e.g. *deo*, *niz*) decline like masculine nouns. Some examples with these quantifiers are given below.

(77) a. Dobra većina [NPsrpskih pisaca] je otišla.

⁴¹Note that these quantifiers are nouns in English as well, and as argued by Lehrer (1986), they are syntactic heads of the quantified noun phrase (QNP).

good-N.F.SG majority-N.F.SG Serbian-G.PL writers-G.PL AUX-3.SG left-3.F.SG

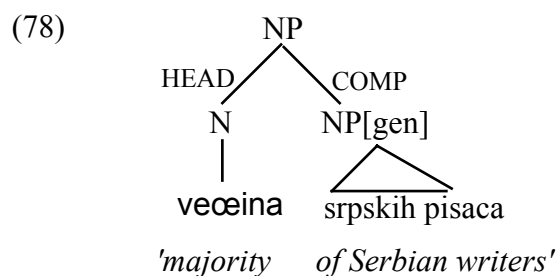
'A great majority of Serbian writers have left.'

b. Veliki deo [NP srpskih pisaca] je otišao.

big-N.M.SG part-N.M.SG Serbian-G.PL writers-G.PL AUX-3.SG left-3.M.SG

'A great part of Serbian writers has left.'

The above sentences show that with respect to subject-verb agreement, these quantifiers act as syntactic heads of the QNP. Specifically, verbal elements (auxiliaries and past participles) agree in phi-features with the quantifier rather than with the quantifier's complement. Since only nominative NPs induce personal agreement on the verb in Serbian (see the next section), it follows that these quantifiers are nouns, and therefore, head noun phrases. Furthermore, just like ordinary nouns, these quantifiers induce genitive case on the following noun phrase complement (cf. *srpskih pisaca* 'Serbian-G.PL writers-G.PL' in (77a-b)). The structure of these QNPs is thus the following.



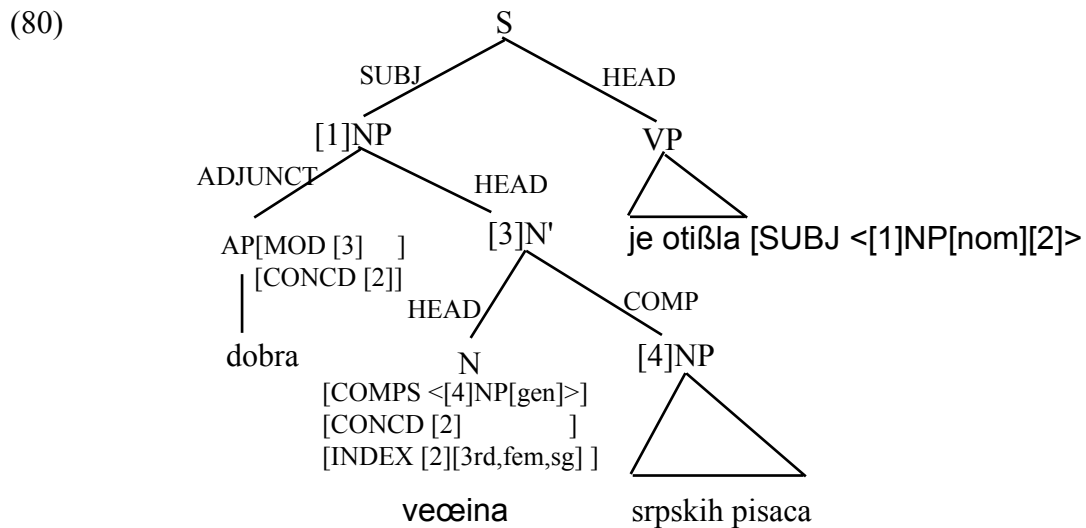
With respect to their distribution, these QNPs can occur in all positions in which regular noun phrases occur. In particular, they can occur as complements of verbs/nouns governing any case (e.g. nominative in (77), genitive in (79a)), or as complements of any preposition (e.g. instrumental in (79b)).

(79) a. Sećam se većine srpskih pisaca.
 remember-1.SG REFL most-G Serbian-G writers-G
 'I remember most Serbian writers.'

b. Razgovarala sam sa većinom srpskih pisaca.
 talked-1.SG AUX-1.SG with most-I Serbian-G writers-G
 'I talked with most Serbian writers.'

With respect to the morphosyntactic criterion for headedness, these quantifiers behave as syntactic heads since they are a morphosyntactic locus of agreement features. In other words, they have their own phi-features (e.g. *većina* being feminine singular, *deo* being masculine singular) with which their own modifiers agree (cf. the adjectives *dobra* 'good' in (77a) and *veliki* 'big' in (77b)). As is the case with ordinary nouns, the quantifier's phi-features are not transferred onto its NP-complement. For instance, in example (77a), the QNP *dobra većina srpskih pisaca* does not mean 'a good majority of Serbian female writers', despite the fact that the quantifier *većina* 'most' has a feminine singular morphosyntactic marking.

Using example (77a), I illustrate below how both the phrase-internal and clausal agreement patterns are accounted for.



As the phrase marker in (80) indicates, the head of the subject noun phrase is the quantifier *većina* 'majority', as established above. On the quantifier's COMPS (complement) list, we observe that the quantifier subcategorizes for the genitive (plural) NP complement. Being a nominal object, the quantifier is specified for two kinds of agreement features: the morphosyntactic CONCD feature and the referential INDEX feature. The values of these two features are identical, as indicated by the same tags (cf. [2]).

The noun phrase internal agreement, specifically, the agreement between the quantifier *većina* and the adjective *dobra* proceeds as usual, via the MOD

feature of the adjective, through which the adjective inherits CONCD features from the modified noun. The agreement between the subject and the predicate is also a result of valence saturation. Specifically, the predicate *je otišla* 'has left', constrains the INDEX feature of its subject, via this predicate's SUBJ(ect) valence feature. In the above example, the quantifier is the nominative subject, whose value for the INDEX feature is [3rd, fem, sg], as required by the predicate (cf. tag [2]).⁴²

In sum, the account for both phrasal and clausal agreement with inflected quantifiers is pretty straightforward, under the assumption that these quantifiers are nouns, heading their own projection.

3.5.2.2 Quantifiers as Uninflected Nouns

Quantifiers belonging to this group, such as *mnogo* 'many/much',⁴³ *malo* 'few/little', *nekoliko* 'several', *puno* 'a lot of', *pola* 'half', numerals *pet* 'five' and

⁴²The notation NP[nom] on the predicate's SUBJ list is a short hand for the NP [CASE *nom*], i.e. an NP whose value for CASE feature is nominative. Here, I treat the entire predicate *je otišla* 'has left' as a unit, without analyzing its internal structure, since both verbal elements (the auxiliary *je* and the past participle *otišla*) behave alike with respect to agreement.

⁴³As seen in Section 3.5.1, Serbian also has an adjectival quantifier *mnogi* meaning 'many'. While the adjectival quantifier *mnogi* changes its morphosyntactic form depending on the morphosyntactic features of the noun following it (as in i-ii), the governing quantifier *mnogo*, is 'frozen' in form, and induces a genitive case on its noun phrase complement (cas in iii).

adjectival <i>mnogi</i> 'many'	governing <i>mnogo</i> 'many/much'
i. <i>mnogi glumci</i> many-N.M..PL actors-N.M.PL	iii. <i>mnogo glumaca/glumica</i> many actor/actress--G.PL
ii. <i>mnoge glumice</i> many-N.F.PL actress-N.F.PL	

higher, are undeclinable. The complex behavior of these quantified phrases with respect to case and subject-verb agreement has presented a real challenge to the many linguists investigating them (e.g. Corbett 1978, 1983; Sand 1971; Franks 1994, 1995; Giusti & Leko 1996), and their proper analysis continues to be controversial. I discuss some of these counterproposals in Section 3.5.2.3. In what follows, I first illustrate distribution and subject-verb agreement pattern with these QNPs and then offer an analysis formulated in the HPSG framework.⁴⁴

With respect to subject-verb agreement, 'uninflected' QNPs induce a default neuter singular agreement on the verb (cf. *je otišlo* in (81)), rather than true agreement, as was the case with inflected QNPs (cf. (77)).

- (81) Mnogo/pet [_{NP}srpskih pisaca] je otišlo u inostranstvo.
 many/five Serbian-G.PL writers-G.PL AUX-3.SG went-3.NT.SG in abroad
 'Many/five Serbian writers have gone abroad.'

Besides the agreement pattern in (81), in some dialects, numerals *pet* 'five' and higher allow the option of true agreement on the verb (as in (82)).⁴⁵

- (82) %[Pet [_{NP}srpskih pisaca]] su otišli u inostranstvo.
 five Serbian-G.PL writers-G.PL AUX-3.PL gone-3.M.PL in abroad
 'Five Serbian writers have gone abroad.'

⁴⁴The original analysis of these QNPs was presented by Stephen Wechsler & myself at the 1997 meeting of the Linguistic Society of America, Chicago.

⁴⁵According to Sand (1971), the plural on the predicate is more frequent when the subject precedes rather than follow the predicate.

In (82), the verbal forms *su* and *otišli* are morphologically plural forms. In addition, the past participle *otišli* is inflected for masculine gender, in agreement with the gender feature of the numeral's complement *srpskih pisaca*.⁴⁶ Intuitively speaking, the reason why some native speakers permit verbs to agree with the quantifier's noun phrase complement, is because undeclinable quantifiers are uninflected nouns, lacking the appropriate phi-features, and as such, they allow a verb to 'look' into their noun phrase complement, which has these features.⁴⁷

Regarding their distribution, these QNP's can occur in nominative subject position (cf. (81-82)), as the objects of verbs governing accusative case (cf. (83a)), and as the objects of verbs/nouns governing genitive case (cf. (83b-c)).

- (83) a. Poznajem [ovih pet studenata].
 know-1.SG- this-G.PL five student-G.PL
 'I know these five students.'
- b. Sećam se [ovih pet studenata].
 remember-1.SG REFL this-G.PL five student-G.PL

⁴⁶Note that the gender feature of *pisaca* is not marked morphologically since in oblique cases plural nouns are not marked for gender. However, considering that all the singular forms and nominative and accusative plural forms of *pisac* 'writer' are marked for masculine gender, it follows that the masculine gender marked on the participle in (82) comes from the genitive NP complement *pisaca*.

⁴⁷An identical agreement pattern is also found in Russian, where the agreement with quantifiers' complements is as good as a 'syntactic' or a default agreement. In order to capture this generalization, Pesetsky (1982) proposes two categories for QNPs. Specifically, when the verb shows a default agreement with quantified subjects, Pesetsky assumes that the quantified construction is a QP; when the semantic agreement occurs, he assumes that the quantified phrase is an NP.

'I remember these five students.'

- c. knjiga [ovih pet studenata]
 book this-G.PL five student-G.PL
 'a book of these five students'

In addition, these QNP's can occur as complements of any preposition, irrespective of the case the preposition calls for. For example, the preposition *sa* 'with' governs instrumental case while *od* 'from' governs genitive. Either one can introduce a QNP:

- (84) sa/od mnogo/pet [_{NP} srpskih pisaca]
 with/from many/five Serbian-G.PL writers-G.PL
 'with/from many/five Serbian writers'

From the above examples, we observe that irrespective of their syntactic position, these quantifiers do not decline for case, nor do they have their own phi-features, i.e. they are 'frozen' in form. This is particularly evident in oblique complement positions, such as in example (84), in which the quantifiers *mnogo/pet* lack the morphological instrumental marking required by the preposition *sa* 'with', or the genitive marking required by the preposition *od* 'from'. Compare example (84) with (79b) above, in which the declinable quantifier *većina* inflects for instrumental case, as required by the preposition *sa*.

The only positions in which these QNP's cannot appear is as complement of verbs/nouns governing non-genitive cases, i.e., dative, as in (85b) or instrumental, as in (86b).

- (85) a. pokloniti knjige [ovim studentima]
give-INF books-A this-D.PL student-M.PL
'to give books to these students'
- b. *pokloniti knjige [ovih pet studenata]
give-INF books-A this-G.PL five student-G.PL
- (86) a. upravljanje [ovim preduzećima]
managment this-I.PL company-I.PL
'managment these companies'
- b. *upravljanje [ovih pet preduzeća]
managment this-G.PL five company-G.PL

In the first set of examples, the verb *pokloniti* 'to give' requires a dative NP complement, as in (85a). In the second set, the deverbal noun *upravljanje* 'managment' requires an instrumental NP complement, as in (86a)). As seen from the ungrammatical (b) examples, neither the verb nor the deverbal noun allows a noun phrase introduced by the uninflected quantifier. In order to render (86b)

acceptable, the preposition *sa* 'with' requiring instrumental case can be inserted, as in (87) below.

(87) upravljanje sa ovih pet preduzeća
management with this-G.PL five company-G.PL

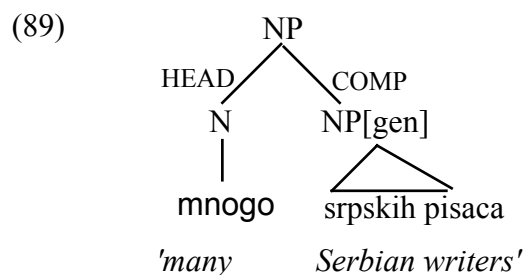
However, this strategy cannot be used for the example (85b), so that a native speaker of Serbian needs to resort to other means to express the intended meaning, such as using different verbs and/or putting the QNP in a subject position, as shown in (88).

(88) Ovih pet studenata je dobilo knjige.
these five students AUX got books
'These five students got books.'

Thus, the contrast between the grammatical examples (without quantifiers) and the ungrammatical examples (with quantifiers) clearly shows that it is the presence of a quantifier that precludes the nominal phrase from occurring as a complement of verbs/nouns that require an oblique case, such as dative or instrumental, but, not genitive (cf. the grammatical (83b-c)).

Based on the above facts, I propose that the head of the QNP is a quantifier, which has the categorial status of an 'uninflected' noun, i.e. a noun

which lacks phi-features.⁴⁸ This explains why QNPs have the same distribution as ordinary noun phrases (cf. 81-84), assuming that Serbian noun phrases lack a functional projection D, as argued above. In addition, this explains the genitive case on the quantifier's NP complement (cf. *srpskih pisaca* 'Serbian-G.PL writer-G.PL' in 81)), since in general, ordinary nominals assign genitive case to their complements (see Chapter 4). Furthermore, the fact that the subject QNPs can trigger regular agreement on the verb in some dialects (cf. (82)), is explained immediately, for this is a property reserved for NPs in Serbian. The basic structure of QNPs is thus, the following.



⁴⁸Besides quantifiers, other words that are undeclinable are *doba* 'period/time' and feminine proper names with endings other than *-a* (e.g. *Lori, Miki, Džin, Ines*). It seems that these nouns have the same distribution as the 'uninflected' QNPs. For example, they cannot occur in instrumental environments governed by the verb/noun.

- i. Oduševljena sam *Ines/Marijom.
 impressed-1 AUX Ines/Mary-I
 'I am impressed with Ines/Mary.'

In this example, the verb *oduševiti* 'impress' requires an instrumental case on its NP complement, as seen on the declinable feminine proper name, *Marijom*. The feminine proper name *Ines*, being uninflected, cannot occur in this position. A native speaker can choose to inflect this proper name in the above position, rendering the construction grammatical (e.g. *Oduševljena sam Inesom*, or to insert the propositon *sa* 'with', leaving the proper name uninflected (e.g. *Oduševljena sam sa Ines*).

The one special provision that must be made is that the quantifier inherits from its NP complement its phi-features and (inherent) case. In other words, these features are realized on the complement instead of on the quantifier head. Since the complement NP always appears in genitive case, the quantifier and hence the whole QNP has (inherent) genitive case. Following Sag, Karttunen, & Goldberg (1992) *inter alia*, I assume that inherent and structural case are distinct features, a distinction based on the means of assignment and not on the particular case forms. These assumptions are captured in the lexical entries for *mnogo* ‘many/much’ and *pet* ‘five’.

(90) a. *mnogo*:

b. *pet*:

$\left[\begin{array}{l} \textit{noun-sign} \\ \text{INDEX [1]} \\ \text{CASE INH [2]} \\ \text{COMPS } \langle \text{NP} \left[\begin{array}{l} \text{INDEX [1]} \\ \text{CASE INH [2] } \textit{gen} \end{array} \right] \rangle \end{array} \right]$	$\left[\begin{array}{l} \textit{noun-sign} \\ \text{INDEX [1]} \\ \text{CASE INH [2] } \vee \textit{nom} \\ \text{COMPS } \langle \text{NP} \left[\begin{array}{l} \text{INDEX [1]} \\ \text{CASE INH [2] } \textit{gen} \end{array} \right] \rangle \end{array} \right]$
--	---

We observe that both the quantifier *mnogo* and the numeral *pet* take an INH(herent) genitive as a complement, indicated on their COMPS (complement) list, hence, capturing the traditional notion that these quantifiers are 'governing' rather than 'agreeing'. The inherent case of the quantifiers and their complements is identical, which is formally indicated by the tag [2] on the CASE attribute. In addition, I assume that the value for structural case of the quantifiers is left unspecified. The only difference between *mnogo* and *pet* is that *pet* has an option

of being specified for inherent nominative case for some speakers, a fact that explains why some native speakers allow 'personal' subject-verb agreement with these QNPs (cf. (82)). The quantifiers inherit phi-features from their NP complement, indicated by the tag [1] on the INDEX attribute. The evidence for this feature inheritance comes from pronoun agreement. Specifically, when a pronoun (personal or relative) has a QNP antecedent, the pronoun has the same agreement marking as the quantifier's NP-complement. For instance, in the sentence below, the personal pronoun *one* 'they-F.PL' can refer to the QNP *mnogo dobrih knjiga* 'many good books' because the quantifier's NP-complement, *dobrih knjiga* is feminine plural.

- (91) ...[mnogo dobrih knjiga]_i... One_i su sada jako skupe.
 ...many good books-F.PL they-F.PL are now very expensive-F.PL

Based on these assumptions, we are able to explain both verb agreement with QNP's and their distribution. Specifically, assuming that uninflected quantifiers bear genitive case (which they inherit from their complement NPs), immediately explains why subject QNPs do not trigger regular verb agreement, but rather induce a default neuter singular agreement on the verb (cf. (81)). This is because in Serbian, only nominative NP arguments trigger 'regular' agreement on the verb, as in the following examples:

- (92) a. Glumice su protestovale.

actress-F.PL AUX protested-F.PL

'The actresses protested.'

b. Dopala mi se ta glumica.

liked-3.F.SG me-DAT REFL that-3.F.SG actress-3F.SG

'I liked that actress.'

Nominative NPs in both (92a) and (92b) are subjects, since they behave alike with respect to both subject-verb agreement and binding facts. Specifically, both nominative NPs can bind a reflexive pronoun (see Section 5.2.1 for the relevant examples) and they induce personal agreement on the verb (as in (92)). The difference between these two types of nominative NPs lies in their different thematic roles. The nominative in (92a) is an agent and in (92b) is a theme. Furthermore, as pointed out by Wayles Browne (personal communication), the agentive nominative in examples like (92a) occurs in SVO sentences in a neutral context, while the non-agentive nominative, like (92b), appears in OVS sentences. However, clauses lacking a nominative argument, including clauses with dative (cf. (93a)) or genitive subjects (cf. (93b)), and those lacking subjects altogether (cf. (93c)), take the default neuter singular agreement on the predicate.

(93) a. Meni se spavalo.

me-D REFL slept-NT.SG

'I was sleepy.'

- b. Marije nije bilo kod kuće.
 Mary-G not+AUX was-NT.SG at home
 'Mary was not at home.'
- c. Igralo se celu noć.
 danced-3.NT.SG REFL all night
 '(People) danced all night.'

The generalization is that the default subject-verb agreement pattern arises whenever the clause lacks a nominative argument.⁴⁹ We can express this generalization formally with the following constraint on third person singular neuter predicates.

(94) *3sg-nt-pred*: [ARG-S <...NP[nom]_{3sg.nt}...>/¬<...NP[nom]...>]

This constraint applies to the elements on the ARG-S (argument structure) list, which is a concatenation of the elements recorded on the valence list (see Section 3.1.2 for discussion). The constraint captures the two functions of *3sg.nt* predicates: either (i) they show true agreement with a nominative NP argument

⁴⁹In addition, clauses with infinitival subjects, as in i., do not induce regular agreement on the predicate. However, they do not trigger the default neuter singular agreement either, but rather the predicate has no agreement at all, i.e. it is an adverb. (See Browne 1990 for further details).

- i. [Igrati se i ne učiti] je lepo/ljudski.
 play-INF REFL and not study-INF AUX nice/human-ADVERB
 'To play and not study is nice/human.'

with *3sg.nt* index (as in (95)); or (ii) they are used when there is no nominative NP argument at all (as in (93)).

- (95) Dete je otišlo.
child-NT.SG AUX left-NT.SG
'The child left.'

Since the numerals can also bear nominative case for some speakers, they can induce a personal agreement on the verb in those dialects (as in (82)). In this case, the phi-features are coming from the numeral's NP complement, since the numeral itself lacks these features, as is the case with all uninflected quantifiers. One possible explanation as to why only numerals, and among non-numeric quantifiers, only *nekoliko* 'several', optionally induce personal (i.e. plural) agreement on the verb, is because these quantifiers can be individuated, i.e. be given distributive reading. The remaining quantifiers, such as *mnogo* 'many/much', *malo* 'few/little', *puno* 'a lot of', *pola* 'half', induce only (neuter) singular agreement on the verb, because they can only be interpreted as a group, i.e. have a collective reading.

The complex distribution of these QNPs follows from the assumption that quantifiers bear inherent genitive case, within a theory of case outlined below and discussed in detail in Chapter 4. Namely, I assume that every noun has two case features, INH(herent) and STR(uctural), each feature taking the same range of values: nominative, accusative, genitive, dative, instrumental, or locative.^{50, 51}

⁵⁰Vocative case is excluded from this list simply because vocative case is an extrasentential phenomenon.

$$(96) \quad \left[\text{CASE} \begin{bmatrix} \text{STR} & \text{case} \\ \text{INH} & \text{case} \end{bmatrix} \right]$$

This case bifurcation roughly parallels the traditional distinction between direct and oblique case, and the GB distinction between structural and inherent case. However, I depart from the GB view that structural case is assigned within constituent structure. Instead I adopt the lexicalist view that it is lexically determined within the complement structure of the assigner.

Inherent cases are associated with thematic roles and often encode information about thematic role types (dative for goals/experiencers, and so on), while STRuctural case is a sort of default filling for any arguments lacking inherent case. Specifically, I assume that verbs assign STRuctural nominative and accusative, and INHerent genitive, instrumental, locative, and dative. Nouns assign STRuctural genitive for certain arguments, and INHerent genitive, locative, instrumental, and dative for others.

I assume for ordinary (i.e. inflected) nouns that the values for the STRuctural and INHerent case features are necessarily identical, which is captured by the regular-noun sort declaration in (97a). Quantifier nouns such as *mnogo* ‘many’ and *pet* ‘five’ are specified for INHerent genitive case but are unspecified for STRuctural case, as captured by the sort in (97b).

⁵¹That some prototypical structural cases (e.g. nominative and accusative) can also be inherent can be supported by the fact that some Serbian predicates select for two accusative NP complements, one of which is inherent.

- i. Nastavnik pita studente matematiku.
 teacher asks students-A mathematics-A
 The teacher is asking students about mathematics.'

- (97) a. *regular-noun*: $\left[\text{CASE} \begin{bmatrix} \text{STR} & [1] \\ \text{INH} & [1] \end{bmatrix} \right]$
- b. *quantifier-noun*: $\left[\text{CASE} \begin{bmatrix} \text{STR} & \\ \text{INH} & \textit{gen} \end{bmatrix} \right]$

Furthermore, I claim that Serbian prepositions assign only STRuctural case, rather than INHerent case. For example, the preposition *sa* ‘with’ assigns [STR *inst*] to its object.

- (98) *sa*: [COMPS < NP[STR *inst*] >]

This reflects a few important facts about Serbian prepositions. First, the oblique case markings on objects of prepositions do not need to encode thematic role types, as this information is already indicated by the preposition itself. To put it differently, while the relation of the verb to the prepositional object is semantically oblique — it is mediated by the preposition — the relation between the preposition and its object is semantically direct. Second, Serbian has a condition of adjacency on STRuctural, but not inherent, case assignment, and this condition applies to both preposition-object and noun-object adjacency (see Section 4.5).

This accounts for all of the distributional facts regarding QNP’s. Since the quantifier is lexically unspecified for structural case, the QNP it heads can appear in any position to which structural, but not inherent, case is assigned:

namely, in nominative (cf. (81)) and accusative verb-governed (cf. (83a)) positions, and all preposition-governed positions (cf. (84)). Since the quantifier is lexically specified for genitive inherent case, it can also appear in positions to which inherent genitive is assigned (cf. (83b-c)).

The above proposal also accounts for the following contrast.

- (99) a. *_{[NP} *Studenata*] je došlo / su došli.
 student-G.PL has come-SG / have come-PL
 (‘Students came.’)
- b. _{[NP} *Pet (studenata)*] je došlo / su došli.
 five student-G.PL has come-SG / have come-PL
 ‘Five students came.’

The verb *doći* ‘come’ takes a (structural) nominative subject, as shown in (99a) below. The regular noun *studenata* has genitive case, both structural and inherent genitive, which is guaranteed by (97a). Hence, the [STR *nom*] requirement imposed by the verb fails to unify with the [STR *gen*] feature of the noun *studenata*, accounting for the badness of (99a).

(100) a. *doći* 'come' [SUBJ < NP[STR *nom*] >]

b. *studentata* 'students-G.PL' $\left[\text{CASE} \begin{bmatrix} \text{STR} & [1]_{gen} \\ \text{INH} & [1] \end{bmatrix} \right]$

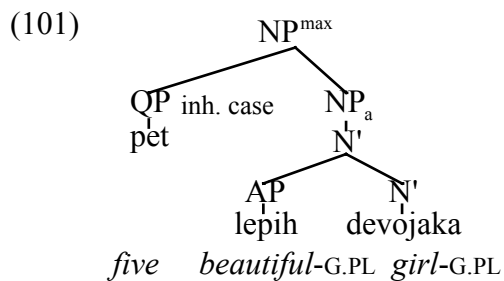
But the quantifier in (99b) is specified only for [INH *gen*] and its STR feature is empty, so it unifies with the subject specification of the verb, yielding the well-formed [STR *nom*, INH *gen*]. Note that in (99b), the numeral can appear without its complement.

In sum, by assuming that every noun phrase has two distinct CASE features, namely, structural and inherent case, and that the values of these two types of cases can be different, we are able to account for a rather complex set of data involving noun phrases introduced by uninflected quantifiers. The mismatch in CASE values arising with uninflected quantifiers is a consequence of their being unspecified for structural case. In this respect, uninflected quantifiers differ from ordinary nouns which have a full specification for both inherent and structural case and whose values always match. In the next section, I discuss some alternative analyses of noun phrases introduced by uninflected quantifiers.

3.5.2.3 *Comparison with Previous Accounts*

In his recent works on quantified structures across Slavic, Franks (1994, 1996) offers an analysis of Serbian QNPs within Government & Binding theory. He proposed that Serbian noun phrases introduced by uninflected quantifiers are

basically NPs, in which the head is the ordinary noun (not the quantifier). The quantifier heads a phrasal projection QP which is adjoined to the NP following it. This QP assigns a special inherent ‘genitive of quantification’ GEN(Q) to the following sister NP, indicated by NP_a in the diagram below (for identification only).



Franks assumes that inherent case is assigned at D-structure and structural case at S-structure. The case values are sorted into the two types: nominative and accusative are structural; all other cases are inherent. Crucially, Franks assumes that the downward case percolation halts whenever it reaches a node to which case has already been assigned. Since the genitive of quantification assigned by the QP is inherent, hence assigned at D-structure, it follows that any case assigned by an outside governor to the entire NP^{max} in (101) will not percolate to the NP_a, which therefore remains in genitive.

Franks relies on a theoretical innovation which allows case-assignment by a maximal projection rather than by X⁰, as is standardly assumed. On the whole this is an elegant and interesting account of a wide range of phenomena. Nevertheless, it is plagued by serious difficulties.

First of all, Franks' analysis is unable to provide a full account of the distribution of these QNPs. Recall from (85-86) that QNPs cannot receive (non-genitive) inherent case from a verb or a noun. Nothing prevents this in Franks' analysis: NP^{max} could be instrumental while NP_a is genitive. Moreover, any mechanism introduced to account for this restriction would have to simultaneously allow prepositions to assign the same cases to QNPs. It is hard to see how this could be accomplished. The cases themselves are classified for Franks, so that instrumental is inherent whether it is assigned by V or P.

A second problem is that demonstratives and other expressions which normally precede the quantifier always bear genitive plural markings, regardless of which case is assigned to the QNP by an external governor:

- (102) ovih / punih pet godina
 this-G.PL / full-G.PL five-G.PL year-G.PL
 'these five years / the full five years'

These elements are outside the case domain of the QP and should receive the case which percolates down from NP^{max}, but instead they invariably appear in genitive. Franks notes this problem and proposes a movement analysis. Specifically, he assumes that these elements originate within the NP_a in (101) and are moved to the prequantifier position, as shown in (103b). This is motivated by the fact that these elements can alternatively appear inside NP_a, as illustrated in (103a).

(103) a. [_{NP}^{max} [QP pet] [_{NP}_a ovih/punih godina]]
 five-G.PL this-G.PL/full-G.PL year-G.PL

b. [_{NP}^{max} ovih/punih_i [QP pet] [_{NP}_a t_i godina]]
 this-G.PL/full-G.PL five-G.PL year-G.PL

However, these are two very different structures and should not be derived from a common D-structure. As pointed out by Browne & Nakić (1975 : 88), when the demonstrative follows the quantifier, it gives rise to a partitive interpretation which is not the case when the demonstrative precedes the quantifier.

(104) a. ovih deset [_{NP} crvenih ruža]
 this-G.PL ten red rose
 ‘these ten red roses’

b. deset [_{NP} ovih crvenih ruža]
 ten this-G.PL red-G.PL roses-G.PL
 ‘ten of these red roses’

As indicated in the English translations, in (104a) the numeral picks out a part of the set denoted by the complement NP (‘these ten roses’). The demonstrative in 104a) modifies the numeral (i.e. the whole QNP) whereas in (104b) it modifies

the numeral's complement. The following example illustrates this difference more clearly.

- (105) a. Otkucala sam disertaciju sa ovih deset prstiju.
typed-1.SG AUX-1.SG dissertation with this-G.PL ten fingers
'I typed up the dissertation with these ten fingers.'
- b. #... deset ovih prstiju
ten these fingers
'ten of these fingers'

The partitive in (105b) is pragmatically deviant, suggesting that the referent has more than ten fingers. The movement analysis is untenable. In my analysis the genitive on pre-quantifiers is expected. The quantifier itself has (inherent) genitive case, hence it assigns this case to its specifier and modifiers, just as ordinary nouns do.

Thirdly, there are difficulties with Franks' explanation of the neuter singular verb agreement induced by QNP's. Unlike case, which percolates downwards, $\bar{\kappa}$ -features are assumed to percolate upwards. The problem is to explain why the features of the genitive NP_a in (101) do not percolate up to NP^{max}. Franks speculates that case is responsible. Franks further assumes that the NP^{max} has neuter singular features, assigned by default. Apart from its ad hoc nature, this explanation has several empirical shortcomings. First, there is no

account of the plural agreement found on coreferential pronouns (see (91) above). Franks himself points out a second problem. In Serbian, conjoined nominative neuter singular NPs trigger masculine plural agreement on the verb:

- (106) [Prase i tele] su skakali.
 piglet-NT.SG and calf-NT.SG AUX-PL jumped-M.PL
 ‘The piglet and the calf were jumping.’

The pronoun referring to the above conjoined elements is also masculine plural. The masculine gender on the predicate exhibited in (106) is not semantically motivated, but is a result of a default gender assignment, or what Corbett (1983b) calls a gender resolution rule. This rule roughly says that a predicate is assigned feminine (plural) markings when all the conjoined NPs are feminine (cf. (107)),⁵² otherwise a predicate gets masculine (plural) markings (as in (106), or (108a-b) in which the conjuncts are of different gender.⁵³

⁵²For some counterexamples see Corbett (1983b) and Leko (1986).

⁵³To be more precise, the above rule applies if at least one of the conjoined NPs is singular or if the NPs have different gender. So this rule would correctly account for the fact that conjoined neuter plural NPs trigger neuter plural agreement on the predicate, as in i. (from Leko 1986 : 225) and not masculine plural.

- i. Dojenčad i siročad su plakala/*plakali.
 toddlers-NT.PL and orphans-NT.PL AUX-PL cried-NT.PL/cried-M.PL
 ‘Toddlers and orphans cried.’

(107) [Devojčica i njena baka] su spavale.
 girl-F.SG and her grandma-F.SG AUX-PL slept-F.PL
 'The girl and her grandma slept.'

(108) a. [Devojčica i njen brat] su spavali.
 girl-F.SG and her brother-M.SG AUX-PL slept-M.PL
 'The girl and her brother slept.'

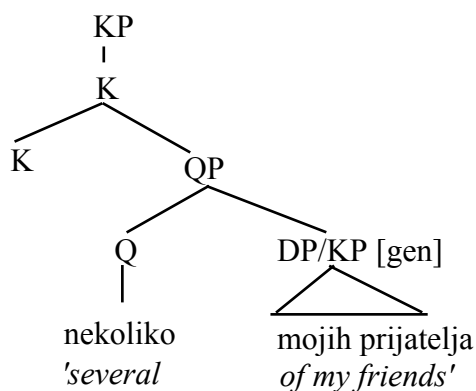
b. [Majka i dete] su spavali.
 girl-F.SG and child-NT.SG AUX-PL slept-M.PL
 'The mother and (her) child slept.'

Since Franks assumes that a QNP is neuter singular, we would expect to find masculine plural agreement on the predicate when two QNPs are conjoined. However, they induce neuter singular agreement on the predicate, a fact that Franks's analysis cannot account for.

(109) [Pet profesora i deset studenata] je došlo /% su došli
 five professors and ten students has come-NT.SG /have come-M.PL
 'Five professors and ten students have come.'

Another proposal that I briefly discuss here, is offered by Giusti & Leko (1996) who examined the categorial status of various types of quantificational expressions in Bosnian.⁵⁴ They proposed that uninflected quantifiers belong to a syntactic category Quantifier. According to them, the structure of the noun phrase introduced by uninflected quantifiers is as follows.

(110)



In the phrase marker above, the uninflected quantifier *nekoliko* 'several' takes a genitive DP/KP as a complement, hence capturing the fact that they are 'governing' quantifiers. The head of the quantified noun phrase is a functional category KP (where KP is a syntactic projection of morphological case features). According to Giusti & Leko, some of the main reasons for positing a functional category Q as the head of uninflected quantifiers comes from their peculiar behaviors with respect to subject-verb agreement, their distribution, and phrase-

⁵⁴Bosnian refers to the language spoken in Bosnia and Herzegovina. This language itself was not previously distinguished from Serbo-Croatian, an official language of the former Yugoslavia, until the recent secession of Bosnia and Herzegovina.

internal modification. However, we have shown that the peculiar behavior of these quantifiers, at least with respect to subject-verb agreement and their distribution, are not necessarily a consequence of their being a functional category Q, as assumed by Giusti & Leko (1996). Regarding their unusual phrase-internal modification, whereby uninflected quantifiers are modified by adverbs rather than by adjectives (cf. (111)), it is entirely possible that different semantic subclasses of nouns take different modifier types, just as only some verbs take manner adverbs. With respect to (111), it is plausible that *mnogo* cannot be modified by an adjective such as *veliki* is because *mnogo* is a scalar quantifier.

- (111) a. vrlo/*veliki mnogo pisaca
 very/great many writers
 'very/great many writers'

Thus, merely positing a functional category Q for uninflected quantifiers is not enough to account for the rather complex set of facts involving quantified noun phrases.

To summarize, in this section I examined the categorial status and the internal structure of quantified noun phrases. I showed that the semantic notion of a quantifier corresponds to two syntactic categories in Serbian, adjective and noun. I showed that the numeral *jedan* 'one' patterns like an adjective, while the numerals *pet* 'five' and higher pattern like an (uninflected) noun that heads the quantified phrase. In the following subsection, I discuss the syntactic properties

of the remaining numerals, namely *dva* 'two', *tri* 'three' and *četiri* 'four' showing that they have mixed adjective-like and noun-like properties.

3.5.3 Noun Phrases with Numerals 2,3 and 4

The cardinal numerals *dva* 'two', *tri* 'three', *četiri* 'four' and *oba* 'both' can be declined, although with much less success in oblique cases.⁵⁵ Their declension is shown in Table 1 below (adapted from Browne 1993 : 329).

Table 1. Declension of '*oba*, *dva*, *tri* and *četiri*'

Case	oba 'both'		dva 'two'		tri 'three'	četiri 'four'
	Msc/Nt	Fem	Msc/Nt	Fem		
Nom/Acc	oba	obe	dva	dve	tri	četiri
Genitive	obaju		dvaju	dveju	triju	četiriju
	obeju					
Dat/Inst/Loc	obema	obema	dvama	dvema	trima	četirma

As we can see from the above table, only the numerals *dva* and *oba* make a gender distinction. Specifically, these numerals make a two-way gender distinction, i.e. masculine and neuter vs. feminine, instead of a three-way distinction, feminine, masculine and neuter, found with the numeral *jedan*.

⁵⁵I do not discuss quantifiers such as *dvojica*, *trojica*, *četvorica*, which are morphological compounds, comprised of the stems of numerals *dva-četiri*, and the ending *-ica*. These quantifiers refer to a group of males. For examples see Corbett 1983a.

The above numerals behave like governing quantifiers, imposing a specific form on the following noun phrase, which I call 234, following Browne (1993). This form is a remnant of an old dual or paucal form.

- (112) a. *ove* *dve* / *četiri* [*dobre* *glumice*]
 this-F.234 two-F / four good-F.234 actresses-F.234
 'these two/four good actresses'
- b. *ova* *dva* / *četiri* [*dobra* *glumca*]
 this-M.234 two-M.234 / four good-M.234 actors-M.234
 'these two/four good actresses'

We see that both the numerals *dva* and *četiri* impose a special form, labeled 234 on the following noun and all the modifiers.⁵⁶ This special form is also found with compound numerals ending in *dva*, *tri* and *četiri* (as in 1.2, 22, 104, 104.4). However, the gender appearing on all elements in (112), including the numeral *dva* (but not *četiri*), is determined by the quantified noun (*glumica* 'actress' is a feminine noun, *glumac* 'actor' is a masculine noun). These examples clearly show that the gender feature comes from the noun while the number feature comes from the numeral. The agreeing elements show agreement for both features. Note that in a constraint-based theory such as HPSG, in which NP-agreement is not a

⁵⁶Although the noun *glumca* in (112b) has the same form as the genitive singular, the morphosyntactic form on the demonstrative *ova* does not correspond to genitive singular (cf. *ovog glumca* 'this-G.SG actor-G.SG'), hence, the noun *glumca* is not genitive singular.

directional process, this fact can be easily accounted for (see Section 3.4 for details).

The 234 form does not distinguish case, as shown in the examples below, which also illustrate the distribution of the numeral phrases.

(113) a. Znam [ova dva glumca].
know-1.SG this-234 two actors-234'
'I know these two actors'

b. Znam ove glumce.
know-1.SG this-A.PL actors-A.PL
'I know these actors'

(114) a. Sećam se [ova dva glumca].
remember-1.SG REFL this-234 two actor-234
'I remember these two actors.'

b. Sećam se [ovih glumaca].
remember-1.SG REFL this-G.PL actor-G.PL
'I remember these actors.'

(115) a. Šetam sa [ova dva glumca].
walk-1.SG with this-234 two actor-234

'I walk with these two actors'

b. Šetam sa [ovim glumcima].

walk-1.SG with this-I.PL actor-I.PL

'I walk with these actors'

These examples illustrate that the numerals 2-4 can occur as objects of verbs governing accusative case (as in 113a)), as objects of verbs/nouns governing genitive case (as in (114a)), and as objects of prepositions (as in (115a)). However, irrespective of their syntactic position, these numerals do not decline for case (compare the (a) examples with the corresponding (b) examples in (113-115)). Thus, with respect to distribution and case declension, these numeral phrases pattern with other undeclined quantifiers. In addition, just like undeclinable quantifiers, these numerals cannot occur as objects of verbs or nouns governing oblique cases such as dative (cf. (116b) or instrumental (cf. (117b)).

(116) a. pokloniti knjige [ovim studentima]

give-INF books-A this-D.PL student-M.PL

'to give books to these students'

b. *pokloniti knjige [ova četiri studenta]

give-INF books-A this-234 four student-234

- (117) a. *upravljanje* [ovim preduzećima]
 management this-I.PL company-I.PL
 'management of these companies'
- b. **upravljanje* [ova četiri preduzeća]
 management this-234 five company-234

In the first set of examples, we have the verb *pokloniti* 'to give' that requires a dative NP complement (cf. (116a)). In the second set, we have the deverbal noun *upravljanje* 'management' that requires an instrumental NP complement (cf. (117a)). As seen from the ungrammatical (b) examples, neither the verb nor the deverbal noun allows a noun phrase introduced by the numeral *četiri*. However, unlike uninflected numerals, such as *pet* 'five', which cannot decline at all, the numerals 2-4 have the option of being declinable (see Table 1), although this is much harder with numerals 3 and 4. As a consequence, the above ungrammatical examples become grammatical, when the numeral along with other elements in the phrase are marked with an appropriate case. This is shown below.

- (118) a. *pokloniti knjige* [ovim dvama studentima]
 give-INF books-A these-D.PL two-D.PL student-D.PL
 'to give books to these two students'
- b. *upravljanje* [ovim dvama preduzećima]

managment these-I.PL two-I.PL company-I.PL

'managment of these two companies'

In these examples, the numeral *dva* 'two', and also *oba* 'both', behave like the numeral *jedan* 'one'. On the other hand, since the numerals *tri* 'three' and *četiri* 'four' cannot decline, they pattern like the numeral *pet* 'five', which cannot occur in oblique positions, such as (116) and (117).

With respect to subject-verb agreement the numerals 2-4 differ from the numerals *pet* and higher. Specifically, whereas the numeral *pet* in the subject position induces a default neuter singular agreement on the predicate (see (81) above), the numerals 2-4 induce 'true' agreement on the verb. This is shown in (119).

(119) a. Dva/četiri srpska glumca su otišla /%otišli.

two/four Serbian actors AUX-3.PL left-234 /left-M.PL

'Two/four Serbian actors left.'

b. Dve/četiri srpske glumice su otišle.

dve-F.PL/four Serbian actresses-F.PL AUX-3.PL left-3.F.PL

'Four Serbian actresses left.'

In (119a), in which the numerals *dva* or *četiri* modify a masculine noun, the agreement on the auxiliary *su* is plural, and on the participle *otišla* is dual, i.e. the

234 form, indicating that the numeral, rather than the noun, determines the number feature on the predicate.⁵⁷ However, some speakers also allow masculine gender on the participial form (hence, the label % on *otišli* in (119a)), indicating that we are dealing with 'semantic' agreement, i.e. agreement induced by the quantified noun rather than the numeral. However, when these numerals modify feminine nouns, we get exclusively feminine plural agreement on the predicate (as in (119b)), indicating that the quantified noun rather than the numeral is the head. We also observe that the numeral *dva*, but not *četiri*, inflects for feminine gender in agreement with the feminine noun *glumice*. This suggests that the numeral *dva* and also *oba*, when quantifying feminine nouns, must be treated as an adjective, on a par with the numeral *jedan*.⁵⁸ I leave further analysis of these numerals for future research.

3.6 SUMMARY AND CONCLUSIONS

In this chapter, I proposed an internal structure of noun phrases in Serbian, i.e. noun phrases in which the noun is the head. Based on word order patterns and on the fact that determiners are always optional elements, I proposed that they are adjuncts, adjoined to an NP level. I showed that all elements that precede the noun (universal quantifiers, possessives, determiners, regular adjectives) are categorially adjectives. I also showed that quantifiers fall into two syntactic

⁵⁷However, Corbett (1983b) argues that the agreement on the participle in (119a) is neuter plural rather than (masculine) dual. I will not go into details of his arguments here.

⁵⁸Based on similar facts across Slavic, Corbett (1983a) argues for a universal which says that the lower the number, the more adjective-like properties it has.

categories, noun and adjective. Furthermore, Serbian provides no evidence that inflectional affixes, marking number, gender and case project their own syntactic (functional) projections, as has been proposed by many researchers examining noun phrase structure in various languages. More precisely, there is no evidence that each feature projects its own functional projection, simply because there are no separate morphemes marking all three features. Rather, morphological marking of gender, number and case is 'amalgamated' into a single morpheme. For example, the suffix *-u* in *glumc-a* 'actor-A.M.SG' marks all three features, namely, accusative, masculine, singular.

Having no functional categories in the noun phrase, the word order cannot be explained via a feature-checking mechanism obtained through (overt or covert) movement of a lexical category to an appropriate functional category, as assumed in derivational theories (cf. Chomsky 1995). Rather, I have shown that the non-derivational framework of Pollard & Sag (1994) is more suitable for explaining both word order and agreement in the Serbian noun phrase.