The Structure of the Serbian Noun Phrase
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1 Introduction

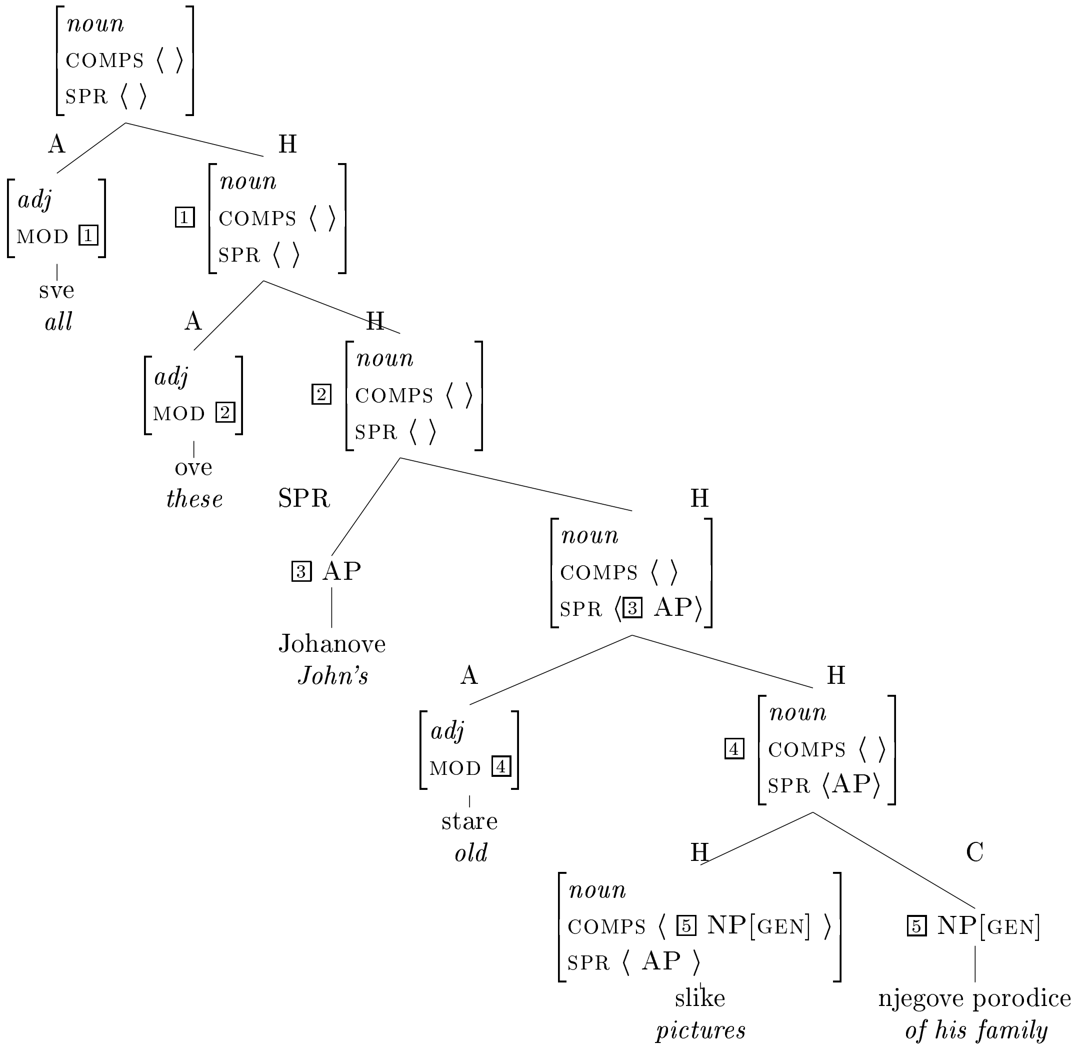
This dissertation is an investigation into the structure of Noun Phrases in Serbian from the perspective of Head-driven Phrase Structure Grammar. It is part of a rapidly growing body of literature within HPSG on Slavic and related languages (see, for instance, Avgustinova (1997), Kolliakou (1999), Penn (1999), Przepiórkowski (1999), and the collection of papers in Borsley and Przepiórkowski (1999)). The main contribution of the dissertation is that it provides a lexicalist, constraint-based, analysis of the most important aspects of NP syntax in Serbian.

2 The noun is the head of NP

Zlatic makes a number of observations about Serbian NPs which makes it hard to conclude anything other than that the noun is the head of NP: (a) Serbian NPs often lack a determiner, where the corresponding English NP would require one, (b) in the absence of quantifiers or demonstratives, the distinction between definiteness and indefiniteness is marked on the adjective, partially by special intonation, (c) prenominal elements such as demonstratives and possesives can be combined, whereas their distribution is complementary in English, and (d) determiners and possesives agree with the noun in exactly the same way as adjectives do. This suggests that their is no structurally unique position within the NP which has to be occupied by a determiner, and thus, no reason to assume D is the head of NP.

Zlatić proposes an analysis where N is the head of NP, possives are specifiers of N and all other prenominal elements are adjuncts. The essence of Zlatić' analysis is illustrated in the tree in (1).

(1)



In HPSG, phrase structure is licenced by phrase structure schemata. A schema licences a particular mode of combination of a head with one or more of its dependents. Thus, the Head-Complement Schema allows a head to combine with its complements. This schema allows the head *slike* (H) to combine with its complement *njegove porodice* (C). Essential for such combinations is that the (list-valued) COMPS-feature of the head must contain an element whose features are unifiable with that of the complement. (In the example, unifications of this sort are indicated using boxed integers.) Thus, a head noun properly selects its complements.

The Head-Adjunct Schema allows a head to combine with an adjunct. It is used several times in the example above (all trees dominating an A-branch). Essential for this schema is that the adjunct must have a MOD-feature whose value is unifiable with the features of the head being modified. Thus, eventhough the (projection of the) noun is the head in all applications of the Head-Adjunct Schema applied above, it is to some extent the adjunct which selects the head.

Finally, the Head-Specifier Schema allows a head to combine with a specifier. Selection is both ways in a sense: the (list-valued) SPR-feature of the head must contain an element unifiable with the specifier, whereas the SPEC-feature of the specifier (not shown) must unify with the features of the noun. Zlatić assumes that only possesives can act as specifier.

The analysis given by Zlatić is compatible with the general architecture of HPSG.

Although phonetically empty elements are not ruled out in principle, far less use is made of such elements than in Chomskyan theories. Thus, positing an empty determiner would require compiling considerable descriptive evidence in favor of such an analysis–something which seems to be out of the question for Serbian. HPSG accounts for agreement and case marking by unifying the relevant features on a head and its dependents. For instance, the Head-Complement Schema unifies an element on the COMPS-list of the head with a complement, thus allowing a head to impose specific case requirements on its complements. NP-internal agreement of adjuncts and specifiers can be accounted for by assuming that the MOD-feature and the SPEC-feature impose certain constraints on the morphosyntactic features of the head noun. Thus, these phenomena do not require movement to a designated ('checking') position within the phrase.

Another notable aspect of the HPSG analysis is that it does not employ bar-levels. Instead, the distinction between $\overline{\mathrm{N}}$ and NP is defined as follows:

(2) a. $\overline{\mathrm{N}} = \begin{bmatrix} \textit{noun} \\ \textsc{spr}\ \langle\ [\ \dots\ ]\ \rangle \\ \textsc{comps}\ \langle\ \rangle \end{bmatrix}$

b. $\mathrm{NP} = \begin{bmatrix} \textit{noun} \\ \textsc{spr}\ \langle\ \rangle \\ \textsc{comps}\ \langle\ \rangle \end{bmatrix}$

That is, an $\overline{\mathrm{N}}$ is a noun whose COMPS-list is empty, but whose SPR-list is non empty. An NP has an empty SPR and COMPS-list (i.e. it is saturated). The distinction is of some importance in the present analysis, as Zlatić uses it to account for certain linearization constraints. The unmarked order of prenominal elements is:

(3) (quantifiers) (determiners) (possessives) (cardinal expressions) (adjectives) noun

Although some word order variation is possible, in cases where a possessive phrase is present, quantifiers and determiners (such as the quantifier *sve* and the determiner *ove* in (1)) must procede the possessive, and cardinal and adjectives (such as *stare*) must follow the possessive. Zlatić accounts for this observation by assuming that adjectival elements which must precede the possessive specifier select (through the MOD-feature) for an NP, as defined in (2), whereas post-possessive adjectives select for an $\overline{\mathrm{N}}$.

However, such an analysis ignores the fact that possessives are absent in many NPs. In contrast to $\overline{\mathrm{X}}$-theory, the HPSG analysis for such cases fails to recognize a projection level which can be characterized as $\overline{\mathrm{N}}$ (as the head has an empty SPR value to begin with). Rather, every projection of the noun is an NP. The presence of $\overline{\mathrm{N}}$-selecting adjectives, as in (3) is therefore unexplained.

(4) ova velica kuća
this big house

This is somewhat unsatisfactory, as previous work in HPSG on NP-syntax has explicitly dealt with these and similar issues. For instance, Netter (1994) presents an analysis of (German) NPs in terms of HPSG which employs a distinction between functionally complete and incomplete categories, where functionally incomplete projections of nouns are, roughly, equivalent to phrase of category $\overline{\mathrm{N}}$ in $\overline{\mathrm{X}}$-syntax. His definitions do not rely on valency (i.e. the value of the valence features SPR and COMPS) and thus present a characterization of $\overline{\mathrm{N}}$ which is independent of the question whether a specifier is present or not.

3 Agreement

The MOD-feature (and the SPEC-feature on specifiers) provides a convenient and extremely straightforward way to account for NP-internal agreement: an adjective with a plural marking can be assumed to select for a plural noun by imposing the corresponding constraint on its MOD-value. For instance, the adjective *lepi*, inflected for mascular, singular, and nominative, and bearing definite marking, receives the following category:

$$\text{(5)}\ \ \textit{lepi}\ \text{(beautiful)} = \begin{bmatrix} \textit{adj} & \\ \text{CONCD} & \boxed{1}\begin{bmatrix}\text{CASE} & \textit{nom}\\ \text{PHI} & \textit{masc, sg}\end{bmatrix} \\ \text{DEFINITE} & + \\ \text{MOD} & \begin{bmatrix}\textit{noun} & \\ \text{CONCD} & \boxed{1}\end{bmatrix}\end{bmatrix}$$

The sharing of CONCORD-features of the adjective with those under MOD will ensure that these have to be unified with the corresponding features on the noun which is modified by *lepi*. This not only accounts for adjective-noun agreement, but, indirectly, also for the fact that all adjectives within an NP must agree (in the sense of imposing unifiable constraints on MOD) with each other.

Although the HPSG analysis of agreement appears to be able to provide a uniform account of most of the agreement phenomena in Serbian NP's, certain problems remain. For instance Zlatić argues on the basis of examples such as (6) that demonstratives lead a double life, as noun and as adjective.

(6) 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	never	not+AUX	trusted

I never trusted these people

The inflection in (6a) patterns with that of nouns in this position, whereas the (lack of) inflection in (6b) patterns with adjectives. This suggests that agreement morphology must somehow be sensitive to the question whether a demonstrative acts as a noun-modifier or as an independent head (or, alternatively, to the question whether the demonstrative modifies a visible or invisible head), but unfortunately no solution to this puzzle is offered.

4 Case Marking

Zlatić argues for a lexicalist theory of case marking which nevertheless employs a distinction between structural and inherent case. The distinction is required in her account of nominalization and argument selection in Serbian.

Zlatić demonstrates that agents may be selected in a variety of ways by nominalized verbs, i.e. as a possessive adjective (7a), an *od strane* (*by*) phrase (7b), a genitive NP (7c), or as a dative clitic (7d).

(7) a.

Jovanovo	rešenje	problema	je	uvek	brzo
John's-ADJ	solving	problems	is	always	fast

John's solving of problems is always fast.

b. Jovanovo hapšenje od strane policje
John's-ADJ arrest from side police
John's arrest by the police

c. Ocenjavnje moje učiteljice je objektivno
grading my-G teacher-sc G is objective
My teacher's grading is objective

d. Ocenjavnje mi je objektivno
grading me-D is objective
My grading is objective

To account for this variation, Zlatić concludes that *nouns inherit theta grids from their related verbs, rather than subcategorization frames.*

If nouns derived from verbs do not inherit all subcategorization requirements from the verb, it has to be specified how derived nouns do impose subcategorization requirements. To this end, Zlatić assumes, among other things, that nouns are structural (genetive) case assigners. A distinction between structural and lexical case is equired to account for examples such as the following:

(8) a. donacija novca bolnicama
donation money-G hospitals-D
donation of maey to hospitals

b. *donacija bolnicama novca
donation hospitals-D money-G

Whereas the order of post-nominal complements is relatively free in general, genitive complements have to be adjacent to the nominal head. Zlatic prososes that this is a consequence of the fact that genetive is structural case, and that structurally case-marked elements have to precede all other complements (thus imposing an adjacency requirement on structural case assignment).

The introduction of a distinction between structural and inherent case in a lexicalist framework is somewhat surprising, as all case assignment is in fact dealt with lexically. That is, none of the dependents of a noun receives its case as a consequence of the fact that it appears in a specific configurational position, but all case-constraints are a consequence of lexical specifications. The distinction is therefore best seen as a distinction between indiosyncratic and systematic lexical case assignment.

5 Extraction

Serbian allows NP-internal extraction of pre-nominal elements:

(9) a. ovu$_i$/lepu$_j$ sam pronašla t_i/t_j knjigu
this/nice-A.F.SG AUX found book
lit. This/nice I found book

b. koju$_i$/kakvu$_j$ si pronašla t_i/t_j knjigu
which/what kind-A.F.SG AUX found book
lit. Which/what kind did you find book

This process is not marked. Zlatić points out, for instance, that full NP-extraction, as in (10) is somewhat marked, and has to be accompanied with special intonation.

(10) koju knjigu si pronašla
which-A.F.SG book AUX found
lit. Which book did you find

Possessives, which are analyzed as specifiers, may be extracted as well

(11) a. Jovanovu$_i$ sam pronašla t_i knjigu
John's-A.F.SG AUX found book
lit. Jonh's I found book

b. Ŏiju$_i$ si pronašla t_i knjigu
whose/what kind-A.F.SG AUX found book
lit. Which/what kind did you find book

NP-internal extraction is strictly local, however:

(12) a. *Kakva$_j$ je Jovan čuo da je Marija kupila t_j kola
what-kind-A.F.SG AUX John heard that AUX Mary Bought car-A.F.SG
* *What kind did John hear that Mary bought car?*

b. *Kojeg$_j$ si pronašla knjigu t_j studneta
which G.M.SG AUX found book-A student-G.M.SG
* *Of which did you find the book student?*

(12a) illustrates that extraction out of embedded clauses is impossible, whereas (12b) illustrates that extraction out of embedded NP's is impossible.

Zlatić demonstrates how the feature-based treatment of unbounded dependencies outlined in Pollard and Sag (1994) can account for extraction out of NPs. Zlatić proposes the following constraint to account for the fact that non-local extraction is excluded:

(13) **Filler-Agreement Principle:** A filler must agree in concord features with the verb's dependent that contains the gap.

The principle, as stated above, is primarily a descriptive generalization and, unfortunately, it is not explained how it can be implemented in terms of the account of extraction provided in Pollard and Sag (1994). One possibility would be to require that, if a verb selects a gapped dependent, the agreement (or concord) features of this dependent and the element on SLASH of this dependent must be unified. It remains to be shown however that this can be accomplished without having to introduce special phrase structure schemata for heads combining with gapped dependents.

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